

# South-Eastern European Monetary and Economic Statistics from the Nineteenth Century to World War II



**BANK OF GREECE**  
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South-Eastern European Monetary  
and Economic Statistics from the  
Nineteenth Century to World War II



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Published by



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DVR 0031577

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## **Cover design**

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## **Printing and production**

Oesterreichische Nationalbank, Vienna, Austria

## **Production of data CD**

National Bank of Romania, Bucharest, Romania  
Bulgarian National Bank, Sofia, Bulgaria

## **Recommended citation:**

South-Eastern European Monetary and Economic Statistics from the Nineteenth Century to World War II, published by: Bank of Greece, Bulgarian National Bank, National Bank of Romania, Oesterreichische Nationalbank, 2014, Athens, Sofia, Bucharest, Vienna.

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Printed according to the Austrian Ecolabel guideline for printed matter (No. 820).



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## Foreword by Michael D. Bordo

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This cross-national collaboration of scholars from seven South-East European countries puts together for the first time a comprehensive collection of monetary data from the period between 1830 and 1949. The countries covered include Albania, Austria-Hungary, Bulgaria, Greece, the Ottoman Empire, Romania, Serbia and Turkey. For each country, annual and monthly data on several key series for monetary analysis are compiled, e.g. exchange rates, gold reserves, banknotes and central bank discount rates. Each country study uses standardised definitions of each series to facilitate cross-country comparison. The individual country data compilations are preceded by an introduction which provides an institutional and historical narrative on the South-East Europe region and its monetary institutions and standards.

A collection of data like this one is crucial to the writing of the monetary history of the individual countries and of the region. This was the approach followed by Milton Friedman and Anna Schwartz in writing *A monetary history of the United States: 1867–1960*. Statistical series such as these serve as the skeleton for the study. Institutional detail and historical narrative will put flesh on the bones.

As Matthias Morys points out in his excellent introduction, South-East Europe has been relatively neglected in most studies of European economic history. One reason is the relative economic and political backwardness of most of the countries (with the exception of Austria-Hungary) compared to the core countries of Western Europe. This database should serve as an important starting point to help fill the gap in our knowledge. The proposed ‘Monetary History of South-East Europe’ could complement Alexander Gershenkron’s seminal *Economic backwardness in historical perspective*, which first put the economic history of South-East Europe on the global economic history map.

Michael D. Bordo  
*Professor, Rutgers University and NBER*



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## Foreword by Luis A.V. Catão

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This is a wonderful contribution to macroeconomic history, bringing together scholarly research on monetary and financial developments in South-Eastern Europe from the mid-19th century through World War II. Being a focal region in European political history during the period, it is striking that its economic history has been largely neglected by the mainstream literature and its Anglo-Saxon focus on the Atlantic economy. This book thus fills an important gap. Individual country chapters take the reader through a fascinating spectrum of monetary experiments, which put many contemporary policy dilemmas into perspective. The volume's comparative outlook sheds new light on how much national policy choices in fact reflect regional and global trends; it also amply highlights main threats to financial stability, including the perils of 'importing' policy credibility through currency pegs whilst political institutions remain fragile and fiscal discipline elusive. Both students and researchers will benefit from carefully assembled datasets at the end of each chapter, which allow them to build on the book's findings and draw their own conclusions from hard data. Kudos to the central banks of Austria, Bulgaria, Greece and Romania for sponsoring this initiative, as well as to the central banks of Albania, Serbia and Turkey for their valuable contribution to this joint endeavour – hopefully to be emulated by others around the globe.

Luis A.V. Catão  
*International Monetary Fund and Joint Vienna Institute*



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## Foreword by Nicos Christodoulakis

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This landmark volume of monetary history and data series for seven South-Eastern European countries in the 19th and the first half of the 20th century will remove not only several quantitative handicaps faced so far by relevant research initiatives, but also some of the prejudice characterising the debates on whether and to which extent these economies could be ever considered as intrinsically linked to the main European developments. It is evident that not very long after gaining national independence, most of the South-Eastern European economies recognised that their future was best served by adhering to European monetary practices: one reason certainly was the access to much needed capital for financing state-building, but much more important was their drive to become integrated into the European process rather than seeking some fragile regional integration.

To some extent, as data and narratives of this volume show, the experiment worked. Despite structural backwardness, thin domestic markets and lack of industrialisation, the economies achieved a certain degree of stabilisation and low-cost financing, both in the late 19th century and in the early interwar period. But whatever progress they achieved by adhering to monetary stability was shattered in the aftermath of crisis, above all after the Great Crash and the serial collapse of the gold-exchange regimes.

Their domestic weaknesses led several to believe that there was something like a ‘destiny of failure’ that made their efforts look Sisyphean, while others wish to convey a similar judgment for the present difficulties faced by the process of European economic integration. The contributions to this volume show that another factor that proved to be detrimental to the sustainability of monetary integration was the lack of a central mechanism to counteract major common shocks, the consequences of which were impacting disproportionately on the small and weaker countries. After every international crisis, the peripheral economies were confronted by credit shortages and capital flight that handicapped their further development, and their desperate attempts to stabilise public finances led to deep recession and collapse.

The book provides valuable insights into how monetary unions can work more efficiently over the medium and the long term and why the drive of peripheral economies to be an integral part of them should be encouraged and supported. The lesson is too critical for current policy making in the euro area and the European Union at large to be overlooked.

Nicos Christodoulakis  
*Professor, Athens University of Economics and Business*



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## Foreword by Yannis Stournaras

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Ever since its establishment, the Bank of Greece (BoG) has shown keen interest in Greece's economic and monetary history, although its historical publications so far include mainly anniversary editions focusing on the Bank's history. The invitation to establish, together with the Bulgarian National Bank, a network of scholars-researchers in the monetary history and policy of South-East Europe in April 2006 and the BoG's active support and participation were seen as an opportunity to deepen its understanding of Greece's historical experience and identify its key determinants, with a view to reaching safe conclusions that would serve as an input to policy making.

The strengthening of traditional economic links with the countries of South-East Europe through the expansion of the Greek banking system, Greek corporations, trade and tourism in the last few decades underlines the need to not only monitor economic developments in the region, but also understand historical facts and experiences. Besides, the long coexistence of the countries in the region has forged cultural bonds that remain strong to our day.

Learning from Greece's experience and comparing it with the experiences of South-East European countries allow the creation of a valuable historical database, continuously enriched with new data. This will provide economic agents and policy makers with useful information on policy responses and outcomes. Quantitative data are an essential tool in this respect. In this direction, the Bank of Greece considers this book as a first effort to create a reliable and comprehensive statistical database of long-term time series on crucial macroeconomic aggregates. Compiling, processing and checking data and constructing indices for such long and distant time periods is an arduous and long procedure. It also requires in-depth knowledge of the institutional framework of the domestic and international economic system and policy conduct. This database is continuously enriched.

This project is expected to deliver considerable benefits. The BoG hopes that this statistical database will serve as a first infrastructure for the international academic community to systematically develop research in the economic, monetary and banking history of South-East Europe, tapping into existing knowledge and offering new inputs that will provide timely information to economic policy makers.

*Athens, November 2014*

Yannis Stournaras  
*Governor of the Bank of Greece*





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## Foreword by Ivan Iskrov

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The Bulgarian National Bank (BNB) has long-standing activities in exploring monetary history. While its earlier publications involved a series of the Bank's archival documents from its establishment in 1879 to the collapse of the centrally planned economy in 1990, in 2006 the BNB established the Monetary History Programme, which focuses on selecting studies for the Bank's Finance and Banking History Series. While the BNB's historical publications have so far presented the works of eminent past Bulgarian financiers and economists, which are of interest to contemporary economic policy and practice, the BNB also promotes research on current Bulgarian banking and finance. Moreover, the BNB is one of the central banks of the region which initiated the South-East European Monetary History Network (SEEMHN) by organising its first conference in 2006 and supporting its activities ever since then.

The present publication is the result of laborious efforts and work by the SEEMHN Data Collection Task Force (DCTF) members, whom all national central banks in the region supported by hosting their meetings and providing them with all documents available at their archives and libraries. The data volume provides long-term monetary, financial and macroeconomic indicators, which have been constructed using standard definitions in an effort to enhance cross-country harmonisation, taking also into account national and time specificities. To overcome any data limitations, various data sources were used, digging also into primary ones.

Alongside the process of data collection and construction, SEEMHN members have presented pieces of their work at the network's annual conferences, where they have got valuable feedback and comments. Considered as a useful outcome, their work has been published in central banks' conference proceedings, working papers and other research publications.

Although it was not deliberate, but rather a fortunate coincidence, the Bulgarian National Bank is particularly pleased to see this volume published in 2014, when it celebrates the 135th anniversary of its establishment. The BNB believes that the volume will serve as a statistical hub of South-Eastern European monetary and economic time series. Together with the research that has already been conducted within the SEEMHN, it will further promote the study of monetary and economic history in a comparative perspective outside the narrow scope of the region.

*Sofia, November 2014*

Ivan Iskrov  
*Governor of the Bulgarian National Bank*



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## Foreword by Mugur Constantin Isărescu

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The book entitled *South-Eastern European Monetary and Economic Statistics from the Nineteenth Century to World War II* is the outcome of cooperation between central bank experts, together with researchers and historians, who sifted through archives, as well as recent literature of the years 2006–2014 in an endeavour to reconstruct statistical and historical data series covering the period from the late 19th century to the mid-20th century.

National Bank of Romania (NBR) has supported the preparation and publication of this book, with a view to sustaining and promoting cultural and research initiatives in most different areas. This long-standing practice started with the establishment of this institution, which will shortly celebrate its 135th anniversary. The Romanian central bank's interest in the South-East European Monetary History Network (SEEMHN) programme was also sparked by the conviction that people will be ready to embark on new avenues only after they have fully comprehended the past.

The support to this programme materialised in the participation of central bank working group members in the annual SEEMHN conferences (where papers on Romania's monetary and banking history have been presented) and in the research conducted at the archives in order to reconstruct the statistical and historical data series on Romania from 1880 to 1947. Furthermore, the NBR backed this project financially by hosting the 2011 SEEMHN Conference in Bucharest and sharing the costs of the publication of this book.

The NBR deems that the book *South-Eastern European Monetary and Economic Statistics from the Nineteenth Century to World War II* provides a good opportunity for disseminating the economic and monetary history of Romania in the context of, and in comparison with, the history of Central and South-East Europe. The book puts the spotlight on national history and supplies researchers with statistical and historical data series on economic history, allowing not only easier access to information on Romania's history, but also serving as a basis for comparative studies.

*Bucharest, November 2014*

Mugur Constantin Isărescu  
*Governor of the National Bank of Romania*



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## Foreword by Ewald Nowotny

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The Oesterreichische Nationalbank (OeNB) has long-standing links with South-Eastern Europe. At the beginning of the 20th century, its forerunner, the Oesterreichisch-ungarische Bank, had branch offices in cities as far from Vienna as Sarajevo, Ujvidék and Kolozsvár, while employees born in Szabadka or Temesvár would work at the Bank's head office in Vienna. Today, the towns of Sarajevo, Novi Sad, Cluj-Napoca, Subotica and Timișoara are located in Bosnia and Herzegovina, Serbia and Romania, respectively. But the ties are still there, and they are marked by mutual respect and a spirit of co-operation among neighbours.

Given the prime importance of Central, Eastern and South-Eastern European (CESEE) countries for both the Austrian economy and the stability of the Austrian financial market, the OeNB monitors and analyses this area particularly closely. Moreover, the OeNB supports the CESEE area through technical cooperation activities and as a sponsor of the Joint Vienna Institute, an economic policy-oriented training centre for public officials from CESEE, the Caucasus, and Central Asia.

When the idea of creating a network on the monetary history of South-East Europe came up in 2006, it was immediately clear that the OeNB would participate actively in the endeavour. Good policy is based on extensive experience, both over time and in different settings. Over the past years, the South-East European Monetary History Network has succeeded in providing both types of experience: a review of history, and the possibility to compare the experiences of countries that have rarely featured prominently in standard international descriptions of monetary policy. The OeNB has used this opportunity to contribute a set of high-quality historical time series that have not been systematically available until now and that cover the period during which some regions in South-East Europe were part of the monetary area under the responsibility of the OeNB and the Oesterreichisch-ungarische Bank, respectively.

This book is the result of a long and intensive dialogue among researchers from different countries of the region. May it also serve as a useful basis and stimulus for further research. The OeNB is looking forward to the next round of debates and analyses.

*Vienna, November 2014*

Ewald Nowotny  
*Governor of the Oesterreichische Nationalbank*



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## Authors' Preface

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The South-East European Monetary History Network (SEEMHN), bringing together financial and monetary historians, economists and statisticians, was established in April 2006 on the initiative of the Bulgarian National Bank and the Bank of Greece. Its main objective is to promote knowledge about South-Eastern European monetary history and policy as an integral part of European history. Against this backdrop, the network organises annual conferences that focus on the study of specific phenomena and events connected with South-Eastern European countries, both from a historical and a comparative perspective. Since empirical studies cannot be carried out without reliable data, the SEEMHN Data Collection Task Force (DCTF) worked towards establishing a historical database of 19th- and 20th-century financial and monetary data for the countries in the region. To this end, the seven central banks participating in the DCTF of the SEEMHN (Bank of Albania, Bank of Greece, Bulgarian National Bank, Central Bank of the Republic of Turkey, National Bank of Romania, National Bank of Serbia, Oesterreichische Nationalbank) have agreed to contribute to the joint publication of this data volume presenting harmonised long-run time series on monetary, financial and other macroeconomic variables.

As Milton Friedman and Anna Schwartz pointed out in their *Monetary statistics of the United States* (1970), the measurement of money is ‘...an activity that dates back to the beginning of the republic...’ (p. 1). The present publication places special emphasis on monetary variables that have played a central role in the conduct of monetary policy. These were constructed by the central bankers of the time to guide monetary policy. In addition and to complement the contemporary perspective, the publication also includes reconstructed series based on modern economic concepts like GDP and broad money.

Matthias Morys (University of York) introduces the subject to the reader, providing political and economic background information on the history of South-Eastern Europe prior to World War II. He also points out some parallels between the situation ‘then’ and ‘now’ and the challenges SEE is facing today. Based on the data set provided by the South-Eastern European national central banks and on the country chapters, he puts South-Eastern European historical developments into a pan-European perspective.

The rest of the data volume is divided into eight national contributions of a similar structure. For each country, a complete data set is presented, covering six broad groups of indicators: (1) monetary variables, (2) interest rates, (3) exchange rates, (4) government finances, (5) prices, production and labour, and (6) national accounts and population. Historical data are preceded by a short account of the respective country’s major monetary events, as well as a description of the institutional framework for monetary policy implementation. Detailed explanatory remarks on variables’ definition and description are presented, and the primary and secondary data sources used in the data collection process are discussed in detail. Moreover, at the beginning of each country chapter, an index table provides information on the list of variables, the time span, the time frequency, the unit of account and the variables’ codes. The reader can use this table as a roadmap for a safe data search. The annual data tables are presented at the end of each country chapter. Furthermore, the electronic annual and monthly data tables can be found in the enclosed data CDs as well as on the

websites of the Bank of Greece, the Bulgarian National Bank, the National Bank of Romania and the Oesterreichische Nationalbank.

Most of the existing literature on economic history deals with the advanced countries of Western Europe and the USA. The monetary and financial history of South-East Europe is still largely unexplored. South-East Europe has often been neglected in studies of European economic history. The publication of this data volume aims at filling this gap by shedding light on the monetary history of the individual countries and the region as a whole. To quote Michael Bordo's foreword, '...statistical series such as these serve as the skeleton for the [...writing of the Monetary history of South-East Europe]. Institutional detail and historical narrative will put flesh on the bones'. Luis Catão mentions '...the volume's comparative outlook ...amply highlights main threats to financial stability, including the perils of 'importing' policy credibility through currency pegs whilst political institutions remain fragile and fiscal discipline elusive'. In his own foreword Nicos Christodoulakis states: 'This landmark volume of [South-Eastern European] monetary history and data series ... will remove not only several quantitative handicaps faced so far by relevant research initiatives, but also some of the prejudice characterising the debates on whether and to which extent these economies could be ever considered as intrinsically linked to the main European developments'. Finally, Matthias Morys (Chapter I, Introduction) welcomes this joint effort noting that '...South-Eastern European monetary history is no longer *terra incognita*'. We therefore strongly believe that by making this historical database available to a wider audience for the first time ever, research interest in the financial and monetary economics in this part of Europe will be stimulated further.

All seven central banks fully supported and cooperated in the successful completion of this publication. Four central banks (Bank of Greece, Bulgarian National Bank, National Bank of Romania and Oesterreichische Nationalbank) took a lead in the production of the joint publication of this data volume. From the Bank of Greece Sophia Lazaretou, Aikaterini Procopaki and Vassilis Belecoukias undertook the editing and proofreading process, while Stefanos Tikellis undertook the layout and typesetting of the volume, George Papaconstantinou the figures and Asimena Matthaïou the tables of the volume. The Bulgarian National Bank produced the data CD that accompanies the hard-copy publication. The volume was printed by the in-house printing services of the Oesterreichische Nationalbank, which – together with the National Bank of Romania – also took over the total costs of printing.

Earlier releases of a smaller part of the South-Eastern European historical database were edited by the Oesterreichische Nationalbank (2008, *Workshops*, no 13) and the Bank of Greece (2009, *Working Papers*, no 94).

We would like to thank all participants in the meetings of the SEEMHN DCTF, held successively in Sofia (thrice), Vienna (twice), Athens (twice), Belgrade, Istanbul, Bucharest, Frankfurt am Main, Tirana and Amiens, for their valuable comments and fruitful discussions. All the members of the DCTF brought great enthusiasm and commitment to the hard work of digging deep into the past to collect, build and discuss the presented data series and to better understand past institutions and standards. Among the network members we would like to mention in particular the local teams that organised the meetings as well as Thomas Scheiber, who from the backstage has coordinated the network over the years. We are especially grateful to Matthias Morys, who participated in all meetings of the task force, patiently provided feedback to the authors for more than six years and kindly accepted our invitation to write the introductory chapter. Special thanks are also due to Roumen Avramov, Michael Bordo, Luis Catão, Nicos Christodoulakis, Dragana Gnjatović, Peter



Mooslechner, Nikolay Nenovsky, Şevket Pamuk and Martin Pontzen for their great support and encouragement in every step of this joint endeavour. Last but not least, we would like to thank the Publications and Translation Section and the Printing Works of the Bank of Greece and the Communications and Publications Division of the Oesterreichische Nationalbank for their valuable editorial and technical assistance, without which the production of this publication would not have been possible.

*Athens, Bucharest, Sofia and Vienna, November 2014*

Arta Pisha, Besa Vorpsi and Neraida Hoxhaj, *Bank of Albania*

Clemens Jobst and Thomas Scheiber, *Oesterreichische Nationalbank*

Kalina Dimitrova, *Bulgarian National Bank*

Martin Ivanov, *Bulgarian Academy of Science*

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Yüksel Görmez and Serkan Yiğit, *Central Bank of the Republic of Turkey*

#### **LIST OF SEEMHN DCTF MEETINGS**

1st SEEMHN DCTF meeting, 14 April 2006, Sofia, Bulgarian National Bank

2nd SEEMHN DCTF meeting, 12 April 2007, Vienna, Oesterreichische Nationalbank

3rd SEEMHN DCTF meeting, 14 March 2008, Athens, Bank of Greece

4th SEEMHN DCTF meeting, 5 December 2008, Vienna, Oesterreichische Nationalbank

5th SEEMHN DCTF meeting, 27–28 March 2009, Belgrade, National Bank of Serbia

6th SEEMHN DCTF meeting, 26 June 2009, Athens, Bank of Greece

7th SEEMHN DCTF meeting, 15 April 2010, Istanbul, Central Bank of the Republic of Turkey

8th SEEMHN DCTF meeting, 12 November 2010, Sofia, Bulgarian National Bank

9th SEEMHN DCTF meeting, 17 March 2011, Bucharest, National Bank of Romania

10th SEEMHN DCTF meeting, 29–30 September 2011, Frankfurt am Main, Deutsche Bundesbank

11th SEEMHN DCTF meeting, 13 December 2012, Tirana, Bank of Albania

12th SEEMHN DCTF meeting, 9 October 2013, Amiens, University of Picardie Jules Verne and CRIISEA

13th SEEMHN DCTF meeting, 9 October 2014, Sofia, University of National and World Economy.



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# I South-Eastern European Monetary History in a pan-European Perspective, 1841–1939

Matthias Morys<sup>1</sup>  
*University of York*

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## I INTRODUCTION

South-Eastern European monetary history is no longer *terra incognita*. The South-Eastern European Monetary History Network (SEEMHN), which brings together the central banks of the seven SEE countries which were independent already before World War II, has worked laboriously to illuminate their monetary histories since the network was launched in 2006. Next to the organisation of annual conferences bringing together central bankers, academics and policy-makers, the main objective of the network has been to collect, systematise and publish the pre-1950 monetary data in a publication jointly edited by the Austrian National Bank, the Bulgarian National Bank, the Bank of Greece and the National Bank of Romania. Such publication – to which I am honoured and pleased to contribute this introductory chapter – is meant to overcome the ‘statistical dark ages’, which all too often have prevented economists and economic historians from including the Balkan countries into their samples.

The international literature on the history of central banks and central banking has paid little attention to the South-Eastern European experience (with the possible exception of Austria)<sup>2</sup>; the same is true of the literature on the economic history of Central, East and South-East Europe, which has tended to downplay the role of central banks and money for economic development (Berend and Ranki 1982, Lampe and Jackson 1982, Kaser 1985, Schoenfeld 1989, Batou and David 1998). There is a not insignificant literature in the native languages (cf. the bibliography to the country reports), but before the (so far) eight annual SEEMHN conferences, held between 2006 and 2013, and the subsequent publication of their conference proceedings<sup>3</sup>, little of this literature had made any meaningful impact on academic research in Western Europe and North America.

### *Geographical and chronological scope: South-East Europe (the Balkans) from 1841 to 1939*

In order to appreciate the exact choice of countries included in this volume and the time period for which they report data, a proper definition of ‘South-East Europe’ and ‘the Balkans’ seems in place. Both words are used interchangeably in the following, though we note that South-East Europe

<sup>1</sup> *Department of Economics*. I would like to thank all participants of the South-East European Monetary History Network (SEEMHN) for their very substantial efforts in collecting and describing the monetary data of their countries and for asking me to write this introductory chapter. Some of the interpretations advanced for the period before WWI can also be found in Morys (2008, 2009), which constitute introduction to earlier preliminary and partial SEEMHN data releases (OeNB 2008, *Workshops 13* and Bank of Greece 2009, *Working Paper 94*). The views expressed in this paper are those of the author alone and do not necessarily reflect the views of the central banks forming the South-East European Monetary History Network (SEEMHN). I would also like to thank Forrest Capie, Olga Christodoulaki, Ivo Maes, Larry Neal, Stefan Nikolic and Tobias Straumann for helpful comments on an earlier draft of this paper. I alone am responsible for any remaining errors.  
*Email to: matthias.morys@york.ac.uk*

<sup>2</sup> See, for example, Feiertag and Margairaz (2003), Capie (1999) and Goodhart (1988).

<sup>3</sup> For full details on the SEEMHN meetings and conference proceedings, see <http://www.bankofgreece.gr/Pages/en/Publications/Studies/seemhn.aspx>

is occasionally seen as a geographically slightly wider area (Todorova 2009). The Balkans are conventionally defined as the South-Eastern part of continental Europe demarcated by the Danube, Sava and Kupa rivers to the North and the West. The Ottoman legacy (or presence), the predominance of the Orthodox faith and the high levels of multi-ethnicity all created a sense in the 19th century that the Balkan Peninsula was a region different not only from Western Europe but also from Central and Eastern Europe. According to this geographic definition, Albania, Bulgaria and Greece are certainly Balkan countries, but some clarifications are appropriate for Romania, Serbia/Yugoslavia, Austria-Hungary and Turkey. While most of the Romanian territory lies north of the Danube (in particular following the territorial gains at the end of World War I), the country is conventionally considered part of the Balkans, partly because of the Dobrudja region south of the Danube, but mainly because of the Ottoman legacy which it shares with the other Balkan countries but does not have in common with its neighbours to the West and to the North. As for Serbia, the country was fully located on the Balkan Peninsula before World War I. By contrast, the Kingdom of Serbs, Croats and Slovenes – renamed as Yugoslavia in 1929 – involved parts that are not considered part of the Balkans (Slovenia, Vojvodina) or at least not in their entirety (Croatia north of the Sava river), but in its main emphasis Yugoslavia was a South-East European country.

Greater concern relates to Austria-Hungary, the Ottoman Empire and Turkey. Austria-Hungary had a considerable footprint in the Balkan Peninsula through Dalmatia (Austria), the Balkan parts of Croatia (Hungary) and Bosnia and Herzegovina (jointly administered since 1878); it also shared land borders with Serbia, Romania and the Ottoman Empire. By contrast, interwar Austria, i.e. the German-speaking lands of Austria-Hungary after the disintegration of the Habsburg Empire at the end of World War I, was no South-East European country; which also explains the decision of the Austrian National Bank to confine its data presentation to the period before World War I.

Including the Ottoman Empire in a monetary history of South-East Europe is warranted due to its remaining three European provinces in the period between 1878 (when Bosnia and Herzegovina were occupied by Austria-Hungary) and the Balkan Wars of 1912–13 (when the Empire's European lands were reduced to Eastern Thrace – centred on Edirne/Adrianople – and the capital city Istanbul/Constantinople). Yet for this period, institutional discontinuity posed a challenge: the Imperial Ottoman Bank, dating back to 1863, was not succeeded (neither legally nor in practical terms) by the Central Bank of the Republic of Turkey which was founded only in 1931. The solution of this volume is separate contributions by Şevket Pamuk and Coşkun Tunçer for the Imperial Ottoman Bank and by Yüksel Görmez and Serkan Yiğit for the Central Bank of the Republic of Turkey.

The chronological scope of this chapter is largely determined by political history. The main development of the 19th century Balkan peninsula was the move of the Balkan peoples towards political independence from the Ottoman Empire, usually in a slow and often confusing process of transition from being part of the Ottoman Empire, to some form of autonomy within it, to be followed by full-fledged independence. By the outbreak of World War I, five Balkan countries had achieved independence<sup>4</sup>: Serbia (1815/1878), Greece (1830), Romania (1859/1878), Bulgaria (1878/1908) and Albania (1912). From those five countries, Greece was the first country to establish a bank of note issue, that is, the National Bank of Greece in 1841. We take this year as a natural beginning for this introductory chapter.<sup>5</sup> The end point of our analysis is the outbreak of World War II

<sup>4</sup> Where two years are given, the first one refers to some level of autonomy achieved prior to internationally recognised independence.

<sup>5</sup> The Austro-Hungarian bank was founded (under a different name) in 1816 and hence earlier than the National Bank of Greece. We have refrained from extending our analysis to the earlier period, as the Austrian National Bank begins reporting their data series only in 1863.

in 1939. While some central banks also report data for the war period (in some cases even for the early post-war period), country-specific idiosyncrasies abound and the data do not lend themselves for a cross-country comparison to the same degree as for the 1841–1939 period.

### *Structure of this chapter*

The remainder of this chapter will first provide some background information on the history of the Balkan countries and we will point to some parallels between past and present challenges facing South-East Europe (Section 2). Subsequently, we will put the South-Eastern European experience in historical comparison with other parts of Europe, as far as minting legislation (Section 3), the banks of note issue (Section 4) and the exchange-rate experience (Section 5) are concerned. These three sections draw largely on the data and the qualitative information provided by the central banks in their country reports; where this is not the case, we provide references to sources and literature. This is followed by some concluding remarks (Section 6).

## **2 POLITICAL AND ECONOMIC ASPECTS OF THE BALKAN PENINSULA IN THE 19th AND EARLY 20th CENTURIES; PARALLELS TO TODAY'S CHALLENGES IN SOUTH-EASTERN EUROPE**

Two features, in particular, differentiated the Balkan Peninsula from Western Europe in the 19th century: economic backwardness and a belated process of nation building and state formation. In 1870, GDP per capita levels were at roughly one third of the level of the European core economies of England, France and Germany.<sup>6</sup> Even if we doubt the accuracy of 19th century GDP figures, virtually all economic indicators available suggest that Western Europe was substantially richer than South-Eastern Europe throughout the 19th century.<sup>7</sup> Equally important, income per head was also lower than in any other European periphery country of the 1870–1913 period, namely lower than in the four Nordic countries, Italy, Spain, Portugal and even Tsarist Russia.

The other feature was the legacy of living over centuries in the competing sphere of influence of Austria, the Ottoman Empire and Russia. Only the (relative) economic decline of the Ottoman Empire and the rise of Balkan nationalism in the 19th century allowed the Balkan peoples to seek their own destiny and to form nation states along West European models. As already indicated above, this often came in a slow and confusing process of transition from being part of the Ottoman Empire to some form of autonomy within it, to be followed by full-fledged independence. Serbia, the first Balkan country to achieve some form of autonomy in 1815, for instance, had to wait another 63 years to achieve independence at the Congress of Berlin (1878). By the outbreak of World War I, five Balkan countries had achieved independence<sup>8</sup>: Serbia (1815/1878), Greece (1830), Romania (1859/1878), Bulgaria (1878/1908) and Albania (1912). To this we add Austria-Hungary and the Ottoman Empire, the two countries that were slowly but surely receding politically from the Balkans over the course of the 19th and early 20th centuries.

This very distinct process of state formation is important in our context for three reasons. First, the late state formation gives a natural beginning to the banks of note issue. As Table 3 shows, most of the banks of note issue were founded in the 1870s and 1880s, when moves towards political independence of the Balkan peoples gained momentum following the Russian-Turkish war

<sup>6</sup> Morys (2006b), p. 39.

<sup>7</sup> Mazower (2001), pp. 17–44.

<sup>8</sup> Where two years are given, the first one refers to some level of autonomy achieved prior to internationally recognised independence.

(1877–1878) and the congress of Berlin (1878). Second, more so than in other countries, there always was a noticeable nationalistic component to minting legislation and the establishment of a bank of note issue. In the Serbian case, for instance, minting legislation was passed shortly before full-fledged independence (1873 versus 1878) and was seen as part of achieving exactly that.<sup>9</sup> Third, as all institutions had to be newly created, the need to live with compromises of the past was absent. Whereas post-unification Italy, for instance, had six banks of note issue as a legacy of its multi-state past, all Balkan countries granted exclusive rights of note issue to a single bank.<sup>10</sup>

While the contribution of this volume is primarily in the realm of economic and monetary history, it is worth briefly pausing and asking what, if anything, of all this is still relevant to today's challenges facing South-Eastern Europe. In several respects, the late 19th century and the early 21st century bear a certain resemblance. In both cases, the South-Eastern European countries (or, at least, Albania, Bulgaria, Romania and Serbia) obtained room for political manoeuvre only recently, be it from the Ottoman Empire back then or as result of the fundamental changes in CESEE, epitomised by the fall of the Berlin Wall in 1989, a quarter century ago.

The economic situation is not altogether different either. Comparing per capita income for Balkan provinces and regions in 1870 with their successor states' economic position in 2001, Morys (2006b) found that all Balkan countries, with the exception of Greece, had fallen back (albeit some only slightly) in their relative income position vis-à-vis England, France and Germany over this period. The above average economic performance of many SEE economies during the 2001–2008 global growth cycle might soften these results somewhat. On the other hand, the current Greek debt crisis has called into question the idea that the economic woes of SEE can be blamed on the post-WWII communist experience alone, and has led to soul-searching in the SEE countries and beyond on the deeper reasons for persistent economic backwardness.

In their desire to overcome economic backwardness, SEE countries have often emulated West European models and relied on outside help by means of capital inflows. There again, the inclined reader of this volume will find parallels between the past and the present. Just as SEE countries have either joined the euro<sup>11</sup> or are eager to introduce the euro these days, they were keen on adopting French minting legislation and the gold standard in the late 19th and early 20th centuries. Such a far-reaching step was often preceded by prolonged periods of parallel currencies. The gold-silver parallel currencies encountered in Bulgaria and Serbia before the early 20th century currency stabilisation are not very different from current attempts at currency stabilisation, where the policy goal often is to make the domestic currency as stable as possible to the euro (Bulgaria since 1998, Albania since 1999 and Serbia since 2004).

Parallels also exist with respect to capital imports which have been a mixed blessing in the past and in the present. Readily forthcoming in the period before World War I, they quickly resulted in unsustainable debt levels. Greece and Serbia defaulted in 1893 and 1895, respectively, and accepted foreign financial supervision and control in response to bondholders' demands. Bulgaria accepted financial supervision in 1902 in exchange for securing another loan (but without defaulting). From the newly independent countries, then, only Romania<sup>12</sup> was able to avoid financial supervision before WWI. A similar cycle occurred in the interwar period, when re-joining the gold stan-

<sup>9</sup> See Gnjatovic (2006).

<sup>10</sup> With the exception of Greece, cf. Table 3.

<sup>11</sup> From the seven countries covered in this volume, Austria and Greece joined the euro in 1999 and 2001, respectively. Slovenia joined the euro in 2007.

<sup>12</sup> Albania became independent only in 1912 and did not take out loans before WWI.

dard required Bulgaria, Greece, Romania and Yugoslavia to take out foreign loans which all ended up in (partial or complete) default or debt restructuring in the 1930s (Gnjatovic 2008, Tooze and Ivanov 2011, Flores and Decorzant 2012). This is somewhat similar to today, where all countries covered in this volume (with the exception of Austria) had to turn to some form of outside financial help at some point in the past ten years. The experiences of the different SEE countries might well exhibit more variation in the present than in the past, partly as a result of more divergent income levels today, partly as a consequence of more diverse levels of political, economic and financial integration with the main European lending countries. But beneath period- and country-specific idiosyncrasies, there might well be a regional pattern of excessive reliance on foreign capital (Kopsidis 2012).

Historical parallels are never exact, and only future research on the economic and monetary history of South-Eastern Europe will be able to establish the lessons from history for the challenges facing this part of Europe today. The purpose of this data publication is more modest, that is, to provide (some of) the factual basis to conduct such research. With this in mind, we shall now proceed to compare monetary legislation, the banks of note issue and the exchange-rate performance.

### 3 COINAGE LEGISLATION AND MONETARY STANDARD

#### 3.1 GOLD STANDARD, BIMETALLIC STANDARD AND FIAT MONEY STANDARD

The following definitions of the different types of monetary standard will be applied in this chapter. The gold standard is characterised by three requirements (Bordo and Kydland 1995, Martín Acuña 2000, Sprenger 2002). First, gold coins are given exclusive unlimited legal tender status. Second, the government and private individuals alike have mintage rights, i.e. they are allowed to bring any amount of bullion they wish to the mint and turn them into coin (often against a small fee). Third, there are no impediments to the export and import of either gold coin or gold bullion. If all three conditions are met, arbitrage operations aimed at increasing or decreasing coins in circulation will ensure the approximate identity of the face value (nominal value) and the intrinsic value (physical value, metallic value) of gold coins; which is the very essence of the gold standard.

The ‘exclusive unlimited legal tender status’ granted to gold warrants some explanation. ‘Legal tender’ is any payment means by which a debtor can redeem himself of a debt (that is, an obligation to pay a specific amount of money) vis-à-vis his creditor. ‘Unlimited’ means that redemption is possible for any amount of debt incurred. This criterion is important, as any gold standard legislation also stipulated which payment means were given the status of limited legal tender: given the high value-to-volume ratio of gold, payments of small amounts of money could only be effected in silver or, more common still, in copper (and copper alloys such as bronze). ‘Exclusive’ means that designating unlimited legal tender status to gold also involved denying such status to any other means of payment, notably coins of other metals and banknotes. This exclusivity was instrumental in avoiding Gresham’s Law, according to which debtors redeem their payment obligations with the cheapest option available to them (which explains the imprecise but expressive formulation ‘bad money drives good money out of circulation’).

Crucially, this definition of a gold standard applies to a gold coin standard (i.e., the standard that 18th century economists such as David Hume (1711–1776) described in their famous works on the functioning of the gold standard) as well as to the 19th century gold standard, in which banks of note issue gained an increasingly important role in managing the money supply. A banknote

is a commitment of the issuing bank to pay a specific amount of money to the bearer of the banknote; from which convertibility of banknotes into gold follows directly. It also follows from this that any suspension of convertibility amounts to a change in the monetary standard. We will return to this issue when describing the monetary standard which the different South-East European countries followed before World War II.

Under bimetallic standard we understand a monetary system in which unlimited legal tender status and free coinage relate to gold and silver. In such a system neither metal enjoys exclusive legal tender status: the creditor can no longer insist on payment in the metal of his choice but has to accept the metal his counterparty prefers. This is also the case for the bearer of a banknote who has to accept convertibility in either gold or silver at the issuing bank's discretion (Friedman 1990, p. 86).

Consequently, any bimetallic standard is prone to Gresham's Law. To make bimetallism work and retain both metals in circulation, governments and banks of note issue abrogated certain features of the 'pure' bimetallic system more often than not. In the post-1870 international monetary system we are mostly interested in given the time-line of the South-East European countries, the key deviation from the 'pure' bimetallic standard related to the coinage of silver. When the price of silver in bullion markets began to fall sizably below the 1:15.5 legal ratio of France, Belgium, Italy and Switzerland (the so-called Latin Monetary Union countries, cf. below), bimetallic countries started to limit silver coinage in an attempt to avoid a 'silver inflation'. While limiting and, eventually, completely suspending silver coinage between 1873 and 1878 prevented depreciation vis-à-vis the gold standard currencies such as the pound sterling and the German mark, the other characteristic of bimetallism – granting legal tender status to gold and silver – remained (Morys 2012).

How should such a hybrid monetary standard be labelled? Contemporaries referred to it either as 'limping bimetallism', 'limping gold standard' or simply 'limping standard' (Rollins 1907, Mertens 1944, Flandreau 1996, Sprenger 2002). 'Limping bimetallism' makes sense on the grounds that all ingredients of bimetallism except for one (no unlimited silver coinage) are in place; 'limping gold standard' also seems justified on the grounds that the impeccable exchange rate record of countries such as France and Belgium in the period 1873–1914 (Morys 2013) meant that economic agents could obtain physical gold 'externally' (that is, by exchanging domestic currency into the currency of gold standard countries and then requesting conversion into gold at the bank of note issue in such a country). Whatever the merits of this terminology, it is important to bear in mind that the label 'limping bimetallism'/'limping gold standard'/'limping standard' only applies to countries which were able to maintain fixed exchange rates to gold standard countries. In the case of the SEE countries, by contrast, such exchange-rate stability to England and Germany remained elusive until the turn of the century (Section 3.3). Based on our definition above, we therefore refrain from attaching the label 'bimetallism' to such cases. In so doing, we reject a much wider notion of 'limping' bimetallism which some authors wish to apply to any deficient form of bimetallism (Gnjatovic 2006). While we recognise the rationale behind such a wide notion of 'limping bimetallism' – namely, to find appropriate terminology for the South-East European standard case in which policy-makers enacted bimetallic coinage legislation but failed to translate this into a bimetallic standard of the sort France and Belgium had between 1873 and 1914 – it remains imprecise and, in our view, does not add to a better understanding of the South-East European experience.

A fiat money standard is a monetary standard in which the government creates money by assigning unlimited legal tender status to either banknotes and/or coin without simultaneously establishing a fixed relationship between these payment means and a precious metal such as gold and



silver. In a metallic standard (gold, silver, bimetallic), a government draws on a pre-existing payment means and declares it to be legal tender; in a fiat money standard, the government creates the payment means in the first place (fiat money literally means ‘it may become money’, from Latin *fieri* to become). The terminology fiat money and paper money are used interchangeably in the literature, though we note that fiat money is the wider notion in that it also captures cases in which the unlimited legal tender status is assigned to coins only.

This definition captures a wide range of late 19th century historical experiences of which two are particularly important in our context. First, a situation in which a country operated a silver standard but the government was able to keep banknotes in circulation only by suspending convertibility and declaring them legal tender (so-called *cours forcé*); which was typically the result of a particular exigency such as banking panic, political revolution, war or threat of war. The suspension of silver convertibility in Austria in 1858 is a paradigmatic case, with the country switching from a silver standard to a fiat standard at that point. In these situations, banknotes depreciated vis-à-vis the metal which used to form the basis of the monetary standard. This depreciation became known as *agio*. If the previous monetary standard had been bimetallic, there was a gold *agio* and a silver *agio* which indicated the level of depreciation of banknotes vis-à-vis gold and silver, respectively.

The other typical case of a fiat standard in the late 19th century is a situation in which banknotes were considered by the public of higher value than circulating silver coin but of lower value than circulating gold coin. As we will see below, this was the standard case of the South-East European countries until they were able to successfully stabilise their currencies vis-à-vis gold currencies at the beginning of the 20th century. Two features characterise this scenario. First, coinage of silver (and, in turn, the issuance of banknotes) was limited to avoid a silver inflation; as a result, it did not matter whether banks of note issue converted banknotes into silver or not, as banknote holders had little incentive to ask for conversion in the first place. Similarly, it did not matter whether banknotes were legal tender in addition to (or in lieu of) silver or not, as creditors were happy to accept them. Second, domestically coined gold coin (if it existed at all) circulated at a premium compared to banknotes and silver coin (so-called *agio*). Such premium reflected the fact that while currency in circulation was limited to avoid a silver inflation, it was not sufficiently limited to be of equal value to circulating gold coin.

When confronting the historical experience with the three definitions above, it becomes clear that only a very limited number of countries (and often only for short periods of time) followed the gold standard *à la lettre*. Germany, for instance, deviated from the gold standard ideal in that it continued to grant unlimited legal tender status to specific ‘old’ silver coins from before the 1871/73 currency reform; starting in 1910, it even granted unlimited legal tender status to banknotes (Sprenger 2002, p. 187 and p. 192). In other cases, countries deviated from the gold standard ideal by not granting the legal right of banknote convertibility, or at least by making convertibility more difficult and often effectively impossible (Morys 2013).

The fact that few countries lived up to all three requirements of the gold standard definition outlined above while simultaneously maintaining fixed exchange-rates to countries fulfilling them all (such as the UK) has given rise to a distinction between *de jure* adherence to gold and *de facto* adherence to gold. A country following the gold standard *de jure* needs to fulfil all three requirements. By contrast, a country following the gold standard *de facto* – also said to be shadowing the gold standard – is defined by successfully stabilising its exchange-rate vis-à-vis *de jure* gold standard countries.

A benchmark often encountered in the literature for successful exchange-rate stabilisation is to remain within a band of  $\pm 2.0\%$  vis-à-vis *de jure* gold standard countries (Obstfeld et al. 2005); a benchmark which we will follow for the purpose of this introduction. In other words, the *de facto* classification draws on the economic outcome of the *de jure* classification – that is, that following all three requirements will result in quasi-fixed exchange-rates – for the purpose of its own definition.

While such a wider definition of the gold standard is required to make sense of the late 19th century exchange-rate experience, it also raises the question of how to distinguish between fiat money and *de facto* adherence to gold: if fiat money exhibits stable exchange-rates to the gold standard countries, it can also be classified as shadowing the gold standard. In the following, we will refer only to *de facto* adherence to gold in cases in which both definitions are met.

### 3.2 CHALLENGES FACING THE NEWLY INDEPENDENT BALKAN COUNTRIES

The 19th century Balkan Peninsula was not only a most colourful mixture of peoples but also of coins. Circulation of foreign coins was not unusual in the 19th century, but it was more widespread in the Balkans than anywhere else in Europe (Einaudi 2008). One of the few good sources to gauge the extent of foreign coin circulation are the so-called exchange-rate lists of the Principality of Serbia (i.e., the nascent Serbian state after gaining autonomy in 1815 and before recognition of full independence in 1878). In an attempt to regulate (and limit) foreign coin circulation, Serbia

**TABLE I Main coinage acts, monetary commissions and monetary conventions in South-Eastern Europe, 1867–1892**

Country	Date	Coinage act, monetary commission, or monetary convention	Envisaged monetary standard	Accordance with 1865 LMU principles?	Name of currency unit	Mint parity to French franc
Austria-Hungary	14.4.1867	monetary commission	gold	as far as gold coinage concerned	gulden	1 : 2.5 <sup>2</sup>
	31.7.1867	monetary convention (with France)				1 : 2.5 <sup>2</sup>
	2.8.1892	coinage act				no
Bulgaria	27.5.1880 <sup>1</sup>	coinage act	gold	yes	lev	1 : 1
Greece	10.4.1867 <sup>1</sup>	coinage act	bimetallism	yes	drachma	1 : 1
	26.9.1868 <sup>1</sup>	monetary convention (with LMU)	bimetallism	yes		
Romania	22.4.1867 <sup>1</sup>	coinage act	gold	as far as gold coinage concerned	leu	1 : 1
	15.6.1890 <sup>1</sup>	coinage act	gold			yes
Serbia	20.11.1873 <sup>1</sup>	coinage act	bimetallism	yes	dinar	1 : 1

Note: 1. All dates given refer to the Julian calendar with the exception of Austria-Hungary which followed the Gregorian calendar. The difference between the two calendars amounted to 12 days in the 19th century (e.g., 1 January 1850 acc. to Julian calendar = 13 January 1850 acc. to Gregorian calendar). 2. Mint parity of 1:2.5 means that 1 guilder (Gulden) equalled 2.5 French franc. 3. Mint parity of 1:1.05 means that 1 crown (Krone) equalled 1.05 French franc.

Sources: Country chapters, Avramov (2006), Gnjatovic (2006), Ministère des Finances (1869), Morys (2006).

issued lists of Austrian, English, French, German, Greek and Ottoman coins in which taxes could be paid. While Turkish coins became less important over time, the coin circulation of Western provenance increased. But even as late as 1866 the Serbian authorities gave the choice between no less than 47 different types of coin, suggesting that many more were circulating at the time (Gnjatovic 2006, p. 47). Trade was one reason for foreign coin circulation, and war was another. The Turkish-Russian War (1877–78), for instance, flooded Romania and Bulgaria with vast amounts of silver roubles, withdrawal of which kept both countries busy for considerable time (Dimitrova et al. 2010, Stoenescu et al. 2011).

This *macédoine* of coins explains why one of the first steps taken after gaining political independence (often even before that, cf. Table 1) was to establish a system of national coinage, combined with attempts at withdrawing all foreign coinage; a standard practice followed by countries obtaining political independence in their efforts to establish authority over the new territory (Helleiner 2003). As Table 1 shows, in this endeavour of establishing a national coinage system all countries turned to the Latin Monetary Union. Even Austria-Hungary, which had a coinage system of its own and had no intention of minting abroad (a practical consideration which partly explains the appeal of the Latin Monetary Union to so many countries), tried to align its currency system with France in 1867. Four issues need to be addressed in this context: First, what exactly does it mean to align the national coinage system with the standards of the LMU? Second, why was the LMU system of coinage so attractive to SEE? Third, did the SEE countries adopt the coinage system completely or only partially? Last but not least, did the SEE countries actually join the LMU?

### 3.3 LATIN MONETARY UNION COINAGE IN SOUTH-EAST EUROPE: FROM ADORATION TO INCOMPLETE ADOPTION

#### *The Latin Monetary Union of 1865*

The origins of the LMU coinage are in the French coinage act of 1803 which established 1 French franc as equal to 5 grams of mint silver (with a fineness of 900/1000, i.e. the 1 French franc coin contained 4.5 grams of pure silver). Silver coins were minted as 5, 2, 1, 0.5 and 0.2 francs (50 and 20 centimes, respectively); gold coins – in a gold-silver ratio of 15.5:1 and also with fineness of 900/1000 – were minted as 20, 10 and 5 francs. Until 1848, bimetallic coinage legislation translated into an effective silver standard: as gold traded in bullion markets at more than 15.5:1, little gold coinage took place and what was coined quickly left monetary circulation (or traded above par and was mainly used for external trade) (Redish 1995). The situation only changed with the immense gold findings in California (1848) and Australia (1851): ‘cheap’ gold came to drive ‘expensive’ silver out of circulation. The only solution left to France – as well as to Italy, Belgium, and Switzerland which had all followed a very similar system since the French occupation during the Napoleonic Wars – was to reduce the silver content of the silver coins from 900/1000 to a lower level of fineness: full-bodied coins were turned into divisional coins (token coins) in order to retain them in circulation to serve for the transactions of daily life involving small sums.

Solving one problem only created another one. As coins circulated freely among the four countries, the creation of divisional coins meant that countries were flooded with foreign coins whose intrinsic value was lower than their face value (Einaudi 2000, pp. 37–40). The only solution to this problem was the creation of the LMU in 1865: on the one hand, foreign coins, including token coins, were accepted at public tills; on the other hand, the minting of token coins was strictly reg-

ulated (fineness of 835/1000) and limited (to 6 francs per inhabitant) so as to eliminate excessive seigniorage (which would have accrued at the expense of the government required to accept the foreign divisional coins).

Reducing the fineness of silver coins had not altered the gold-silver ratio of 15.5:1. This is because one coin – the 5 franc coin – had deliberately been left unchanged at the original fineness of 900/1000 in the 1865 LMU agreement (Ministère des Affaires Etrangères 1865). Put differently, 1865 LMU bimetallism rested on a single silver coin; all silver coins of lower denominations had been reduced to token coins.

#### *Why was the French coinage system so attractive to the South-Eastern European countries?*

What explains the particular appeal of the French coinage system to South-East Europe? No region of the world welcomed LMU coinage principles as enthusiastically as South-East Europe (Einaudi 2008), even though the 1865 LMU agreement explicitly invited all countries to adopt its rules (article 12).

The French coinage system was not only ‘rational’ and ‘modern’ in the sense that it was based on the metric system (as opposed to the English coinage system which was based on the 1824 Imperial System of Weights and Measures, its only serious rival), but it was also the most widely used one in Europe. The omnipresence of French coins in mid-19th century Europe is well-documented (Helfferich 1898), and their wide diffusion compared to English coins is easily explained. In the 1860s, the four LMU countries combined had a population more than twice as large as the UK and a combined GDP that was 40% higher than British GDP.<sup>13</sup> The German coinage system was not yet a rival, as the German states, at the time, were themselves engaged in serious discussions on how to unify coinage within the German confederation. Both factors combined explain why in 1867, at the First International Monetary Conference, held in Paris, countries from all over the world agreed that the French coinage system be universally adopted.<sup>14</sup>

Yet, there were other reasons that made the LMU coinage system attractive to SEE in particular. First, it offered universal appeal but allowed for country-specific idiosyncrasies. The newly independent Balkan countries were allowed to label their currency as they wished (Bulgaria: lev; Greece: drachma; Romania: leu; Serbia: dinar) and to have the royal effigy on the front of the coin. While this was theoretically possible under any coinage system, this option had already been pursued by Belgium, Italy and Switzerland in the case of the Latin Monetary Union, making it tempting for the SEE countries to follow suit. Second, Bulgaria, Greece, Romania and Serbia all envisaged minting abroad as a cost-saving measure, creating an additional incentive to adopt the highly standardised and reputable LMU coinage system. Third, as France at the time was the most important creditor for European destinations, better access to the French capital market hence also militated in favour of adopting the French coinage system.

Yet the most intriguing aspect of the choice in favour of the LMU coinage system is its timing. Serbia (December<sup>15</sup> 1873) and Bulgaria (1880) passed bimetallic legislation at a time when the LMU countries themselves – beginning with France and Belgium in September 1873 (Flandreau 1996, Morys 2012) – had already started moving from ‘pure’ bimetallism to ‘limping’ bimetallism;

<sup>13</sup> Maddison (2003).

<sup>14</sup> Reti (1998).

<sup>15</sup> The month of December according to the Gregorian calendar, cf. Table 1.

a monetary standard which we also described as ‘limping gold standard’ or *de facto* adherence to gold in our typology of monetary standards under 3.1. What was the appeal of bimetallism when the countries sponsoring the system were simultaneously turning away from it and embracing the gold standard instead?

In the case of Serbia, it is plausible to argue that the country adopted a wait-and-see approach given that the LMU countries themselves moved at different speed (and with different conviction) to the gold standard in the period from 1873 to 1878. In the case of Bulgaria, however, the situation was different. The emergence of the Classical Gold Standard was completed by early 1879 (Eichengreen and Flandreau 1997), as evidenced by the unsuccessful 1878 International Monetary Conference (which had aimed at restoring bimetallism through an internationally binding agreement), the subsequent decision of the LMU countries to suspend free coinage on private account (November 1878) and the US return to specie convertibility in gold alone (January 1879). When Bulgaria passed its coinage act in May 1880, the gold-silver ratio on bullion markets stood at 18.09:1 (Warren and Pearson 1933), making bimetallism unviable. What then explains passing legislation that, on the face of it, is ostensibly bimetallic?

While the LMU countries and the SEE countries shared the same analysis of the post-1873 monetary system – that is, it was no longer possible to maintain gold and silver in circulation under ‘pure’ bimetallism – they came to a different conclusion. The LMU countries switched to limping bimetallism, effectively joining the gold standard. Given their economic maturity and sound finances, this was a sensible decision.

By contrast, the SEE countries faced an altogether different situation. They were economically backward and had poor public finances, rendering immediate gold standard adherence (*de facto* or *de jure*) almost impossible. Yet, they had high aspirations for their economic development, including the long-term vision of exchange-rate stabilisation. In this dilemma between what was feasible in the short-run and what was desirable in the long-run, bimetallic coinage legislation offered to have it both ways. It allowed minting silver coin; some of which could be used as backing for future banknotes, thereby laying the foundation for a modern monetary system. At the same time, bimetallic coinage legislation also allowed for gold coinage, opening the door for a future transition to the gold standard.

The fact that silver and gold coinage followed legislation in all cases with several years’ delay supports this interpretation. In Romania, for instance, the first substantial silver coinage took place in 1873 – that is six years after the coinage act – and the first substantial gold coinage took place only in 1883. The Bulgarian case was similar, where the first silver coinage came three years after the coinage act (in 1883) and the first gold coinage a full 14 years later (1894) (Bulgarian National Bank 2009).

#### *Incomplete adoption of the LMU principles*

The quite substantial delay between national coinage legislation and the first (substantial) silver mintage raises the question of how the newly independent Balkan countries satisfied their needs for currency in the meantime. Answering this question will reveal that the adoption of LMU coinage remained incomplete and point to some weaknesses of the monetary standards of the SEE countries. Immediately after passing coinage legislation, the Balkan countries satisfied their need for currency through the mintage of low-denomination copper coins (and copper alloys such as bronze). Low denomination copper coins were common practice in the 19th century; in LMU countries,

such coins were even a necessity, as the smallest silver coin (0.20 franc = 20 centimes) only weighted 1 gram. Yet, what was unusual about SEE was the extent to which such copper coins were used, and that copper was even used for denominations reserved for silver under LMU rules. The Balkan countries (or at least Bulgaria and Romania for which we have the relevant information) expanded their potential for seigniorage considerably by minting the 20 centimes coin in copper (or as copper alloy) rather than silver. In practice, this was one of the most widely used coins at the time, as its value amounted to approx. 10% of a day labourer's wage for a full working day.<sup>16</sup> As a result, actual coinage relied on copper rather than silver. Bulgarian coinage data suggest that 71.5% of all coinage before World War I was in copper, while silver and gold accounted only for 25.4% and 3.1%, respectively.<sup>17</sup> We will discuss the implication of this unusual coin composition later when analysing currency in circulation (that is, coins and banknotes).

There was another modification to the LMU rules in South-East Europe: none of the countries (with the exception of Austria-Hungary) knew coinage on private account, abrogating a crucial pillar of every commodity standard (section 3.1). This might partly reflect practical considerations as mintage was carried out abroad<sup>18</sup>, but the main motivation was different. Similar to the contemporaneous LMU legislation on limiting and, eventually, suspending silver coinage on private account, it aimed at avoiding a silver inflation. Yet, while the Balkan countries knew that the time was not yet ripe to stabilise exchange-rates vis-à-vis gold standard countries, they also sensed that they would not need to content themselves with a monetary standard depreciating as rapidly as silver vis-à-vis gold had done since 1873. In other words, the absence of free coinage in SEE supports our interpretation that the SEE countries never intended to implement a pure bimetallic standard, and that their bimetallic coinage legislation should rather be seen as a perfect medium between what was achievable in the short-run and what was desirable in the long-run.

#### *Only Greece ever joined the LMU formally*

Basing the national coinage system on LMU standards did not necessarily imply joining the LMU; only Greece ever joined the LMU (in 1867). The intentions of the other four countries to join the LMU were all frustrated sooner or later (Einaudi 2006, Morys 2006). It is worth pointing out that most of the desired advantages of the LMU coinage system were also available without formal membership, and acceptance of gold coins at public tills in LMU countries was widespread.

Crucially, by not joining the LMU formally, Bulgaria, Serbia and Romania were not bound by the strict ceilings on silver coinage which the LMU had to impose as a result of their reciprocal obligation to accept each other's coins at public tills. This allowed the three Balkan countries in question to coin more than 6 francs per head, boosting their seigniorage revenue. Only Greece coined less than 6 francs per head, conforming to its LMU contractual obligations.<sup>19</sup>

In closing this section, it is worth pointing out that the LMU principles lost some of their appeal over time, as evidenced by the Romanian and the Austro-Hungarian coinage acts of 1890 and 1892, respectively. Romania removed the unlimited legal tender status from the 5 lei silver coin and, in a separate but related development, only allowed foreign assets in English and German but not

<sup>16</sup> The data relates to wages in the Bulgarian town of Ruse on the Danube, as reported by Morys and Ivanov (2013). As sizeable wage differences emerged in SEE only after WW II (Lampe and Jackson 1982), the data can be used as a proxy for wages in Greece, Serbia/Yugoslavia and Romania.

<sup>17</sup> Own calculations based on Bulgarian National Bank (2009).

<sup>18</sup> Exception to this rule is Romania which coined partly in Bucharest. Austria-Hungary mainly coined domestically but knew coinage on private account, cf. main text.

<sup>19</sup> Own calculations based on silver coinage data by Einaudi (2006) and population data by Maddison (2003).

French currency to be included in the international reserves. Both measures symbolise the break with bimetallism in that creditors were given access exclusively to gold. Similarly, the Austro-Hungarian coinage act of 1892 envisaged a pure gold standard; it also created its own coinage system, moving away from the alignment sought with the French coinage system 25 years earlier.<sup>20</sup>

### 3.4 MONETARY LEGISLATION OF THE INTERWAR PERIOD

#### *International developments: gold exchange standard and gold bullion standard*

The interwar period saw the transition to the so-called gold exchange standard. This means that central bank reserves could – besides physical gold – also include foreign exchange holdings, or other foreign assets for that matter, as long as they were denominated in the currency of gold standard countries such as the US, the UK and France, whose adherence to gold was beyond doubt. Moving from a ‘pure’ gold standard to a gold-exchange standard had already begun in the late 19th century (a well-established finding in the literature, Lindert 1969, for which the present volume delivers ample supportive evidence), but the shift acquired a new sense of urgency in the 1920s for reasons related to World War I. The post-war settlement had resulted in numerous independent states most of which wanted to operate the gold standard. Global demand for gold was further increased by the fact that the monetary base in most countries had expanded considerably during and immediately after World War I and hence needed to be backed up by central bank reserves.<sup>21</sup> At the same time, world gold supplies remained largely stagnant. If the interwar gold standard was not to become deflationary as a result of gold demand exceeding supply, it needed to rely more strongly on foreign exchange reserves than what had been the case before 1914. Hence, policy-makers actively encouraged the transition to the gold-exchange standard, most notably at the 1922 Genoa conference (Eichengreen 1996).

Another pillar of this policy was to concentrate the gold holdings in the central bank’s vaults. This was achieved by reducing the amount of gold coins in circulation (in most countries to the point where gold coins did not circulate at all) and by actively discouraging the convertibility of bank notes into gold; which was achieved by allowing convertibility only for very large sums of money and then, partly as a consequence, only into bullion (or foreign exchange); hence the terminology gold bullion standard.

Gold-exchange standard and gold-bullion standard are terminology specifically related to the interwar period. They are also testimony to a gradual shift in terms of whom convertibility was promised to (a shift which would find its logical conclusion in the 1944 Bretton Woods agreement). Namely, under the pre-WWI gold standard, banks of note issue promised convertibility to bearers of bank notes, that is private economic agents. In the interwar period, convertibility for private economic agents became more restrictive (or even impossible); simultaneously, central banks accumulated ever more claims against each other as they moved towards the gold-exchange standard.

#### *de jure stabilisation of exchange-rates in South-Eastern Europe*

Developments in South-Eastern Europe between 1928 and 1931 reflect these global developments. We will discuss the actual exchange-rate performance in Section 5.3 and confine ourselves here

<sup>20</sup> This largely reflected practical considerations. In the 1892 legislation, Austria-Hungary established mint parity at roughly the exchange-rate level of that year, thereby accepting a devaluation of 19% compared to the 1867 legislation. Consequently, the new mint parity no longer lent itself to following the LMU coinage system.

<sup>21</sup> This statement is true even when taking into account that, as a result of many countries returning at devalued parities, one unit of gold covered more units of currency than it had done before 1914.

to the *de jure* stabilisation undertaken by Greece, Bulgaria, Romania and Yugoslavia. None of the four countries knew any gold coin circulation, hence shifting to the gold bullion standard *à la lettre*. As a result, the terminology ‘coinage act’ used in Table 1 to describe the pre-WW I experience no longer makes sense and we prefer the more abstract word ‘monetary act’ in Table 2.

**TABLE 2 Gold parity and standard exchange-rates vis-a-vis major currencies under the interwar gold standard**

Country	Gold parity: one currency unit equals  in grams of pure gold	Mint parity under prewar gold standard  in grams of pure gold <sup>1</sup>	Factor of depreciation vis-a-vis prewar mint parity	Standard exchange rate versus major currencies		
				Amount of domestic currency units equal to one unit of		
				US dollar	Pound sterling	French franc
<i>Bulgaria</i>	0.010870	0.290323	26.71	138.20	673.63	5.34
<i>Greece</i>	0.019526	0.290323	14.87	77.00	375.00	2.97
<i>Romania</i>	0.009000	0.290323	32.26	167.01	813.35	6.45
<i>Yugoslavia</i>	0.026500	0.290323	10.96	56.76	276.41	2.19

Note: 1. Mint gold was of purity 900/1000 under the coinage principles of the Latin Monetary Union.  
Sources: Country chapters and own calculations based on country chapters.

Table 2 gives the gold parity of lev, drachma, leu and dinar as enshrined in the monetary acts, but it is worth emphasizing their specific genesis. As *de facto* stabilisation proceeded *de jure* stabilisation in all four cases (Section 5.2 and Table 5), countries began their stabilisation policies by stabilising vis-à-vis the currency of a specific country which had already re-established the gold link (or had never suspended convertibility, as in the case of the US). In the cases of Bulgaria, Greece and Yugoslavia, these currency were the US dollar, pound sterling and the Swiss franc, respectively. Once this particular bilateral exchange-rate was deemed at a sustainable level and the country proceeded to *de jure* stabilisation, the gold parity of the monetary act was chosen accordingly.

South-Eastern Europe also shared in the international experience by including foreign exchange into the central bank reserves. While such rules had already existed before World War I, the financial incentive to rely on foreign exchange was arguably bigger in the interwar period. As Bulgaria, Greece, Romania and Yugoslavia all had to take out foreign loans to replenish their reserves, a particular appeal of foreign exchange was their interest bearing character as opposed to ‘idle’ gold bullion.

Last but not least, all four countries also followed the logic of the interwar gold standard by making convertibility difficult or even impossible. Particular instructive cases in this context are Romania and Serbia, where convertibility into gold bullion or foreign exchange (at the bank’s discretion) was allowed only for sums above 100,000 lei and 250,000 dinar, respectively. To put the sum of 100.000 lei into perspective (the sum of 250,000 dinar was higher still): as a Romanian day labourer would earn approximately 75 lei per day<sup>22</sup>, taking advantage of the convertibility option would require saving the wage of about five years (1350 working days); this contrasts strongly with the pre-WW I experience, where a day labourer earned approximately 2 lei per day and the smallest gold coin available was 5 lei.

<sup>22</sup> See footnote 16 for sources.



## 4 THE BANKS OF NOTE ISSUE

### 4.1 FOUNDATION AND OWNERSHIP STRUCTURE

This section is deliberately titled ‘banks of note issue’ rather than ‘central banks’. While the SEEMHN is an initiative sponsored by the SEE central banks, the banks of note issue out of which they emerged were not central banks in the modern sense of the term. They morphed into central banks only in the interwar period. The desired return to exchange-rate stability and sound fiscal policies in the 1920s required more independent banks of note issue. The financial crisis of the early 1930s underlined the need to supervise and regulate the commercial banking system, turning the bank of note issue into full-fledged central banks in the process. This transition reflected a global trend for banks of note issue to become more independent (1920s) and to acquire supervisory and regulatory capacity (1930s), which was supported and often coordinated by the Financial Committee of the League of Nations (de Cecco 1997).

In the case of Albania, Bulgaria, Greece, Romania and Serbia, the bank of note issue was founded not immediately but within approximately a decade after achieving political independence. On the one extreme, the Bulgarian National Bank was founded within a year from obtaining (semi-)independence at the Congress of Berlin (1878); on the other extreme, the National Bank of Albania was founded only in 1925, that is 13 years after Albania became independent. Such delay reveals that establishing a bank of note issue was a difficult task and the process was not straightforward. This is supported by the fact that in every single case of the five countries, there was one or even several failed attempts to launch such an institution (Lampe and Jackson 1982, pp. 203–206). Only in the Bulgarian case such a second attempt was not necessary, though the fundamental reorganisation of 1885 effectively amounted to a second foundation (Avramov 2006).

**TABLE 3 Banks of note issue in South-Eastern Europe**

Countries	Year of foundation <sup>1</sup>	Name upon foundation	Exclusive right of note issue	Today's name of the country's central bank <sup>2</sup>
<i>Albania</i>	1925	National Bank of Albania	yes	Bank of Albania
<i>Austria-Hungary</i>	1816 /1878 <sup>3</sup>	Austro-Hungarian Bank <sup>3</sup>	yes	Austrian National Bank
<i>Bulgaria</i>	1879 <sup>1</sup>	Bulgarian National Bank	yes	Bulgarian National Bank
<i>Greece</i>	1841	National Bank of Greece	yes <sup>4</sup>	Bank of Greece
<i>Ottoman Empire</i>	1863	Imperial Ottoman Bank	yes	n.a.
<i>Romania</i>	1880	National Bank of Romania	yes	National Bank of Romania
<i>Serbia</i>	1884	Privileged National Bank of the Kingdom of Serbia	yes	National Bank of Serbia
<i>Turkey</i>	1925	Central Bank of the Republic of Turkey	yes	Central Bank of the Republic of Turkey

Notes: 1. The year refers to the foundation of the institution and not to when the institution was granted the right to issue notes. This distinction is relevant in the Bulgarian case, where the Bulgarian National Bank was granted this right only in 1885. 2. Institutional continuity is not implied which is absent in the case of Greece. The Bank of Greece was founded in 1928 as a central bank with the exclusive right of note issuance. The National Bank of Greece was simultaneously stripped of its note issuing right and has continued since then as a ‘pure’ commercial bank. 3. Austria-Hungary: The Privileged Austrian National Bank (Privilegierte österreichische Nationalbank), founded in 1816, changed its name in 1878 to reflect the nature of the dual monarchy after the Ausgleich of 1866. 4. Greece: The NBG’s exclusive note issuing right covered almost the entire territory with the exception of the Ionian islands, Epirus and Thessaly and the island of Crete. Three other (and much smaller) banks with both commercial and issuing activities enjoyed the exclusive privilege of note issue in their specific parts of the country, namely the Ionian Bank (1839–1920), the Bank of Epirus and Thessaly (1882–1899) and the Bank of Crete (1899–1919). All three banks gradually waived their privilege in favour of the National Bank of Greece. Sources: Country chapters.

The process was lengthy and arduous, as three questions needed to be settled first. First, who would provide the capital for the bank? Second, what level of influence would be granted in return? And third, how would seigniorage be split between the Treasury and the bank of note issue? Seigniorage from coinage would accrue to the Treasury and from banknotes to the bank. As this in practice often led to clashes between the two institutions over the lowest possible denomination of banknotes, it is more conveniently discussed below when describing how successful the banks were in circulating banknotes.

We shall therefore begin by analysing the ownership structure which shows considerable variety among the seven banks. The Bulgarian National Bank was completely state-owned, whereas the Austro-Hungarian Bank and the National Bank of Serbia were completely in private hands, with the National Bank of Greece and the National Bank of Romania falling in the middle. Ownership structure could also change over time. The National Bank of Greece and the National Bank of Romania, for instance, were initially partly state-owned, but this share was later reduced to zero. The Imperial Ottoman Bank and the National Bank of Albania constitute special cases: they were owned by foreign shareholders, an approach which the other countries deliberately rejected. In the Ottoman case, this was the result of the power which English and French merchants had acquired over the Ottoman Empire; as a result of their governments' support to the Porte during the Crimean War (1854–56), they were able to push for a bank of note issue shortly after the end of the war.<sup>23</sup> In the Albanian case, it seems to reflect the almost complete lack of domestic capital which propelled the young Albanian state to look for outside options.

While foreign ownership was avoided wherever possible, foreign intellectual inspiration was most welcome. The Bulgarian National Bank, the National Bank of Romania and the National Bank of Serbia were all modelled along the lines of the National Bank of Belgium, which acted as a role model not only because of its impeccable exchange-rate record (Morys 2013), but also because it presided over what the SEE countries aspired to become, namely industrialised, small open economies. The National Bank of Belgium even provided substantial technical assistance to the newly founded National Bank of Serbia (Baikitch 1927). The National Bank of Greece, for its part, copied the Bank of England's separation into two different departments, that is, a note issuing department and a commercial department.

Crucially, the ownership structure does not necessarily reveal a great deal about the level of influence the government has; it is well-known that 19th century governments had their own ways of asserting influence over privately-owned banks of note issue, either formally (government representatives on the board and, in particular, the right to appoint the governor) or informally in a myriad of ways. Most importantly in this context, the note issue privilege was granted by the government only on a temporary basis, which meant that the renewal of the charter (or even threatening with non-renewal years ahead) provided considerable opportunities for government influence over banks. Arguably, the best way of evaluating the level of influence is by assessing the amount of government debt held by the bank of note issue. The banks were generally hostile to such debt monetisation, and they only accepted it if they had to. We will return to this issue later, but shall ask first what kind of tasks the banks of note issue actually had in the late 19th and early 20th centuries, that is before the emergence of modern central banks in the 1930s.

<sup>23</sup> The Ottoman Bank was founded in 1856 solely by British capital. In 1863, French shareholders joined and the name was changed to Imperial Ottoman Bank.

#### 4.2 TASKS AND CHALLENGES IN MASTERING THESE TASKS

The banks of note issue were given three tasks: to issue bank notes; to act as a government banker; and to provide credit to agricultural, commercial and industrial enterprises. The first task was always explicit, the second task was always implicit but well understood and the third task depended on the specific circumstances of each country. In the Serbian case, for instance, the provision of credit was listed as the most important task of the National Bank of Serbia in the charter, and practice seems to have been in line with this (Sojic et al. 2006). A fourth task relates to ensuring exchange-rate stability. Given its importance at the time, we devote section 5 entirely to the exchange-rate performance and confine ourselves here to the other three tasks.

The three functions were not mutually exclusive, but the inherent tension is obvious. Monetised government debt means higher note issue without increasing reserves, threatening convertibility. Similar, the provision of long-term credit could result in a potentially dangerous maturity mismatch on the bank balance sheet.

##### *(i) Provision of credit to agricultural, commercial and industrial enterprises*

Contemporary accounts suggest that credit provision never became so important that it undermined the note issuance business, arguably with the exception of Bulgaria. Levy (1911), for instance, was concerned that mortgage loans with a maturity of up to 30 years accounted for a sixth of total assets of the Bulgarian National Bank, almost reaching the level of reserves. Combined with a similarly high amount of government debt on the balance sheet, Levy concluded that not enough assets could readily be called upon, and convertibility might be threatened in turn.

Such observations by contemporaries, however, remained the exception. Rather, it seems that while long-term lending remained important, there was a clear shift towards short-term lending before World War I (Lampe and Jackson 1982, p. 220). This might reflect a growing awareness that banks of note issue ought to hold predominantly short-term positions, but it could also be the result of increasing specialisation over time. The National Bank of Greece, for instance, was the only commercial bank in Greece when it was founded in 1841. As a result of this monopoly position, it would naturally embark on short-term and long-term lending operations. Only as a meaningful commercial banking sector developed over time in the various SEE countries, separating short-term and long-term lending institutionally became feasible.

##### *(ii) Issuance of banknotes*

How successfully did the banks fulfil their main task of issuing bank notes to the public, retaining them in circulation and making them convertible into specie upon request? Under the Classical Gold standard, the convertibility rule was seen as the best way to achieve price stability (Bordo and Kydland, 1995), seen to this day as one of the two main functions of a central bank (the other one being financial market stability). As explained in Section 3.4, convertibility was deliberately restricted under the interwar gold standard, both globally and in South-East Europe in particular. The following remarks therefore relate to the period 1870–1914 only.

We see considerable differences between banks, ranging from complete inconvertibility in the case of Austria-Hungary to well-established but imperfect gold convertibility in the Romanian case. In Austria-Hungary, banknotes remained inconvertible for the entire period. Born out of

necessity, the Austro-Hungarian bank pioneered exchange-rate stabilisation (around mint parity) without convertibility and was widely admired for successfully doing so for the 1896–1914 period, especially after successfully weathering the financial crisis of 1907 (Jobst 2009). We will return to this issue in the next section when describing the exchange-rate performance of the South-East European countries. In all other cases, some form of convertibility existed, but this practice did not amount to unconditional convertibility into gold for prolonged periods of time as was the case in England and Germany between the 1870s and World War I. From the available evidence, it seems that Romania came closest to this ideal: convertibility was in place until 1890, but given the bimetallic legislation, the National Bank of Romania could convert into gold or silver at its discretion. Compulsory gold convertibility came only with the 1890 gold standard legislation, but contemporary accounts suggest that the National Bank of Romania would exchange small amounts of currency for gold but become reluctant if large sums were involved (Sonndorfer 1905, p. 292, Lampe and Jackson 1982, p. 216, Stoenescu et al. 2008). Greece enjoyed only short spells of convertibility (1870–77, 1885, 1910–14), but reserved the right to convert either into gold or silver as a result of its 1867 bimetallic legislation. Only in the 1910–1914 period, under an explicit gold standard legislation, did the National Bank of Greece convert routinely into gold.

Special – and intriguing – cases are Bulgaria and Serbia. They demonstrate well the interplay between banks of note issue and the government; they also are testimony to the problems in issuing banknotes and subsequently retaining them in circulation. During the first six years of its operation, the Bulgarian National Bank did not possess the right to issue banknotes, presumably because the government did not want to share its seigniorage revenues from bringing currency into circulation. In 1885, the government eventually granted the right to issue bank notes, but the first issue (1885) consisted of so large denominations (20 leva and 50 leva, which is approx. 10 and 25 daily wages, respectively), that the bank notes quickly flowed back to the bank. Circulation was not helped either by still vivid memories of depreciated Ottoman paper currency in pre-independence Bulgaria and by the fact that convertibility did not take place into gold (despite a clear stipulation to this effect on the banknotes) but into silver plus agio (Levy 1911, p. 502 and p. 506). Banknote circulation increased somewhat after 1890, when banknotes of 5 and 10 leva were issued, but the basic problem remained. Supposedly gold-backed banknotes were converted only into silver plus agio and were hence not as good as gold. Realising this dilemma, the Bulgarian National Bank pushed for the introduction of silver banknotes (where the paper was of higher value than the underlying silver) but was repeatedly thwarted in its attempts by the government which did not want to see the bank of note issue emerge as a competitor in its quest for seigniorage revenue. The opportunity to overcome the government's reluctance to the issuance of silver-backed banknotes arose only in 1899, when the government forced the Bulgarian National Bank to take some government debt on its balance sheet. As a *quid pro quo*, the bank henceforth was allowed to issue both silver and gold banknotes. Silver-backed banknotes quickly overtook the (supposedly) gold-backed banknotes; only when the lev started to stabilise vis-à-vis gold currencies in 1906, did gold banknotes become more widely used and overtook their silver counterparts.

Serbia also knew silver- and gold-backed banknotes. The first banknotes, issued in 1884, were gold-backed but could not be kept in circulation. As in the Bulgarian case, the high denomination was apparently a problem, but unsatisfactory convertibility might well have contributed to this failure. Only one year later, the government, despite initial reluctance, authorised the issuance of 10 dinar banknotes convertible into silver, which henceforth formed the bulk of bank circulation until 1914. As in the Bulgarian case, it is not difficult to see why the silver-backed banknote

succeeded whereas the gold-backed notes failed: the paper was of higher value than the underlying silver.<sup>24</sup>

How successful were the banks in their efforts to issue banknotes and increase their share relative to coins? The Romanian contribution allows tracking changes over time, while the Austro-Hungarian and the Bulgarian chapters provide spot estimates. In the Romanian case, the share of banknotes increased from 48.0% (1881) over 62.9% (1892) to 79.5% in 1910, but even the value for 1910 remains below the 89% achieved by Austria-Hungary in 1892 already (contemporary spot estimate). The comparison with Bulgaria is also instructive: As late as 1910, the share of banknotes remained below 20% (17.8%). This comparison shows various aspects of the SEE experience before WWI. First, some banks of note issue were more successful in bringing notes in circulation than others, potentially reflecting a stronger bargaining position with the treasury regarding seigniorage rights. The numbers might also be an indication of how weak the monetary standards were in this part of Europe: they relied either to a large degree on banknotes (Austria-Hungary, Romania) or on copper coins (Bulgaria, cf. Section 3). It is instructive to compare our data with the figure for Germany (Sprenger 2002): Germany's share of coins was 63% and 64% in 1870 and 1913, respectively, of which more than 50% were gold coin (Sprenger 2002, p. 170 and p. 180). In other words, the gold standard in countries such as Germany was much more of a lived experience than in SEE.

*(iii) The bank of note issue as banker to the government*

Last but not least, the extent to which the bank of note issue acted as a government banker deserves some attention. The Bulgarian and the Greek contribution offer particular insight, as they both report a series of government debt held by the bank of note issue. Greece also reports a series which reports government debt as percentage of the bank's total assets. Both banks did not hold any government debt for prolonged periods (Bulgaria: until 1898) or only of insignificant amount (Greece: until 1860). This was followed by a period in which bank-held government debt increased strongly and was monetised through increased banknote issue which approximately rose in tandem (Bulgaria: until 1903; Greece: until 1898). This was followed by a period of stabilisation in which both government debt and banknotes in circulation were reduced (until 1911, that is until the outbreak of the First Balkan War in 1912). In the Greek case, government debt as percentage of total assets peaked in 1897 at 55% but was reduced to 26% in 1911. Similar debt dynamics were apparently underway in the case of Serbia, where government debt peaked at 33% but was much reduced by 1909 (Levy 1911, Lampe and Jackson 1982). In all three cases, reducing the banks' role as a government banker was a crucial objective of the international financial supervision arrangements which Serbia, Greece, and Bulgaria entered into in 1895, 1898 and 1902, respectively.

Romania and Austria-Hungary were more benign cases. Initially, the National Bank of Romania acted as government banker, but was able to free itself from further government borrowing in 1900; an achievement which coincided with the government's decision to withdraw its capital from the bank. In the following decade, government debt as a share of the bank's assets was very small. In the Austro-Hungarian case, there was some government debt until 1886 which was subsequently reduced step-by-step.

On the eve of the First Balkan War (1912), then, all South-East European banks of note issue had achieved remarkable progress in reducing lending to the government and, in turn, dependence on

<sup>24</sup> In 1896, the National Bank of Serbia introduced a 20-dinar gold-backed banknote, but it remains unclear if it was convertible and, if so, in what exactly.

the government. The Balkan Wars, followed by World War I, however, reversed this process. With international capital markets drying up, governments were left with no other option than to use the ‘printing press’ to satisfy their financial needs. The Bulgarian data are particularly instructive in this context, reflecting the general pattern in the region. Banknotes in circulation increased by factor 40 between 1911 and 1924. This increase is almost exclusively explained by the corresponding increase in government debt. Debt monetisation on this scale had implications both for the exchange-rate developments of South-East European currencies and for the relationship between government and bank of note issue (Sections 3.4 and 5.2).

## 5 EXCHANGE-RATE PERFORMANCE

### 5.1 THE EXCHANGE-RATE PERFORMANCE BEFORE WORLD WAR I

One of the main objectives of 19th century economic policy was stabilising the exchange rate to its main trading partners. In order to put the South-Eastern European experience in historical perspective, it is necessary to sketch the European and global regime shift towards gold monometallism occurring in the early 1870s. The 1850s and the 1860s European monetary system can be seen as a tripolar. Some countries, namely the German states, the Netherlands and the Scandinavian countries, followed the silver standard. Others, i.e. the UK (since 1717/1821) and Portugal (since 1854) followed the gold standard, while a third group of countries, comprising of France, Italy, Belgium and Switzerland, had adopted a bimetallic standard. The economic advantage of such a tripolar setup was that silver standard countries enjoyed exchange rate stability not only to other silver standard countries, but also to gold standard countries, as the bimetallic bloc kept the value of gold to silver close to the bimetallic gold-silver parity of 15.5:1. This system broke down in the early 1870s, when the price of silver came under increasing pressure, partly as a result of increased silver production, partly as a result of countries switching to the gold standard. By late 1873, both Germany and France had switched to the gold standard (the latter in its ‘limping’ form described in Section 3.1) which had been pioneered by England since the early 18th century. This meant that the three politically and economically most powerful European countries followed henceforth one and the same monetary standard. For all other European countries, this could only mean that the goal of economic policy was the adoption of the gold standard sooner rather than later.

While the objective was then clear, joining the gold standard *de jure* (through convertibility of banknotes into gold) or, at least, stabilising the exchange-rate to the gold standard countries such as England and Germany (*de facto* adherence, also referred to as shadowing the gold standard) never was an easy operation. All country contributions in this volume demonstrate the chasm between what peripheral countries wanted to achieve in the late 19th century and how long it took to actually do so. We saw in Section 3.2 that most South-East European countries passed bimetallic coinage legislation between 1867 and 1880, which we interpreted as an attempt of establishing a paper standard (backed ‘loosely’ by silver in the sense that the paper was actually of higher value), coupled with the long-term perspective of joining the gold standard. We also saw that only Romania (1890–1914) and Greece 1910–1914) ever introduced exclusive<sup>25</sup> convertibility into gold.

Figure 1 allows gauging how quickly the South-East European countries achieved their objective, showing the exchange-rate of all five countries compared to their mint parity. In measuring the deviation from mint parity (which set the ‘standard’ exchange-rate to gold standard countries), Figure 1

<sup>25</sup> Exclusive in the sense of removing the bank of note issue’s option to convert either into gold or silver, cf. Section 3.1.

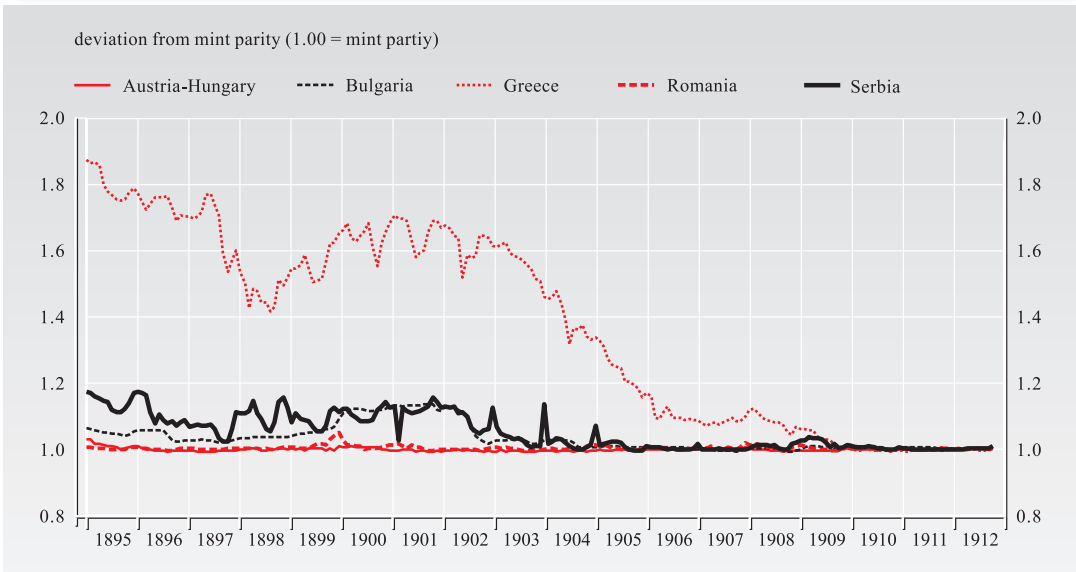
effectively shows the degree of depreciation vis-à-vis gold standard countries. In line with their convertibility regime, Romania and Greece enjoyed fixed exchange-rates for the period 1890–1914 and 1910-1914, respectively. But for most of the early period, the South-East European countries were not able to stabilise their exchange-rate. The exchange-rate development of the Greek drachma exhibits the most extreme case of devaluation. By the mid-1890s, Greek paper money was barely worth more than half of the gold drachma envisaged in the 1867 coinage legislation. Serbia is another extreme case where the depreciation lingered between 10% and 20% throughout the 1890s. Austria-Hungary, Bulgaria and Romania also had depreciated exchange-rates for a long time, although the level of depreciation of paper versus gold – the so-called agio – remained lower than in the other two cases.

**TABLE 4 Gold standard adherence in South-Eastern Europe before World War I based on exchange-rate performance**

Countries		Deviation from mint parity		
		Stand.	Max.	Avg.
<i>Austria-Hungary</i>	1/96-7/14	0.36%	1.13%	+ 0.05%
<i>Bulgaria</i>	1/06- 9/12	0.43%	1.60%	+ 0.51%
<i>Greece</i>	1/10-6/14	0.16%	0.30%	- 0.05%
<i>Serbia</i>	7/09-9/12	0.41%	1.80%	+ 0.47%
<i>Romania</i>	1/90-11/12	0.63%	5.27%	+ 0.48%

Source: Own calculations based on data described in Figure 1.  
 Note: Classification based on remaining within +/- 2.0% deviation from mint parity. Only Romania deviated more than 2.0% during two short periods which coincide with the Boor War (10/1899–01/1900) and the American Banking Crisis (11/1907).

**FIGURE 1 Deviation from Mint Parity for Five South-East European Countries, January 1895–September 1912**



Source: Author's calculations based on country chapters.  
 Note: Calculations are based on the exchange-rate vis-à-vis pound sterling with the following exceptions: agio data for Bulgaria (until December 1906) and Romania (until December 1890), exchange-rate vis-à-vis France for Greece and the price of the 20 dinar gold coin for Serbia.

Only at the turn of the century were the South-Eastern European countries able to stabilise their exchange-rates. Romania was the first country to do so in 1890 (by means of full-fledged convertibility as part of the gold standard legislation of that year), followed by Austria-Hungary in 1896. While the dual monarchy never introduced specie convertibility, it developed an impeccable exchange-rate record with a standard deviation from mint parity of only 0.36% and a maximum deviation of 1.13% (Table 4). The superior exchange-rate record of Austria-Hungary compared to Romania shows that exchange-rate stabilisation without convertibility was not necessarily inferior to exchange-rate stabilisation by formal gold adherence. Bulgaria, Serbia and Greece were able to stabilise their exchange-rates in 1906, 1909 and 1910, respectively. Table 4 provides the dates for which the South-East European countries shadowed the gold standard according to our definition under Section 3.1, that is remaining within a  $\pm 2.0\%$  band vis-à-vis other gold standard countries.

In international comparison, exchange-rate stabilisation of peripheral countries at around the turn of the century is not unusual and is often attributed to an upswing in global macroeconomic conditions starting in around the mid-1890s (Eichengreen and Flandreau 1997, Flandreau et al. 1998). Increased integration into the European economy, as evidenced by higher levels of business cycle synchronisation with England, France and Germany (Morys and Ivanov 2013), might have helped as well. The exchange-rate experience of the South-Eastern European countries, then, appears to follow a pattern encountered in other parts of the world as far afield as Japan and Argentina, perhaps with one notable exception. The end to the Belle Époque came two years earlier with the outbreak of the Balkan Wars in September-October 1912. All South-East European countries regained exchange-rate stability between late 1913 and July 1914, albeit with a higher level of variation around mint parity.

## 5.2 EXCHANGE-RATE PERFORMANCE IN THE INTERWAR PERIOD

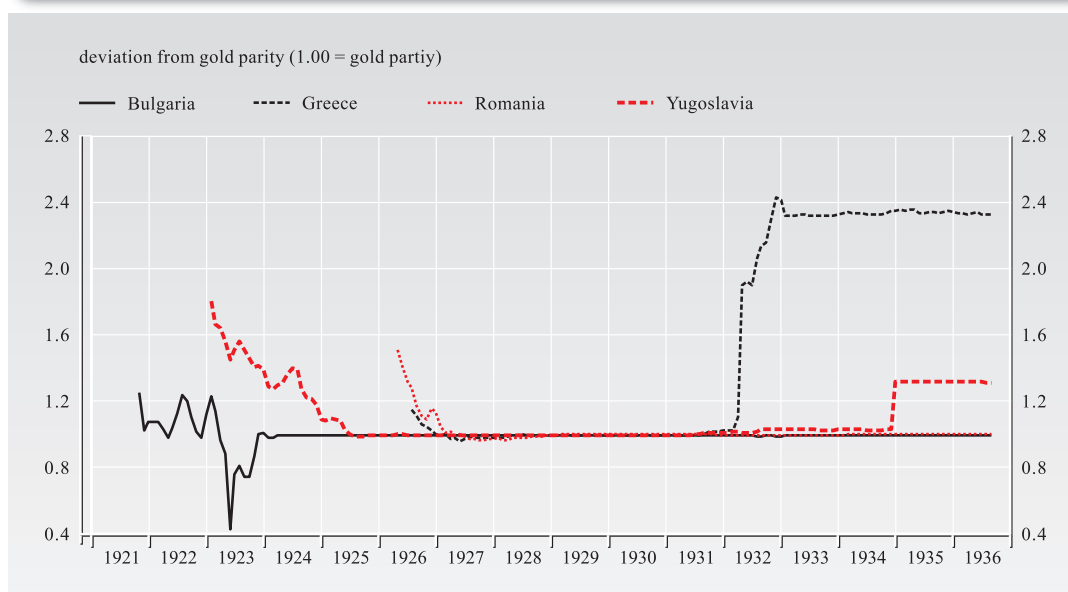
We mentioned in Section 3.3 that the 10- to 15-year process of currency stabilisation and making the banks of note issue more independent vis-à-vis the government came to an end with the Balkan Wars (1912–13) and World War I. With international capital markets closed, governments were left with no other option than to lean on their bank of note issue. By the early 1920s, public finances were in disarray in all countries, and government debt was monetised through the bank of note issue. We also pointed out that this heavy government intervention from 1912 to the early 1920s paved the way for renewing the earlier efforts, resulting in the more independent banks of note issue – and indeed full-fledged central banks – of the interwar period. As in the earlier stabilisation period, the impulse came from outside. In exchange for outside financial help – which in the 1920s often came through loans mediated by the League of Nations – creditor countries insisted on sound public finances and independent central banks. The SEE countries were required to pursue disinflationary policies in order to re-establish the gold link, policies which often lasted for 3 to 4 years and required short-term interest rates of 10% and more.

These developments are well reflected in the exchange-rate movements of the 1920s: a first period of fluctuating – and occasionally strongly depreciating – exchange-rates, to be followed by a stabilisation period which allowed all SEE countries to join the gold-exchange standard. While this was the standard pattern of re-establishing the gold link in the interwar period (Eichengreen 1996), two pieces of evidence suggest that the financial disarray following World War I was particularly large in South-East Europe; and hence the challenge of joining the gold standard particularly big. Most SEE countries were able to stabilise their currencies only in the late 1920s, that is, several years after the first wave of countries in 1925 (Wandschneider 2008, pp. 154–155); and achieving this required devaluations of extraordinary proportions. All SEE countries devalued by more



than factor 10 compared to their pre-war parity (in ascending order: Yugoslavia: 10.96; Greece: 14.87; Bulgaria: 26.71; Romania: 32.26). To put this into international perspective, it is worth pointing out that when France stabilised in 1926 at 20% of the pre-war parity, this was widely perceived as late and weak, given that the UK, another belligerent country, had stabilised earlier and at the old parity (Eichengreen 1996).

**FIGURE 2 Deviation from Gold Exchange Standard Parity for Four South-East European Countries, November 1921–September 1936**



Source: Author's calculations based on country chapters.

Note: Each time series begins at the point of maximum depreciation and ends in September 1936 (devaluation of French franc).

Calculations are based on the exchange-rate vis-à-vis pound sterling until August 1931 (with the exceptions of Bulgaria and Yugoslavia where the US dollar and the Swiss franc, respectively, were chosen due to early currency stabilisation) and vis-à-vis the French franc from September 1931 (UK devaluation) until September 1936 (gold bloc devaluation).

Yet, while the overall pattern is remarkably similar in the SEE countries, some country-specific idiosyncrasies throw an interesting light on the policies of financial stabilisation in the 1920s and how they interacted with interwar politics at large. Somewhat counterintuitively, the only country vanquished in World War I in our sample – Bulgaria was the first to stabilise its exchange-rate (in May 1924). This is explained by the fact that the winners of WWI – of whom France was a major creditor to Bulgaria – effectively forced the country to stabilise its currency, in an attempt to secure repayment of outstanding debt (Nenovsky and Dimitrova 2006). The early Bulgarian stabilisation was followed by Yugoslavia, Greece and Romania in July 1925, January 1927 and March 1927, respectively. *de jure* stabilisation followed in 1928 and 1929, respectively. Only in the case of Yugoslavia did the formal introduction of convertibility come as late as May 1931.<sup>26</sup>

While the façade of the gold standard had been re-established by the late 1920s, it remained weaker than in other parts of Europe. We argued above that the weakness of the gold standard in South-

<sup>26</sup> The very late introduction of convertibility in May 1931 raises an interesting question which Gnjatovic (2008) fails to address. In the same month, neighbouring Austria experienced a currency and banking crisis, being the first such event of the European financial crisis of 1931. It appears that the Yugoslav introduction of convertibility in the same month aimed at preventing contagion from Austria by strengthening (legalising) the gold link.

East Europe before World War I was reflected in the almost complete absence of gold coin circulation. As the interwar gold standard knew little gold coin circulation even in the economically advanced countries (gold bullion standard, cf. 3.4), such weakness would manifest itself in the composition of reserves. As indicated above, the interwar period saw the transition to the gold-exchange standard, but as early as 1926 a tendency started to exchange foreign reserves into gold. The SEE countries bucked this trend and maintained very low shares of metallic reserves as part of overall reserves. Metallic holdings as part of total reserves accounted for only 22.1% and 39.9% in the cases of Greece and Bulgaria immediately after *de jure* stabilisation in May 1928 and December 1928, respectively; only Romania was more prudent when it joined the gold exchange-standard with a ratio of 82.0%.

Only after the onset of the Great Depression did the SEE countries realise the balance sheet risks involved in foreign exchange, given that convertibility could no longer be taken for granted. They all began converting foreign exchange into (physical) gold, and by the end-of-year 1931, the proportion of gold as part of overall reserves had risen to 45.4%, 92.9% and 93.7% for Greece, Bulgaria and Romania, respectively. The particularly high share of foreign exchange as part of overall reserves in the Greek case also explains the increased vulnerability to the European financial crisis of 1931 (epitomised by Britain leaving gold in September 1931), an event which hit Greece severely given that most of its foreign exchange was held in pound sterling and has often been seen as one of the contributing factors to the Greek currency crisis of April 1932 (Christodoulakis 2013).

None of the SEE countries was able to escape the 1931 financial crisis. Within months of the Austrian (May) and the German (July) crisis, all SEE economies could maintain the value of their currencies only by the introduction of stringent foreign exchange controls in the months of September and October 1931. Capital controls, principally, involved concentrating all foreign exchange transactions at the central bank. Access to foreign exchange was henceforth not regulated by price (fluctuating exchange-rates within the gold points) but by quantity, that is, importers had to apply at the central bank for foreign exchange needed to pay their transactions (and exporters relinquishing their foreign exchange earnings there). The change from price to quantity restriction also explains why the exchange-rate reported in this volume for this period often shows exactly the same entry for months or even years (at least vis-à-vis one country which acted as numéraire, cf. below).

But capital controls were no panacea. In the Greek case, they quickly proved insufficient and Greece was forced to let the drachma float in April 1932. The Greek currency then devalued by more than 60% until June 1933 (measured against 1928 mint parity), before the currency was pegged to the Gold Bloc (led initially by the US and France, and after the 1933/34 US devaluation by France only). When France, the Netherlands and Switzerland devalued in September 1936 (as the last members of the Gold Bloc to do so), Greece saw no need for further devaluation for itself and instead preferred to switch to the Sterling Area; an orientation which it maintained until the outbreak of World War II.

The cases of Bulgaria and Romania were different. Capital controls sufficiently cordoned off their currencies and they were reluctant to devalue, as substantial parts of their debt were in French franc (see Tooze and Ivanov 2011 for the Bulgarian case). Identical exchange rates<sup>27</sup> between their

<sup>27</sup> In the Bulgarian case, entries for 5/1933 to 9/1936 show consistently 5.490 leva = 1 FF. Before 5/1933, there is minor fluctuation of the franc, and the US dollar appears to be the numéraire (139 leva = 1 dollar); on this issue, cf. Nedelchev (1940, p. 90). The orientation at the US dollar in Bulgaria until the 1933/34 devaluation is largely explained by the fact that Bulgaria stabilised its exchange-rate at a time when neither the UK nor France had stabilised their currencies. In the Romanian case, exchange-rate entries to France are identical for 12/1931–2/1934 and again for 4/1934 – 9/1936. The difference between the two periods is so small (6.590 lei = 1 FF versus 6.638 lei = 1 FF) that it is unlikely to affect our interpretation.

currencies and the French franc from the imposition of capital controls until September 1936 (when France devalued) suggest that both countries saw the French currency as their numéraire. As both countries maintained the value of their currencies only by means of stringent capital controls, they are not considered members of the Gold Bloc which was characterised precisely by maintaining fixed exchange-rates without resorting to such practices.

The Yugoslav experience falls somewhere in the middle. It initially followed Bulgaria and Romania in maintaining the value of their currencies through the imposition of (increasingly stringent) capital controls, but then devalued the dinar by 28.2% at the end of 1934. When the gold bloc countries devalued in September 1936, Yugoslavia saw no need for further devaluation for itself. After the devaluation of the gold bloc, Bulgaria, Romania and Yugoslavia all exhibited highly stable exchange-rates to the US dollar, suggesting that the dollar became their numéraire.

## 6 CONCLUDING REMARKS

The purpose of this chapter was to introduce the reader to the monetary history of the seven SEE countries from the 19th century to the outbreak of World War II (Albania, Austria-Hungary, Bulgaria, Greece, Ottoman Empire/Turkey, Romania, Serbia/Yugoslavia). The historiographical tradition in the region has tended to portray each country's political, economic and financial development as unique; we have aimed to overcome this approach by emphasising common patterns over country-specific idiosyncrasies. The picture which has emerged is of a group of countries which often faced similar monetary and financial challenges and, more often than not, opted for similar solutions. This finding vindicates the approach taken since 2006 by the seven SEEMHN central banks to study their respective monetary histories as part of a common effort. The chapters following this introduction are testimony to what the initiative has achieved so far, and they provide researchers in central banks and in academia with a solid platform to build their own research on.

We pointed to several aspects which are likely to dominate future research on the monetary history of South-Eastern Europe. First, assessing the relative importance of regional factors versus country-specific factors in the economic, financial and monetary development of the Balkan countries. In this introductory chapter we have highlighted common patterns, but a careful reading of the following eight chapters might well lead some readers to a different conclusion. Second, future research is likely to study in more detail the economic interactions between South-Eastern Europe, on the one hand, and England, France and Germany, on the other. At any point in time between political independence and World War II, the economic relationship of Balkan countries – for instance as measured by trade patterns (Morys and Ivanov 2013) – to one or several of the three European core economies was more important than to its regional neighbours. In other words, while treating South-Eastern Europe as a region is warranted, understanding the economic development of this region as a whole requires an understanding of its economic relations with Western Europe. Third, future research is likely to study patterns of path-dependency. In Section 2 we pointed out that some challenges facing the Balkan countries before World War I and in the interwar period were not altogether different from today's situation; it will be important to establish whether there is a systematic pattern or only a superficial similarity.

The external conditions for such historical research are uniquely good, as South-Eastern Europe will remain high on the agenda of European politics for the foreseeable future. From the six EU candidate countries, five are located in the Balkans: Albania, Montenegro, Serbia, the Former

Yugoslav Republic of Macedonia and Turkey.<sup>28</sup> Put differently, South-East Europe is, at present, the ‘frontier’ of the European project; a status which is likely to translate into increased ‘demand’ for historical research on this part of Europe. If the present volume can be a first step towards this direction, it will make a contribution to historical research as well as to the political project of European integration.

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<sup>28</sup> The sixth European Union candidate country is Iceland.

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# II

## Austria-Hungary: from 1863 to 1914

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### I MAJOR MONETARY EVENTS

#### I.1 FOUNDATIONS OF THE PRIVILEGIERTE OESTERREICHISCHE NATIONAL BANK

After the end of the Napoleonic Wars that had seen high inflation and sovereign default, Austria immediately began to put the monetary system back on a sound footing. The *Privilegierte Oesterreichische National-Bank* (OeNB, in the following also ‘the Bank’) was finally founded on 1 June 1816 as an independent and privately owned stock company with the exclusive right of issuing notes. The primary task of this new institution was to withdraw the devalued paper money, the florin ‘Viennese currency’ (*Gulden Wiener Währung, fl W.W.*), from circulation and to issue banknotes that were convertible into silver on demand. The new currency was denominated in florin Convention coins (*Gulden Conventionsmünze, fl CM*), defined by the 1753 convention between Austria and Bavaria that had formed the basis of the Austrian monetary system before the inflationary period. In the following decades, the newly created note-issuing bank succeeded reasonably well in stabilising the monetary system. While it contributed to financing the chronic budget deficit by discounting Treasury bills, it was able to keep a lid on the expansion of the money supply. By 1847, all remaining banknotes denominated in florin Viennese currency had been retired and replaced by new banknotes denominated in florin Convention coins (Pressburger 1976).

Until 1848, banknotes issued by the OeNB were not legal tender, yet they could be easily exchanged for metal currency at face value, so that they were widely accepted. However, the March revolution of 1848 shattered public trust in the banknotes and led to a rapid decrease of the bank’s metal reserves as people rushed to convert banknotes into specie. In addition, military expenditures increased sharply. On 22 May 1848, the government declared the banknotes legal tender and soon started to issue paper money on its own, the so-called state notes (*Staatsnoten*). As a consequence, bearers of silver florin demanded an agio – a premium – when exchanging them for state- or bank-issued paper money (Fellner 1911).

After the restoration of absolutist rule in 1849, stabilisation proved difficult, as a series of wars exacerbated the structural problems in public finances. The market price of full-bodied silver coins in terms of paper money fluctuated widely, with the agio on silver reaching 47% in 1854 during

<sup>1,2</sup> *Economic Analysis Division; Foreign Research Division.* The chapter extends earlier data releases of the South-eastern European historical database edited by the OeNB, *Proceedings of OeNB Workshops no. 13* (2008) and the Bank of Greece, *Working Paper no. 94* (2009). The authors would like to thank senior archivist Walter Antonowicz and Bernd Mussak from the OeNB Bank History Archives as well as Thomas Bartsch from the OeNB Business and Economics Library for their excellent support. For valuable comments and discussions, the authors are very grateful to Stephan Barisitz, Sophia Lazaretou, Matthias Morys, Michael Pammer, Lukas Reiss and Milan Sojić. Finally, the authors want to thank Maria Dienst, Bernd Jost, Makram Kahlil, Felix Köppl and Leopold Stefan for their unwearied efforts in accurately entering the data. The authors are responsible for any remaining errors. The views expressed herein are strictly those of the authors and do not necessarily reflect the views of the Oesterreichische Nationalbank or the Eurosystem.  
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the Crimean War (Kamitz 1949, p. 129). Reforms under finance minister Bruck (1855–1859) were successful in rebuilding metallic reserves and in narrowing the agio. The paper money issued by the government following the revolution – a total amount of 150 million florin Convention coins – was converted into banknotes, and the remaining government debt at the OeNB was guaranteed by state-owned property (Maerz and Socher 1973, p. 326; Fellner 1911, p. 18, footnote 4).

In parallel to these stabilisation efforts, Austria aimed at a realignment of its monetary system with the other German states. In January 1857, the Vienna Coinage Treaty (*Wiener Münzvertrag*) with the German Customs Union (*Deutscher Zollverein*) was concluded. The treaty stipulated a harmonisation of coinage and the obligation to introduce full convertibility no later than 1 January 1859. Accordingly, the Convention currency was replaced by the new silver florin Austrian currency<sup>3</sup> (*Gulden österreichischer Währung, fl ö.W.*), which was put in circulation in Austria on 6 September 1858 and in Hungary on 1 November 1858, respectively. Full convertibility seemed to have been achieved at last (Fellner 1911).

Stability was short-lived, however. A few months later, war broke out with France and Piedmont-Sardinia. The amount of banknotes in circulation increased again sharply. On 25 April 1859, the convertibility of banknotes into silver coins had to be suspended and was in fact never re-introduced until the break-up of the monarchy in 1918. The *agio* peaked at 53% in June 1859, the highest rate ever (Kamitz 1949, p. 129).

**TABLE I Chronology of major monetary events**

1816	Foundation of the privilegirte Oesterreichische National-Bank (OeNB).
1841	Re-chartering ( <i>2<sup>nd</sup> Privilegium</i> ).
1857	Conclusion of the Vienna Coinage Treaty ( <i>Wiener Münzvertrag</i> ) with the German Customs Union ( <i>Deutscher Zollverein</i> ).
1858	Florin Austrian currency replaces the florin Convention coin; the period of full convertibility of the new banknotes into silver coins lasts from 6 September 1858 until 29 April 1859 in Austria and from 1 November 1858 until 25 April 1859 in Hungary.
1862	The new bank act ( <i>Plener Act</i> ) extending the exclusive right to issue banknotes is passed. It comes into force in 1863 ( <i>3<sup>rd</sup> Privilegium</i> ).
1866	Issuance of uncovered state notes to finance the Austrian-Prussian War; revocation of the Vienna Coinage Treaty of 1857.
1867	Austro-Hungarian Compromise ( <i>Ausgleich</i> ), reorientation towards the Latin Monetary Union.
1878	Re-chartering ( <i>4<sup>th</sup> Privilegium</i> ) and reorganisation of the OeNB, which is renamed Austro-Hungarian Bank ( <i>Oesterreichisch-ungarische Bank, OeUB</i> ).
1879	Suspension of the free coinage of silver.
1888	Re-chartering ( <i>5<sup>th</sup> Privilegium</i> ).
1892	Gold standard legislation enacted.
1894	Redemption of uncovered state notes started (which lasted until 1907), state notes are replaced by the gold-backed crown currency ( <i>Krone Währung</i> ).
1896	The OeUB assumes responsibility for managing the exchange rate.
1899	Re-chartering ( <i>6<sup>th</sup> Privilegium</i> ).
1900	The OeUB and the imperial administration switch to accounting in crowns.
1911	Re-chartering ( <i>7<sup>th</sup> Privilegium</i> ).
1914	Partial suspension of the bank charter after the outbreak of World War I in July.

Source: Authors' compilation.

<sup>3</sup> One florin Austrian currency was equivalent to 11 1/9 grams of fine silver. 100 florin Convention coins = 105 florin Austrian currency. Hereinafter in this chapter, the term florin (fl) always refers to the florin Austrian currency.

## 1.2 FROM THE BANK ACT OF 1862 TO THE REORGANISATION AS OESTERREICHISCH-UNGARISCHE BANK

The renewed severe currency disruption prompted the government to pass a new bank act<sup>4</sup> on 27 December 1862, the *Plener Act*, named after the then minister of finance. The third charter (*3<sup>rd</sup> Privilegium*) came into force in 1863; that year marks the starting point for most monetary time series presented here.

The new charter granted the OeNB more independence, while tying the issue of banknotes to the metallic reserves in a similar way as the 1844 Peel's Act had done for the Bank of England.<sup>5</sup> In addition, the government pledged to repay part of its debt to the OeNB, and full convertibility of banknotes into silver had to be re-introduced in 1866 at the latest.

The successful completion of the agenda was interrupted by Austria's defeat in the Austro-Prussian War of 1866. In a breach of the bank's charter, under which the OeNB had the exclusive right to issue paper money, the government decreed all 1 and 5 florin banknotes (in total fl 150 million) to be a liability of the government and forced the OeNB to provide the same sum in higher denomination banknotes. Through further direct issuance of state notes, the total amount of state notes in circulation soared to fl 300 million by the end of 1867, by which time the share of state notes had increased to 54% of the total paper money in circulation (Fellner 1911, p. 21).<sup>6</sup> The *agio* reappeared to peak at 30% in 1867 and only gradually declined over the next decade (see AH3F series).

Following the demise of the German Confederacy (*Deutscher Bund*), Austria pulled out of the Vienna Coinage Treaty of 1857 and moved towards the Latin Monetary Union (LMU) in 1867. Although Austria started to mint gold coins<sup>7</sup> and envisaged joining the LMU in 1870, the Empire actually never did, as continuing financial difficulties made a swift return to specie convertibility illusory (Bachinger et al. 1987, pp. 33–35).

As a further consequence of the defeat in 1866, the Austro-Hungarian Compromise (*Ausgleich*) of 1867 turned the former unitary Austrian Empire into a dualist state, recognising the autonomy of the lands of the Hungarian crown. The institutional transformation was reflected in a reorganisation of the OeNB when its charter was renewed in 1878. The new charter (*4<sup>th</sup> Privilegium*) established a quota for Hungarian citizens in the decision-making bodies and provided for the establishment of head offices in both Vienna and Budapest. While the head offices became responsible for the daily management and, in particular, for the oversight of the numerous branch offices in the respective parts of the Empire, the central decision-making bodies retained jurisdiction over strategic decisions and the discount rate. In recognition of the organisational changes, the OeNB was renamed *Oesterreichisch-ungarische Bank* (Austro-Hungarian Bank, OeUB). The OeUB continued to enjoy the exclusive right of note issue with the ultimate aim of re-establishing specie convertibility. However, Article 111 of the statutes of the OeUB (1878) stipulated that full convertibility into specie should remain suspended as long as there were state notes in circulation. Thus the planned introduction of the gold standard required the withdrawal of fl 312 million of uncovered state notes, which in turn required an agreement between Austria and Hungary on how to deal with the floating debt incurred before the conclusion of the 1867 Compromise. Article XV

<sup>4</sup> Imperial Law Gazette, No. 2 ex 1863.

<sup>5</sup> For details on coverage rules, see subsection 2.1.1.

<sup>6</sup> At the end of 1891, state notes still made up 44% of the monetary base.

<sup>7</sup> Austria-Hungary minted gold coins of a value of 4 and 8 florins Austrian currency, which was the equivalent of 10 and 20 French francs. The coins traded at a premium to paper money.

of the Compromise decreed that Austria and Hungary were both liable for serving the floating debt but left open the question of burden sharing (Fellner 1911, p. 126).

### 1.3 THE DECLINE OF SILVER AND THE ADOPTION OF THE CROWN CURRENCY

In the meantime, the depreciation of silver relative to gold in international markets after 1873 had a significant impact on the development of Austrian coinage and the monetary system in the last third of the 19th century. Before the 1870s, the silver florin had always traded at a premium to paper currency, but by 1878 the international silver price had dropped enough so that importing silver and minting silver florin coins paid off again (see Figure 3). Within six months, the metallic reserves of the OeUB increased by 16% to fl 158.3 million in January 1879. As most other European countries before, the government suspended the free coinage of silver and article 87 of the Bank's charter, which obliged the OeUB to purchase unlimited amounts of silver bullion at a fixed price (Pressburger 1976 II, p. 122). The silver agio disappeared and instead the value of the florin started to rise above the market value of its silver content.

By the end of the 1870s, most Western European countries and the US had tied their currencies to gold. Similar plans existed in Austria-Hungary but were significantly delayed by three closely related issues: (1) acquiring the necessary gold, (2) retiring a large outstanding amount of uncovered notes issued by the state, and in particular (3) reaching a burden-sharing agreement between Austria and Hungary. In the meantime, with free minting of silver suspended and the national currency trading at a premium to silver, Austria-Hungary retained a pure fiat standard. As a consequence of relatively slow growth of the monetary base relative to real GDP and an improving fiscal situation in both Austria and Hungary – implying a lower likelihood for future debt monetisation and an increased likelihood of the eventual adoption of a gold standard – the *agio* on the gold florin declined from 25% to 16% between 1887 and 1891 (k.k. Finanzministerium 1892b, Table 154, p. 234).

With nominal GDP and the demand for money rising, the strict limit on banknotes in circulation established by the *Plener Act* in 1862 proved increasingly restrictive and was abolished when the charter was renewed in 1887. Instead, the OeUB now switched to a proportional system under which it had to pay taxes on any excess note issuance along the lines of the German Reichsbank.<sup>8</sup>

Monetary reform moved back centre stage in 1892 when Austria and Hungary finally agreed on how to redeem the floating debt and thereby paved the way for adopting the gold standard.<sup>9</sup> The crown currency was introduced and set equal to a half-florin.<sup>10</sup> The value of the new currency was thus set at about 19% below the value of the gold florin coin (minted according to the rules of the Latin Monetary Union), which reflected the average depreciation of the florin in the years preceding monetary reform.

Monetary reform included the withdrawal of state notes from circulation from July 1894 onward. In a first phase, fl 200 million were replaced by banknotes and gold coins deposited at the OeUB. The remaining fl 112 million of state notes were withdrawn after 1901. On 28 February 1903, state notes ceased to be legal tender (Fellner 1911, pp. 128–134).

<sup>8</sup> For details on coverage rules, see subsection 2.1.1.

<sup>9</sup> Article XVIII of the currency laws of 1892 decreed that the Kingdoms and Lands represented in the Imperial Council (*Die im Reichsrat vertretenen Königreiche und Länder*) shall amortise 70% of the floating debt and the Lands of the Holy Hungarian Crown of Saint Stephan the remaining 30%.

<sup>10</sup> One *Krone* (K) was subdivided into 100 *Heller* (h).

The passing of the gold standard legislation, however, did not immediately stabilise the exchange rates relative to the gold currencies. The gold agio increased to 6.5% in November 1893, declined to 3.8% at year-end and did not drop below 1% until late 1895 (Pressburger 1976). In 1896, the OeUB assumed the main responsibility for managing the exchange rate and succeeded in maintaining exchange rates close to mint par until the outbreak of World War I. As contemporaries noted, even though gold convertibility remained suspended over the first decade of the 20th century, the exchange rate of the crown versus the German mark, the pound sterling and the French franc fluctuated within bands as narrow as (or even narrower than) those of the currencies that were legally convertible into gold (Zuckerlandl 1911, pp. 112–114). What was crucial in this respect was that, in 1901, the OeUB also became responsible for carrying out the government's gold and foreign exchange transactions (Jobst 2009). While Austria-Hungary thus *de facto* operated a gold standard, legal convertibility of banknotes into specie was never established. In other words, Austria-Hungary shadowed the gold standard from 1896 to 1914.

## 2 DEFINITION AND DESCRIPTION OF VARIABLES

Most of the time series presented here start in 1863. This starting point was chosen as it marks at least three significant legal and institutional changes which constitute a structural break in economic time series: (i) the Bank charter of 1862, which introduced new metallic coverage rules and strengthened the independence of the OeNB; (ii) the enforcement of the gross accounting principle for the central government budget; and (iii) the establishment of the *k.k. Statistische Central-Commission*, which significantly improved official statistics. All series end with the outbreak of World War I, i.e. in June 1914 for monthly time series and 1913 for annual time series.

For monetary variables and most financial variables, the time series refer to the whole territory of the Austrian Empire or the Austro-Hungarian monarchy, respectively. After 1867, the time series for the real economy, government finances and long-term interest rates distinguish (wherever possible) between Austria, short-hand for the Kingdoms and Lands represented in the Imperial Council (*Die im Reichsrat vertretenen Königreiche und Länder*), and Hungary, short-hand for the Lands of the Holy Hungarian Crown of Saint Stephen (*A Magyar Szent Korona Országai Zemlje krune svetog Stjepana*, i.e. the Kingdom of Hungary, the Kingdom of Croatia-Slavonia, and Transylvania). Entries of value terms are denominated in florin Austrian currency for the period January 1863 to December 1899 and in crowns afterwards, since the OeUB and the imperial administration switched to accounting in crowns on 1 January 1900. The Vienna stock exchange started quoting exchange rates in crowns already at the end of December 1899. We replicate this pattern.

The following index table gives an overview of all series on Austria-Hungary published here.

### INDEX TABLE - Country: AUSTRIA-HUNGARY

*continue*

List of Variables	Time Span	Data Frequency	Unit of account	Series Code
<b>1. MONETARY VARIABLES</b>				
<i>Total statutory reserves</i>	1863–1913	annual	in national currency*	AH1A_A
	Jan. 1863–June 1914	monthly	(millions), end-of-period	AH1A_M
<i>Gold</i>	1863–1913	annual	in national currency	AH1B_A
	Jan. 1881–June 1914	monthly	(millions), end-of-period	AH1B_M
<i>Silver</i>	1863–1913	annual	in national currency	AH1C_A
	Jan. 1881–June 1914	monthly	(millions), end-of-period	AH1C_M

## INDEX TABLE - Country: AUSTRIA-HUNGARY

continue

List of Variables	Time Span	Data Frequency	Unit of account	Series Code
<b>1. MONETARY VARIABLES</b>				
<i>Foreign bills included in statutory reserves</i>	1863–1913	annual	in national currency	AH1D_A
	Jan. 1863–June 1914	monthly	(millions), end-of-period	AH1D_M
<i>Foreign bills not included in statutory reserves</i>	1863–1913	annual	in national currency	AH1E_A
	Jan. 1863–Dec. 1913	monthly	(millions), end-of-period	AH1E_M
<i>Foreign deposits</i>	1863–1913	annual	in national currency	AH1F_A
	Jan. 1863–Dec. 1913	monthly	(millions), end-of-period	AH1F_M
<i>Foreign liabilities</i>	1893–1913	annual	in national currency	AH1G_A
<i>Monetary base</i>	1863–1913	annual	in national currency	AH1H_A
	Jan. 1863–June 1914	monthly	(millions), end-of-period	AH1H_M
<i>Banknotes in circulation</i>	1863–1913	annual	in national currency	AH1I_A
	Jan. 1863–June 1914	monthly	(millions), end-of-period	AH1I_M
<i>State notes in circulation</i>	1866–1906	annual	in national currency	AH1J_A
	May 1866–Aug. 1907	monthly	(millions), end-of-period	AH1J_M
<i>Other central bank liabilities at sight</i>	1863–1913	annual	in national currency	AH1K_A
	Jan. 1863–June 1914	monthly	(millions), end-of-period	AH1K_M
<i>of which: Giro deposits</i>	1863–1913	annual	in national currency	AH1L_A
	Jan. 1863–Dec. 1904	monthly	(millions), end-of-period	AH1L_M
<i>Narrow money</i>	1867–1913	annual	in national currency	AH1M_A
<i>Broad money</i>	1867–1913	annual	in national currency	AH1N_A
<b>2. INTEREST RATES</b>				
<i>Official discount rate</i>	1863–1913	annual	per cent, average	AH2A_A
	Jan. 1863–June 1914	monthly	per cent, end-of-period	AH2A_M
	1860–1914	date of change	per cent	AH2A_D
<i>Official lombard rate</i>	1863–1913	annual	per cent, average	AH2B_A
	Jan. 1863–June 1914	monthly	per cent, end-of-period	AH2B_M
	1860–1914	date of change	per cent	AH2B_D
<i>Short-term market rate</i>	1863–1913	annual	per cent, average	AH2C_A
<i>Austrian 4% gold bond</i>	Jan. 1863–June 1914	monthly	per cent, end-of-period	AH2C_M
	1876–1913	annual	average	AH2D_A
<i>Austrian yield in gold</i>	Dec. 1876–June 1914	monthly	end-of-period	AH2D_M
	1876–1913	annual	per cent, average	AH2E_A
<i>Hungarian 4% gold bond</i>	Dec. 1876–June 1914	monthly	per cent, end-of-period	AH2E_M
	1881–1913	annual	average	AH2F_A
<i>Hungarian yield in gold</i>	June 1881–June 1914	monthly	end-of-period	AH2F_M
	1881–1913	annual	per cent, average	AH2G_A
<i>Hungarian yield in gold</i>	June 1881–June 1914	monthly	per cent, end-of-period	AH2G_M
<b>3. EXCHANGE RATES</b>				
<i>Pound sterling</i>	1863–1913	annual	in national currency,* period average	AH3A_A
	Jan. 1863–June 1914	monthly	in national currency, end-of-period	AH3A_M
<i>French franc</i>	1863–1913	annual	in national currency, period average	AH3B_A
	Jan. 1863–June 1914	monthly	in national currency, end-of-period	AH3B_M
<i>Florin Southern German currency</i>	1863–1874	annual	in national currency, period average	AH3C_A
	Jan. 1863–Dec. 1874	monthly	in national currency, end-of-period	AH3C_M
<i>Mark</i>	1875–1913	annual	in national currency, period average	AH3D_A
	Jan. 1875–June 1914	monthly	in national currency, end-of-period	AH3D_M
<i>20 French franc gold coin</i>	1863–1913	annual	in national currency, period average	AH3E_A
	Jan. 1863–June 1914	monthly	in national currency, end-of-period	AH3E_M
<i>Florin Austrian currency in silver coin</i>	1863–1879	annual	in national currency, period average	AH3F_A
	Jan. 1863–Jan. 1879	monthly	in national currency, end-of-period	AH3F_M

## INDEX TABLE - Country: AUSTRIA-HUNGARY

List of Variables	Time Span	Data Frequency	Unit of account	Series Code
<b>4. GOVERNMENT FINANCES</b>				
<i>Austrian government ordinary expenditure</i>	1863–1913	annual	in national currency* (thousands)	AH4A_A
<i>Austrian government interest payments</i>	1863–1913	annual	in national currency (thousands)	AH4B_A
<i>Austrian government debt redemption</i>	1863–1913	annual	in national currency (thousands)	AH4C_A
<i>Adjusted Austrian government extraordinary expenditure</i>	1865–1913	annual	in national currency (thousands)	AH4D_A
<i>Austrian government ordinary revenue</i>	1863–1913	annual	in national currency (thousands)	AH4E_A
<i>Adjusted Austrian government extraordinary revenue</i>	1865–1913	annual	in national currency (thousands)	AH4F_A
<i>Hungarian government ordinary expenditure</i>	1869–1913	annual	in national currency (thousands)	AH4G_A
<i>Hungarian government extraordinary expenditure</i>	1869–1913	annual	in national currency (thousands)	AH4H_A
<i>Hungarian government ordinary revenue</i>	1869–1913	annual	in national currency (thousands)	AH4I_A
<i>Hungarian government extraordinary revenue</i>	1869–1913	annual	in national currency (thousands)	AH4J_A
<i>Common budget expenditure</i>	1868–1913	annual	in national currency (thousands)	AH4K_A
<i>Common budget revenue</i>	1868–1913	annual	in national currency (thousands)	AH4K_L
<i>Common budget customs duties</i>	1868–1913	annual	in national currency (thousands)	AH4M_A
<i>Common budget Austrian and Hungarian contributions</i>	1868–1913	annual	in national currency (thousands)	AH4N_A
<i>Pre-1867 government debt</i>	1863–1913	annual	in national currency (thousands)	AH4O_A
<i>Austrian government debt</i>	1867–1913	annual	in national currency (thousands)	AH4P_A
<i>Austrian emancipation bonds</i>	1863–1913	annual	in national currency (thousands)	AH4Q_A
<i>Hungarian government debt</i>	1868–1913	annual	in national currency (thousands)	AH4R_A
<i>Hungarian emancipation bonds</i>	1868–1913	annual	in national currency (thousands)	AH4S_A
<b>5. PRICES, PRODUCTION AND LABOUR</b>				
<i>Consumer price index for Austria (1914=100)</i>	1863–1913	annual	index number	AH5A_A
<i>Manufacturing production index for Austria (1913=100)</i>	1870–1913	annual	index number	AH5B_A
<i>Manufacturing production index for Hungary (1913=100)</i>	1870–1913	annual	index number	AH5C_A
<b>6. NATIONAL ACCOUNTS AND POPULATION</b>				
<i>GDP, nominal terms, Austria</i>	1870–1913	annual	in national currency* (millions), at current prices	AH6A_A
<i>GDP, nominal terms, Hungary</i>	1870–1913	annual	in national currency (millions), at current prices	AH6B_A
<i>GDP, real terms, Austria</i>	1870–1913	annual	in national currency (millions), at 1913 prices	AH6C_A
<i>GDP, real terms, Hungary</i>	1870–1913	annual	in national currency (millions), at 1913 prices	AH6D_A
<i>Real GDP per capita, Austria</i>	1870–1913	annual	in national currency, at 1913 prices	AH6E_A
<i>Real GDP per capita, Hungary</i>	1870–1913	annual	in national currency, at 1913 prices	AH6F_A
<i>Imports</i>	1863–1913	annual	in national currency (millions)	AH6G_A
<i>Exports</i>	1863–1913	annual	in national currency (millions)	AH6H_A
<i>Population, Austria</i>	1863–1913	annual	in million inhabitants	AH6I_A
<i>Population, Hungary</i>	1869–1910	decennial	in million inhabitants	AH6J_A

Source: OeNB.

(\*) Entries of value terms are denominated in florin Austrian currency for the period January 1863 to December 1899 and in crowns afterwards. Exchange rates refer to the crown currency already at the end of December 1899.

## 2.1 MONETARY VARIABLES

### 2.1.1 Reserves

Before presenting the series on reserve assets held by the OeNB, a few clarifying remarks are in order on the concept of reserves and on contemporary accounting practices.

#### Concepts

In the 19th century, reserves were typically held for *domestic* purposes: Sufficient reserves were meant to ensure that the notes issued by a bank of issue were convertible into legal tender on demand. Therefore, the concept of reserves was largely shaped by the laws governing what constituted legal tender. In other words, reserves were subject to a ‘statutory definition’ at the time.

Such an understanding of reserves is linked but not necessarily equivalent to, a modern concept of reserves as e.g. used by the IMF. The IMF definition focuses on the ability to settle *international* claims rather than national convertibility. Reserves – i.e. ‘(net) foreign assets’ (NFA) in IMF terminology – are made up of foreign currency assets and gold that ‘are readily available to and controlled by monetary authorities for direct financing of payments imbalances, for indirectly regulating the magnitudes of such imbalances through intervention in exchange markets to affect the currency exchange rate, and/or for other purposes.’ As this definition builds on the economic functions of reserve assets, it can be labelled an economic concept of reserves.

To the extent that currency units in the 19th century were defined in terms of precious metals (silver, gold or both) that had an intrinsic value in international markets, reserves held for the purpose of domestic convertibility could equally serve to finance payments imbalances and support the value of the domestic currency abroad. However, while close, the legal concept and the economic concept are not necessarily congruent. Some assets defined as legal tender currency could not be used to settle international claims (or at least not at face value, a case in point being legal tender silver coins in the late 19th century). At the same time, other assets that could be used to settle foreign claims were not legal tender and therefore not always included in the legal definition of reserves. Examples are foreign bills or deposits of the note issuing bank held with foreign banks.

In some cases, researchers might prefer the concept of net reserves. Foreign liabilities reduce the availability of foreign assets to finance payment imbalances and affect exchange rates. Historically, statutory reserve definitions refer to assets and ignore possible liabilities. As it will turn out, this issue is of secondary importance in the case of Austria-Hungary.

Below, reserves are presented according to both the statutory definition and the economic concept of foreign assets and liabilities. Naturally, the presentation of reserves in published balance sheets and weekly reports was strongly influenced by the official or statutory definition. Thus, reconstructing the official reserves series is a fairly straightforward proposition. Coming up with the corresponding data based on an economic concept of reserves is much trickier, however. Sometimes figures can be gleaned from internal documents, yet the amounts reported and the definitions applied have changed over time and are much less well documented than the official figures. This has to be kept in mind when using the data presented below.

A further complication is that the statutory role of reserves (e.g. a minimum cover requirement) principally allowed observers to predict policy moves on the basis of reserve levels and changes



therein. A strong decline in reserves could e.g. signal an imminent tightening of monetary policy. As a result, banks of issue at times tried to present their balance sheet in a way that suited their policy. The less-than-complete overlap between statutory definition and economic concept allowed banks to operate covertly, e.g. by choosing not to report certain types of reserve assets and by performing some of their operations in these assets. The OeUB, for instance, did not report parts of its foreign bills holdings and none of its foreign deposits, while using primarily these assets in its foreign exchange operations.

### Accounting practices

#### *Valuation*

The bank held different types of reserve assets (silver and gold in bars and minted, foreign bank notes, bills and deposits) whose relative prices in the market could change over time. This raises the question what prices were used when holdings were converted into the domestic monetary unit for reporting in the balance sheet. The reserve series data as presented here use conversion rates that were in place when the respective balance sheet was drawn up. Increases (decreases) in the reported numbers can thus reflect both increases (decreases) in real stocks as well as changes in the conversion rates used. To be able to interpret the series properly, these two factors have to be kept separate.

From 1858 to 1899, the bank kept its books in Austrian florin, which was defined in terms of its silver content. Foreign silver coins, silver bullion and bills payable in foreign silver currencies were converted into florin according to mint parity (1 florin = 10g pure silver).<sup>11</sup> Before 1878 the circulating (paper) florin was typically undervalued relative to mint parity (i.e. silver coins traded at a premium, the *agio*), which meant that foreign exchange and metal holdings were undervalued in the balance sheet relative to their market value expressed in paper florins. This situation changed following the decline of silver prices in international markets. After 1878, the market value of the silver contained in a one-florin silver coin declined below one paper florin, and silver assets in the balance sheet, in particular silver coins, were increasingly overvalued relative to the market value of un-coined silver. However, given the legal status of the silver florin, the bank always accounted for its silver florin coin holdings at face value.

In contrast, before 1892, the bank had more leeway in the treatment of gold and foreign exchange payable in gold. Gold holdings made up a significant share of the bank's reserves from the early 1870s onwards. In principle, the bank might have priced gold assets at market value. Yet, in anticipation of an eventual shift towards a gold-based or bimetallic currency and to avoid future revaluation losses, the bank adopted a conservative approach and used the lowest value of gold that was likely to be adopted in such a case.

Consequently, the valuation of gold assets tracked political developments and the debate on monetary reform. The 4 florin and 8 florin gold coins minted following the Paris monetary conference in 1867, whose value was equivalent to that of the French 10 and 20 franc gold coins, had a gold-silver ratio of 1:15 25/81 (Mecenseffy 1897, p. 7). Gold and gold bills were valued at this ratio until 1876.<sup>12</sup> In the balance sheet dated 31 December 1877, francs and gold florin were revalued at the parity of the Latin Monetary Union of 1:15.5; in 1880 sterling holdings were equally revalued, yielding book gains of fl 831,601.80 and fl 431,863.82, respectively.

<sup>11</sup> According to the Vienna coinage treaty, 45 florin Austrian currency were minted from one pound (=500g) silver 900/1000 fine.

<sup>12</sup> In view of an eventual reminting of English sovereigns that was also discussed at the Paris conference, sterling was converted at a slightly lower rate of fl 10 for one pound (Anonymous 1898, p. 14).

The gold standard legislation of 1892 established the gold crown, which replaced the florin at a rate of 2 K= 1 fl. To take account of the long-run depreciation of the circulating paper florin relative to the gold value as initially proposed at the 1867 conference, two new crowns were to contain less gold than the old gold florin. The gold content of the new coin implied a gold-silver ratio of 1:18  $\frac{2}{9}$  (instead of 1:15.5). As a consequence, the country's gold reserves were revalued, and the gains of fl 13,525,167 were temporarily included in retained earnings (surplus fund) and later transferred to metallic reserves.

#### *Treatment of borrowing, lending and term contracts*

In general, reserve requirements (and thus also the reported data) refer to physical stocks held by the OeNB/OeUB. Assets that are only temporarily in possession of the bank (e.g. borrowed assets) are therefore included in the reported data, whereas assets that are temporarily not in the possession of the bank (e.g. lent assets) are not included. If a considerable part of foreign assets is in fact borrowed, the series on gross assets can therefore become highly misleading.<sup>13</sup> Similar distortions can arise when assets are bought or sold forward, in the latter case with the result that assets which still appear in the balance sheet are in fact no longer freely available. The OeNB/OeUB was active in both lending and borrowing and term contracts.

In reality, the bank borrowed reserve items only infrequently. Most of these operations occurred at the beginning of the 1870s, when the bank converted part of its reserves from silver into gold, but volumes rarely exceeded fl 1 million on average (see appendices to the annual reports). In contrast, the lending of gold, bills, and deposits was far more important and constituted a key policy instrument in later years (Jobst 2009). For the years 1893–1913, details on lending and borrowing of reserve assets can be found in the balance sheet files. Series AH1G in the data file gives the volume of net lending at the end of the year. Information on lending volumes is only available on an annual basis. In the monthly series gross figures are reported, i.e. they include both the physical stocks held by the bank and amounts lent.

The importance of term contracts reflects the very early emergence of forward markets for foreign exchange in Vienna, which was likely driven by the need to hedge international securities arbitrage operations against the risks of the floating florin exchange rate (Einzig 1961, Flandreau and Komlos 2006). There is considerable evidence that the bank regularly operated in these markets (Jobst 2009). This has again critical ramifications for the information content of the reported reserve series. Forward sales and purchases entail cash transfers not at the moment of contracting but only on the settlement day, which might be any time in the future, typically at the end of the month. According to the accounting rules, reserve holdings appeared unchanged as long as the deal was not settled. As far as we know, the forward positions cannot be reconstructed from the bank's archives. Scattered evidence indicates that open positions could be relatively large.<sup>14</sup> However, there is no way to correct systematically for forward contracts. The series presented here have therefore to be interpreted with due caution, in particular when looking at short-term changes in reserve holdings, as these might be distorted by unaccounted forward transactions.

#### **Statutory reserves**

The bank's statutory reserves – labelled “*Metallschatz*” (metallic treasure), “*Barvorrat*” (cash reserves) or “*Metallvorrath*” (metallic reserves) – are a key indicator, as the amount of banknotes

<sup>13</sup> For an extreme example, see Reis (2002) on Portugal.

<sup>14</sup> At the end of 1905, for instance, the net open forward position was over K 17 million when holdings of foreign bills and deposits amounted to about K 93 million, i.e. the reported numbers misrepresent holdings actually available for policy purposes by 18%.

issued by the bank was tied to reserve levels.<sup>15</sup> As such, the publication of data on reserves was subject to specific requirements.

The eligibility criteria for reserve assets changed over time. Table AH3 lists the relevant clauses in the statutes and their modification over time.

**TABLE 3 Assets eligible for inclusion in metallic reserves**

*continue*

Year	Eligible assets	Statutes	Verbatim
1863	Legal silver coins and silver bars. Up to ¼ of total in gold coins or gold bars.	No. 14 (§ 14)	[...] Es muß jedoch jedenfalls jener Betrag, um welchen die Summe der umlaufenden Noten zweihundert Millionen Gulden übersteigt, in gesetzlicher Silbermünze oder Silberbarren vorhanden sein. [...] Bis zur Höhe des vierten Theils des Metallvorraths kann Gold in Münze oder in Barren anstatt des Silbers zur Bedeckung verwendet werden.
28 July 1870 – 11 March 1871	Temporary inclusion of bills on foreign places up to fl 33 million.		
1872	Silver, gold Minted or in bars	§ 14	[...] Es muß jedoch jedesfalls jener Betrag, um welchen die Summe der umlaufenden Banknoten zweihundert Millionen Gulden übersteigt, in Silber oder Gold, gemünzt oder in Barren vorhanden sein. [...]
1878		Article 84	Identical to § 14
1888	Silver, gold Minted or in bars	Article 84	[...] Es muß jedoch jedenfalls der Gesamtbetrag der umlaufenden Banknoten mindestens zu zwei Fünfteln durch den Barvorrath in Silber oder Gold, gemünzt oder in Barren [...] bedeckt sein. [...]
	Bills on foreign places payable in effective coin up to fl 30 million as long as state notes retain legal tender status.	Article 111	Insolange der Zwangskurs der Staatsnoten nicht in beiden Theilen des Reiches aufgehoben ist, wird der Bank gestattet, ihren Besitz an Wechseln auf auswärtige Plätze, soweit dieselben in einer effektiven Metallwährung zahlbar sind, bis zum Höchstbetrage von dreißig Millionen Gulden in den Bestand ihres Barvorrathes (Artikel 84) einzurechnen.
1899	Legal Austrian or Hungarian metallic coin, domestic trading coins in gold Foreign gold coin and gold bars converted by weight, with minting expenses deducted.	Article 84	[...] Es muß jedoch jedenfalls der Gesamtbetrag der umlaufenden Banknoten mindestens zu zwei Fünfteln durch gesetzliches Metallgeld österreichischer oder ungarischer Prägung oder durch inländische Handelsgoldmünzen oder ausländischen Goldmünzen oder Gold in Barren nach dem Gewicht zum gesetzlichen Münzfuß der Kronenwährung unter Abzug der Prägebühre berechnet [...] bedeckt sein. [...]
	Bills on foreign places payable in gold or in metallic currency equivalent to gold up to fl 30 million as long as state notes retain legal tender status. Definition of eligible foreign currencies in accord with Austrian and Hungarian ministries of finance. Bills with maximum maturity of three months, two good signatures.	Article 111	[...] Der Bank wird während dieser Zwischenzeit [insolange der Zwangskurs der Staatsnoten nicht aufgehoben ist] gestattet, ihren Besitz an Wechseln auf auswärtige Plätze und an ausländischen Noten, soweit dieselben in Gold oder in mit Gold gleichwertige, effektiver Metallwährung zahlbar sind, bis zum Höchstbetrage von sechzig Millionen Kronen in den Bestand ihres Barvorrates (Artikel 84) einzurechnen. Welche effektiven Metallwährungen in diesem Sinne als mit Gold gleichwertig anzusehen sind, wird vom Generalrat der Bank im Einvernehmen mit dem k. k. österreichischen und dem königl. ung. Finanzministerium zeitweise festgesetzt. Wechsel auf auswärtige Plätze sind nur dann in den Barvorrat einrechenbar, wenn sie längstens binnen drei Monaten zahlbar und mit der Unterschrift von mindestens zwei als zahlungsfähig bekannten Verpflichteten versehen sind. [...]

<sup>15</sup> Note that cover requirements evolve over the 19th century and become specific only relatively late. § 14 of the 1816 statute stipulates simply that ‘the bank should never issue more notes than the funds assigned to their conversion would allow.’ §15 of the 1841 statutes states, ‘It is incumbent upon the directors of the bank to set from time to times such a ratio between note issue and specie reserves that complete fulfilment of this duty [to pay the face value of bank notes in legal silver coin on demand] is assured.’ The first explicit quantified link between banknotes in circulation and bank assets was established only in 1858 (Zuckerkindl 1911, p. 81). Quantified reserve requirements were an integral part of the statutes from 1863 onwards.

TABLE 3 Assets eligible for inclusion in metallic reserves

Year	Eligible assets	Statutes	Verbatim
1911	Foreign bills up to K 60 million (= fl 30 million) can be included even after legal tender status of state notes has been abolished.	now included in Article 84	

Source: Authors' compilation.

The following series are included in the data set: Series AH1A gives total reserves according to the definition at the time of reporting. Series AH1B includes gold bars and gold coin (*Gold*). Series AH1C gives silver (*Silber*, both bars and coin, from 1892 onwards silver divisionary coin). Series AH1D gives bills on foreign countries included in metallic reserves (*In Metall zahlbare Wechsel*).

#### Foreign assets and liabilities not included in statutory reserves

##### *Foreign bills not reported under metallic reserves (AH1E)*

Leaving aside their temporary inclusion between July 1870 and March 1871<sup>16</sup> (see Table AH3 above), foreign bills were not counted as part of official reserves before 1888. Nevertheless, holdings were reported regularly in weekly reports.

Following the inclusion of certain foreign bills in reserves after 1888, the foreign bill portfolio was separated into three categories: bills included in reserves (series AH1D), bills that qualified for inclusion but were not included (*Im Metallschatz nicht verrechnete Goldwechsel auf auswärtige Plätze*), e.g. because the statutory maximum of foreign bills in metallic reserves had already been reached, and bills that did not yet satisfy the requirement of a maximum maturity of three months (*Goldwechsel auf auswärtige Plätze über 3 Monate laufend*). The last two categories are reported here together as series AH1E. A temporarily separate category of foreign exchange holdings was created, after the revaluation of gold holdings in 1892 had given rise to an accounting profit (see above). Pending on the appropriation of the revaluation gains, bills worth fl 13,525,167 were transferred to retained earnings (surplus fund). The amount was further increased to fl 15,000,000 in 1897. The issue was settled together with the re-chartering in 1899: the foreign bills were transferred to metallic reserves, and the bank's capital increased by fl 15 million (Wittelshöfer 1895, Mecenseffy 1897, Anonymous 1898). For the years 1892 to 1899, the sum is included in category AH1E.

Full information on all categories is available in the end-of-year balance sheets. In the weekly reports, however, bills in category AH1E are not separated out but subsumed under the category 'other assets'. From 1901 onwards, data on AH1E are available from internal sources. Monthly values between August 1888 (when foreign bills became eligible for inclusion in metallic reserves) and December 1900 are coded as 'not available'.

##### *Foreign deposits (AH1F)*

Deposits held by the OeNB/OeUB at foreign banks (*Guthaben bei auswärtigen Firmen*) were never included in the official reserves. While relatively small initially, such deposits became sizable from

<sup>16</sup> In the aftermath of the 'speculation crisis' of 1869, cash in the bank's vaults was depleted to such an extent that the OeNB was temporarily allowed to count foreign bills of exchange convertible to specie as part of its reserves, which allowed it to issue more notes (Komlos 1983b, p. 140).

the mid-1890s onwards. Annual data can be obtained from the balance sheets; weekly values are only available from 1901 onwards.

#### *Foreign liabilities (AH1G)*

While foreign assets can be reconstructed fairly well also at an intra-year frequency (with the exceptions listed above), less information is available on foreign liabilities, which took three forms:

(i) Private customers' gold deposits: In the balance sheet, private deposits are not classified by currency. There are indications that there were some private deposits in gold florin, but the associated sums appear to be small (Anonymous 1898).

(ii) Gold and foreign exchange deposits by the Austrian and Hungarian governments and public agencies were much more sizable. For these accounts, end-of-year values are theoretically available in the balance sheet files from 1901 onwards. From an economic viewpoint, however, it can be argued that the entire gold and foreign exchange stock of the public sector (including both the central bank and the governments) should be considered foreign assets available to the OeNB/OeUB. Liabilities to the public sector are therefore not reported.

(iii) Overdrafts on foreign accounts of the bank. As explained above, the bank held accounts in foreign currency at correspondent banks abroad. In principle, these accounts could be used to run overdrafts. End-of-year values are available throughout and give no indication that overdrafts were sizeable (of course, this might be due to window dressing). When figures on deposits become available with weekly frequency from 1901 onwards, aggregate numbers are always significantly above zero (see AH1F).<sup>17</sup>

#### *2.1.2 Monetary base*

The monetary base is defined here as (i) currency in circulation (excluding coins) and (ii) deposits at the central bank and liabilities of the central bank payable on demand. In the 19<sup>th</sup> century, we can distinguish three types of currency in Austria-Hungary: coins (full-bodied and divisional), banknotes, and state notes. Currency in circulation is defined here as banknotes in circulation plus state notes in circulation outside the central bank, including paper money held by commercial banks. Full-bodied silver and gold coins (metallic currency in circulation) as well as divisional coins are excluded from the definition. The main reason for the exclusion of silver and gold coins is a lack of data, as discussed below. Banknotes and state notes are both included as they were considered perfect substitutes.

Data table AH1.2 gives the time series for banknotes in circulation (*Banknotenumlauf*, AH1I), state notes in circulation (*Staatsnoten im Umlauf*, AH1J), other central bank liabilities at sight (*Andere sofort fällige Verbindlichkeiten*, AH1K), of which giro deposits (*Giroguthaben*, AH1L), and the monetary base (AH1H) for the period 1863–1913/14. Until 1899, monthly and annual entries refer to millions of florin Austrian currency. As of 1900, the monthly and annual entries are quoted in millions of crowns (Kronen). Figure 1 shows the monetary base and its components from 1863 to 1913.

<sup>17</sup> Another liability might be bills drawn in foreign currency. In the correspondence between the Vienna and the London houses of Rothschild, we find instances of bills drawn on London by the bank (letter by Samuel Mayer Rothschild to Nathan Mayer Rothschild dated 11 July 1898). It is not clear how these liabilities were accounted for. In the case of the cited letter, the bill was a sight bill, so we might expect that the bank had to cover the sum immediately by a transfer to its account with the Vienna house. If the bank, however, occasionally drew long bills on its foreign correspondents and kept them in its portfolio, the liability would not show up until maturity, and foreign exchange holdings would appear temporarily bloated. There are no indications that such transactions were of any significance, though.

In the following, we will discuss the components of the monetary base in greater detail.

### Coins

In the Austrian Empire, a variety of full-bodied coins were circulating in the 19th century. Following the signing of the coinage treaty with the German customs union in 1857, the Austrian silver florin started to be issued in late 1858, replacing the Convention florin of 1753 as legal tender.

Between 1857 and 1892, nineteen different types of gold, silver and copper coins were minted. Trade coins were minted in both silver and gold. For reasons of facilitating foreign trade, the 'Convention thaler' (mainly 'Levantine' as well as 'Maria Theresien thaler') remained legal tender until the end of 1870 but were not used in domestic transactions. Furthermore, gold coins (Convention gold coins, Austrian Gold Dukaten, franc gold coins) were in circulation over the entire period. They were not legal tender but served as a means of payment in international trade.

Divisional coins (*Scheidemünzen*, *Teilmünzen*) had only limited legal tender value. They were minted in the form of silver and above all copper coins to meet the need for small change for domestic transactions. Article XII of the 1867 constitution commanded Austria-Hungary to maintain a uniform currency area and explicitly required the two ministries of finance to reach consensus on minting divisional coins with denominations of 10 *Kreuzer* and smaller (Fellner 1911, p. 9).

The gold standard legislation of 1892 put the monetary system on a new footing. The crown contained 0.304878 grams fine gold and the coins were minted with a fineness of 900/1000. This means that one kilogram of mint gold could be minted into 2,952 crowns, one kilogram of fine gold into 3,280 crowns. Gold coins were minted in denominations of 10, 20 and 100 crowns. Divisional coins were minted in silver (1 and 5 crown coins), nickel (10 and 20 heller coins) and bronze (1 and 2 heller coins). The intrinsic value of divisional coins being lower than their nominal value, the quantity of these coins was set by law, and minting occurred only on account of the governments. The new crown silver coins enjoyed legal tender status only up to a certain maximum amount. At the same time, the old 1 florin silver coin (=2 K) retained its full legal tender status and was therefore legally equivalent to gold coins. The reason for this was pragmatic: exchanging the monetary silver stock that was not needed for divisionary coins into gold in the international market would have incurred very high fiscal costs. Similar rules applied also in Germany, France and other gold standard countries (Fellner 1911, pp. 85–119).

Unfortunately, we lack good statistics on coins in circulation. While data on coinage is readily available, we do not know to what extent coins entered and remained in circulation.<sup>18</sup> In addition, gold and silver coins, which served as a means of payment for international transactions, also circulated abroad and, *vice versa*, foreign coins were circulating in Austria-Hungary. Full-bodied coins mainly served as a store of value and did not circulate at all. Lastly, coins were sometimes melted down for industrial uses (Fellner 1911, p. 33). All this is in particular relevant for the period before 1878, when full-bodied silver coins traded at a premium to paper currency.

The exclusion of silver coins and gold coins in circulation may lead to a systematic underestimation of the total value of currency in circulation. Several contemporary estimates of coins in

<sup>18</sup> According to Fellner (1911, p. 32), the total production of all types of coins in Austria-Hungary during the period 1857–1891 amounted to 2,436 million coins representing a value of fl 831 million Austrian currency. Of course, the latter number does not represent the true value of circulating coins within the currency area.

circulation indicate, however, that the bias is likely to be small. Menger (1892, p. 653) calculated the amount of currency in circulation at up to fl 936 million for 1891; of this, fl 834 million were banknotes and state notes in circulation, fl 50 million silver and gold coins, and fl 52 million divisional coins.<sup>19</sup> This implies that paper money in circulation made up 89% of the total currency in circulation. The exclusion of metal currency in circulation will hence lead to a rather small underestimation of the total value of currency in circulation for the period 1863–1914.

#### Notes issued by the OeNB (banknotes)

From 1858, the issuance of banknotes by the OeNB was limited by a quantified rule.<sup>20</sup> Note that even though convertibility was suspended for almost the entire period 1863–1914, the bank was always subject to statutory limits on note issue, with a brief exception in the wake of the 1873 stock market crash (13 May 1873 until 11 October 1874). Following the English example, the charter of 1862 established a maximum fiduciary issue of fl 200 million to be covered by specified domestic income-generating assets, while the amount of banknotes surpassing the fl 200 million threshold had to be completely covered by the bank's silver and gold reserves (cf. Table AH3). The limit on the fiduciary issue proved overly binding and was replaced by a more flexible limit in 1887, which emulated the rules of the German Reichsbank. According to Article 84 of the statutes of the Austro-Hungarian Bank of 1887 and 1899 (in force from 1888 and 1900, respectively), metallic reserves had to cover at least 40% of banknotes in circulation. This limit was strictly binding. The remaining amount of banknotes in circulation (i.e. banknotes not covered by precious metal), together with overnight liabilities, had to be covered by other domestic income-generating assets (e.g. Escompte and Lombard credit), foreign-currency-denominated bills of exchange and foreign banknotes, and was again subject to a limit of fl 200 million (later K 400 million). This limit was, however, no longer strictly binding; instead, any excess amount issued was subject to a tax of 5%. The new rules allowed for a more flexible management of note issue, as temporary spikes in demand could be accommodated by paying a tax, while the tax limited the incentives for the bank to overly increase its issue. In 1911, the limit was raised to K 600 million (= fl 300 million).

#### Notes issued by the government (state notes)

In principle, the OeNB had been granted the sole privilege to issue banknotes. Nevertheless, in times of war, financing needs repeatedly pushed the government to violate the bank's note issue monopoly and issue state notes at a forced exchange rate. While the issue of banknotes was constrained by the bank's charter, there was no legal obligation to cover state notes by any reserve assets.

Following the reforms of 1854 and until May 1866, no state notes were in circulation. In order to finance the war with Prussia and Italy in 1866, the government resorted to the issuance of state notes again, which remained in circulation until 1903. Series AH1J reports the amount of state notes in circulation, i.e. the total amount of state notes issued by the ministry of finance excluding state notes held by the OeNB. Although issuance of state notes was initially fixed at fl 300 million, this volume was actually the lower bound of the total amount issued by the ministry of finance. From 17 November 1863 onwards, the government was allowed (Imperial Law Gazette No. 98) to issue Treasury bills based on the security of the government salt works (*Partial-Hypothekar-Anweisungen* or popularly known as *Salinenscheine*) up to a maximum amount of fl 100 million. According to the law dated 25 August 1866 (Imperial Law Gazette No. 101), the

<sup>19</sup> Fellner (1911, p. 34) comes to a lower estimate for currency in circulation of fl 911.6 million at the end of 1891.

<sup>20</sup> See footnote 14 above. In 1858, a precious metal cover quota of one third was introduced.

total amount of outstanding state notes and these Treasury bills was limited to fl 400 million. Whenever the amount of outstanding short-term debt fell below this threshold, the ministry of finance was authorised to temporarily issue additional state notes. The issuance of new Treasury bills by the ministry of finance required that the equivalent amount of state notes had to be withdrawn from circulation.

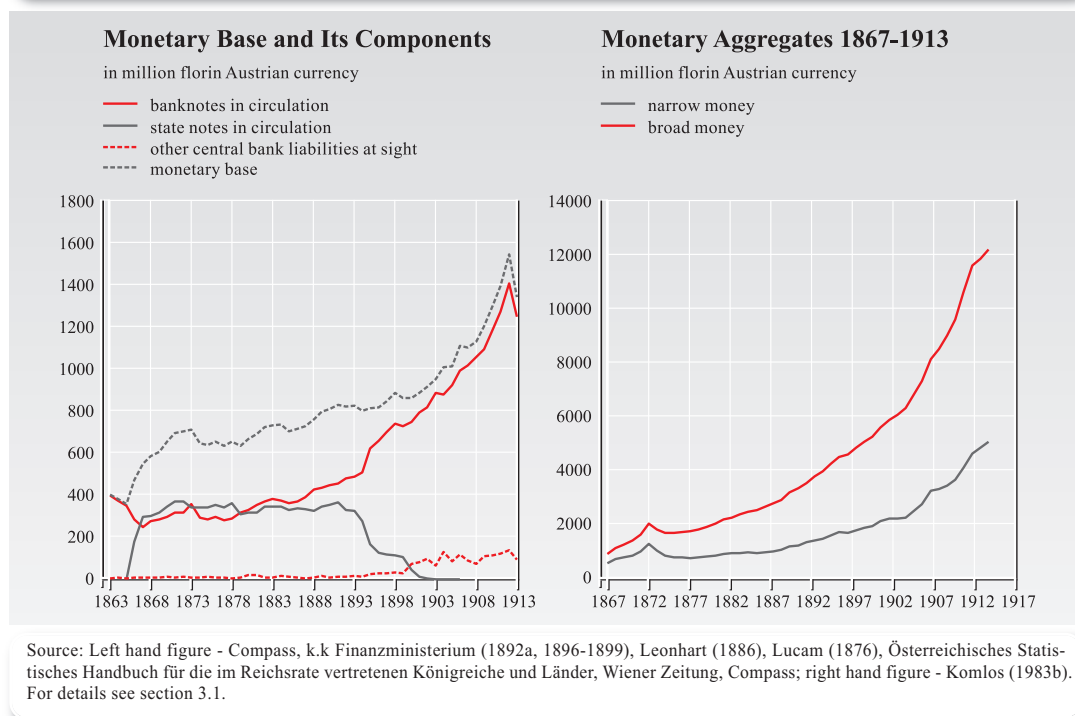
Furthermore, a law passed in 1868 (Fellner 1911, p. 24) decreed that all notes equivalent to 10 Kreuzer coins (*Scheidemünzenscheine zu 10 Kreuzern*) had to be replaced by state notes no later than 30 September 1870, expanding the limit of outstanding debt to fl 412 million. Hence, the amount of state notes issued fluctuated within a band of 312 to 412 million florins.<sup>21</sup>

The retirement of the state notes was a necessary part of the introduction of the gold standard in 1892. Redemption of state notes started on 14 July 1894. While 1 florin state notes ceased to be legal tender on 31 December 1895, state notes with a denomination of 5 and 50 florins expired on 18 February 1903.<sup>22</sup> The redeemed state notes were destroyed and the floating debt was amortised (Fellner 1911, pp. 128–136).

#### Other central bank liabilities considered part of the monetary base

The new regulations of the OeUB charter of 1888 increased the attractiveness of keeping a giro account at the OeUB. Giro accounts could be opened not only by financial institutions but were

**FIGURE I Monetary Aggregates for Austria-Hungary, 1863–1913**



<sup>21</sup> According to our definition, the amount of fl 12 million of *Scheidemünzenscheine zu 10 Kreuzern* is excluded from currency in circulation. Furthermore, state notes held by the OeNB are not considered to be in circulation and are thus excluded from the series AH1J, which explains why some entries turn out to be below fl 312 million.

<sup>22</sup> 1 florin notes could be exchanged at the OeUB until 31 December 1899, 5 and 50 florin notes until 31 August 1907.



available to the general public. Within ten years, the number of giro accounts at the OeUB rose from 639 to 4,945 (k.k. Finanzministerium 1896–99, Table 124, p. 496). Deposit liabilities of the bank which had been negligible until 1887 increased, and fifteen years later the share of central bank liabilities payable on demand had expanded to 10% of the monetary base. Also, the government encouraged the adoption of cashless payments (then a modern technology) by allowing taxes to be paid through the checking accounts of the postal savings system, which had started to offer checking services in 1883. Unlike banknotes in circulation, deposit liabilities were not subject to reserve requirements. As a result, central bank money could increase without a concomitant increase in the central bank's reserves. This somewhat loosened the strict limit on the money supply imposed by the 1862 charter (Komlos 1983b, pp. 141–143).

Series AH1K reports other central bank liabilities at sight that were considered part of the monetary base, i.e. other central bank liabilities payable on demand. It consists of giro deposits at the OeNB/OeUB, redeemable bank money-orders and cheques as well as dividends of the OeNB/OeUB not yet collected. Series AH1L reports the amount of the subcomponent giro deposits at the bank.

### 2.1.3 Broader monetary aggregates

The 19th century saw a sharp rise in cash substitutes. A milestone in banking history was the foundation of the '*k.k. privilegierte Österreichische Credit-Anstalt für Handel und Gewerbe*' in 1855, which became the leading bank in financing the industrialisation and the construction of the railway network of the Austro-Hungarian Empire. In the second half of the 19th century, a second sector of credit institutes evolved in parallel to the private commercial banking sector. It consisted of savings banks<sup>23</sup>, mortgage banks, and co-operative savings and credit associations, which collected the savings of the broader public and financed mainly farming and housing (Maerz and Socher 1973). Financial reforms and institutional innovations in the late 1880s drove an increase in the broad supply of money.<sup>24</sup> The government's support of the postal savings system (in Austria in 1882 and in Hungary two years later) further encouraged the use of demand deposits and checking accounts and initiated an accelerated substitution of deposits for cash. Especially small savers in the countryside were freed from the constraint to hold their wealth in currency. Due to the increased propensity of the broader public to hold deposits, Austria-Hungary witnessed a surge in branch banking after 1887. Furthermore, the growth of the financial system and the spread of the money economy throughout the empire implied that more economic agents gained access to bank loans, which in turn increased effective demand and spurred structural change (Komlos 1983b, pp. 143–147).

Komlos (1983b) published a narrow (M1) and a broad monetary aggregate (M3) for the years 1867–1913, which are presented in series AH1M and AH1N. The computation of the time series relies on data from the statistical yearbooks of Austria and Hungary. Due to a lack of data, entries for Hungarian demand deposits for the period 1867–1872 were linearly extrapolated. Komlos defines M1 for Austria-Hungary as the sum of currency in hands of the public and demand deposits, the latter are net of interbank deposits. M3 for Austria-Hungary is defined as M1 plus time and sav-

<sup>23</sup> The first savings bank was founded in 1819. Within the non-profit sector, in particular savings banks gained a dominant role. In 1900, savings deposits at savings banks accounted for 71% of total deposits of the economy. Since then, their importance has decline somehow, especially after they lost their tax privilege. The more competitive environment enforced mergers and the foundation of savings banks associations, e.g. '*Reichsverband deutscher Sparkassen in Österreich*.'

<sup>24</sup> The increase in the money supply was driven by changes in the OeUB's reserve requirements, the stabilisation of the currency in the run-up to the adoption of the gold standard, as well as the promotion of demand deposits and cashless payments.

ings deposits.<sup>25</sup> Note that the currency in circulation tabulated in Komlos (1983b) is smaller than the sum of banknotes and state notes given in AH1I and AH1J. A possible explanation is that Komlos deducted the estimated cash holdings of government agencies and/or commercial banks.

## 2.2 INTEREST RATES

### 2.2.1 Short-term interest rates

#### Official interest rates

The OeNB and the OeUB lent to the public either against collateral (lombard) or by buying commercial bills (discounting, variously called *Diskont* or *Escompte* in our sources). The respective interest rates were called lombard rates and discount rates. Typically, different rates were applied depending on the characteristics of the underlying asset. The time series on the official interest rates are available in three different formats: (i) listed by date of change, (ii) as monthly time series of end-of-month values, and (iii) as annual averages of end-of-month interest rates.

#### *Discount rate*

The discount rate (*Diskontsatz*, *Eskomptesatz*) is the interest deducted from the nominal amount of a bill if the bill is sold before maturity. Bills (*Wechsel*) to be discounted by the OeNB/OeUB had to fulfil a number of minimum requirements: They had to be denominated in florin Austrian currency, later Austrian crown, and had to run for no longer than 92 days. In addition, bills had to carry at least two (and in some cases three) authorised signatures. Over time, formal requirements concerning the signatures were relaxed.

In the early years, the bank distinguished between bills payable in the town where they were discounted (*Platzwechsel*) and bills the bank had to cash elsewhere (*Domizile*). Between 1860 and 1879, the discount rate on *Domizile* was set 50 basis points higher than for *Platzwechsel*. The difference was abolished in March 1879 (annual report pro 1879, Pressburger 1976, II, p. 133). From then on, a single discount rate was applied throughout the entire monarchy.<sup>26</sup> Series AH2A gives the lowest applicable discount rate up until 1879 and the uniform rate from 1880 onwards.

#### *Lombard rate*

The lombard rate (*Lombardsatz*) is the interest paid on collateralised loans (*Vorschuss auf Handpfand*). Assets that could be used as collateral included gold, silver, bills and securities, as determined by the Directorate/Governing Council of the bank (together with the applicable haircut). Loans had a maximum maturity of three months. The interest rate on loans, given in series AH2B, was typically set 1 percentage point above the discount rate. From 7 January 1881, the bank employed a reduced lombard rate on a subset of eligible securities, which was initially only applied to mortgage bonds issued by the OeUB and later also to government bonds.<sup>27</sup>

<sup>25</sup> In addition, in the series AH1N, we corrected the entry for the year 1872. The original entry was K 3,013 million (Komlos 1983b, Table 8). Yet adding up the subcomponents, one actually arrives at K 4,013 million (i.e. fl 2,006.5 million), which fits well with the historically documented fact that deposits grew at an accelerated pace just before the Vienna stock market crash in 1873, which triggered a series of bankruptcies (Maerz and Socher 1973, pp. 339–340).

<sup>26</sup> Furthermore, the OeNB demanded a surcharge if the bill was discounted in a more remote branch. As of 10 December 1866, a 4% discount rate was applicable for Vienna, Brno, Budapest, L'viv, Prague, Liberec and Trieste. In all other OeNB branches, the discount rate was 5% until 31 March 1867 and 4.5% from 1 April 1867 to 26 August 1869. After that, the discount rate was uniform for all branches, except for Brasov (Lucam 1876).

<sup>27</sup> An easily accessible source for eligible securities is the financial yearbook *Compass*. The reduced lombard rate was set 50 basis points below the regular lombard rate for the entire period from 1881 to 1914, with the exception of the period from 20 October 1882 until 23 February 1883 where the spread temporarily expanded to 100 basis points.

### Short-term market rates

The short-term market rate reported in series AH2C is the lowest discount rate for 3-month bills in the Vienna market. The rate refers to bills of highest quality, i.e. prime bills accepted by a leading banking house. Over time, these bills (rates) were labelled *Erste Platzbriefe*, *Privatdisconto für erstes Papier*, *Privatdisconto für Bankwechsel* or *Privatdisconto für Platzbriefe*. If a range of interest rates is given, we chose the lowest rate posted.<sup>28</sup>

#### 2.2.2 Long-term interest rates

At the moment of the *Ausgleich* between Austria and Hungary in 1867, the debt of the Empire consisted of paper- and silver-denominated securities. Beginning in the late 1870s, the perpetual 4% gold bonds issued by both Austria and later Hungary served as a benchmark for long-term interest rates in the Austro-Hungarian monarchy. Note that the Empire as a whole never issued any gold-denominated bonds. The Austrian *Goldrente*, first issued in 1876, constituted a liability of the Austrian part of the Empire only (*Im Reichsrat vertretenen Königreiche und Länder*).<sup>29</sup> The same is true for the Hungarian gold-denominated bonds (*aranyjárdék kölcsön*), which were issued from 1881.<sup>30</sup>

The price of bonds on the Vienna stock exchange (AH2D, AH2F) were quoted in Austrian florin per fl 100 nominal amount until November 1899. From December to March 1900, quotes were given in per cent of the nominal amount. From April 1900 onwards, prices were again quoted in crowns per K 100 nominal. The coupon is not included in the quoted price, which simplifies the calculation of the yield (Kathrein 1900).

As a result of being quoted in Austrian florin, changes in bond prices on the secondary market reflect both changes in the yield and in the price of gold as expressed in Austrian florin. The yields given in columns AH2E and AH2G are adjusted for the gold price, i.e. they show the return in gold florin of an investment of 100 gold florin according to the following formula and using the price of the 20 French franc piece (identical to the 8 fl gold piece) from column AH3E.<sup>31</sup>

$$price_{gold} = price_{paper} \times \frac{8 fl}{price_{20FF}}$$

$$yield_{gold} = 4 \times \frac{100}{price_{gold}}$$

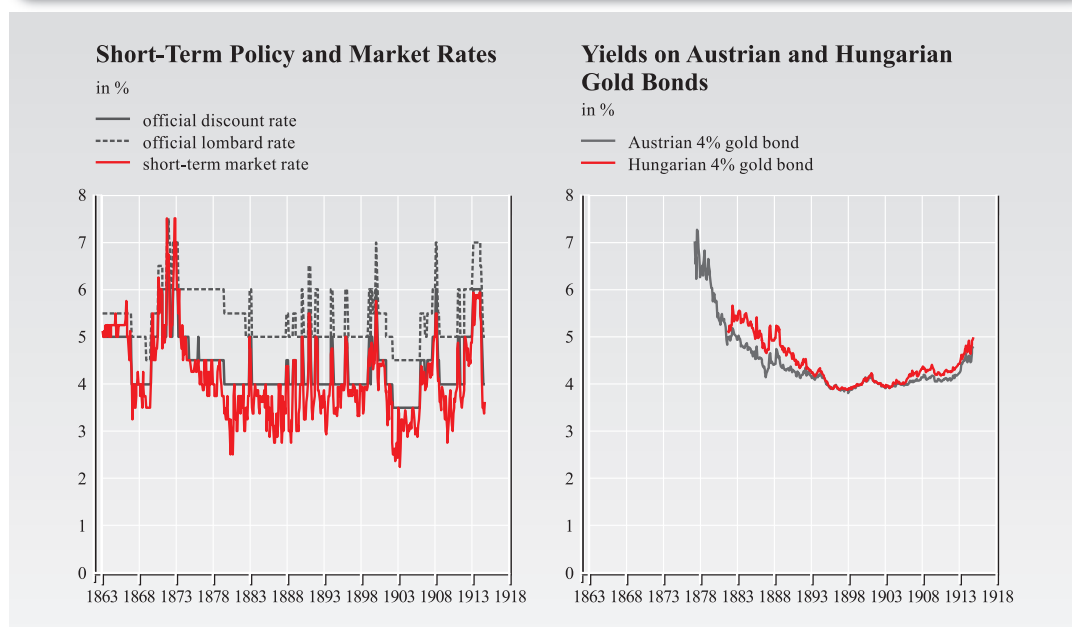
<sup>28</sup> For some days, the rates reported vary marginally between sources.

<sup>29</sup> The 4% gold bond was issued on the basis of a law dated 18 March 1876 (Imperial Law Gazette, No. 35). Further issues followed between 1877 and 1880 and again in 1892 (Compass 1881 and 1914). Interest was payable on 1 April and 1 October without deductions in Vienna in 8 and 4 florin gold pieces or, if the bearer wished so, in mark or francs, in Germany in mark (20.25 mark=10 florin gold), in France, Belgium and the Netherlands in francs (25 French francs=10 florin gold).

<sup>30</sup> The 4% gold bond was first issued in 1881 on the basis of article XXXIII for the conversion of the older 6% gold bond. Further issues followed. Interest was payable on 1 January and 1 July without deductions at public offices in Hungary as well as in Vienna, Paris, London, Frankfurt, Berlin and Amsterdam.

<sup>31</sup> In the calculation of the yield, the price of the 20 French franc piece is divided by 2 to adjust for the changeover to the crown from December 1899 onwards.

FIGURE 2 Interest Rates



Source: Compass, Coursblatt des Gremiums der k.k. Börse-Sensale, k.k. Finanzministerium (1892a, 1903-1906), Lucam (1876), Leonhardt (1886), Neue Freie Presse, Wiener Zeitung. For details see section 3.2.

### 2.3 EXCHANGE RATES

Exchange rates are taken from the price list of the Vienna stock exchange as reproduced in the Vienna dailies *Wiener Zeitung* and *Neue Freie Presse*. Prices (spot market) are quoted in florin Austrian currency (from 31 December 1899 in crowns) per 100 units of foreign currency (10 units of foreign currency in the case of the pound sterling). Monthly time series refer to end-of-month exchange rates, while annual entries are averages of these end-of-month exchange rates. Prices refer to 3-month bills until 1880 and to sight bills from January 1881 onwards.

Prices of bills denominated in pound sterling and French francs are given in series AH3A and AH3B, respectively.<sup>32</sup> Due to the Franco-Prussian war, bills on France payable at Paris were not quoted from September 1870 to May 1871.<sup>33</sup> For Germany, before 1875, exchange rates refer to bills in southern German florin payable in Frankfurt<sup>34</sup> (AH3C). Among the other legacy currencies that merged into the mark, the thaler (Berlin) was listed but rarely quoted. From January 1875 onwards, German bills payable in Frankfurt were denominated in mark (AH3D). 1 southern German florin was exchanged for 1.71 mark. Note that, from November 1877 onwards, exchange rates refer to bills in mark payable on German banking places.

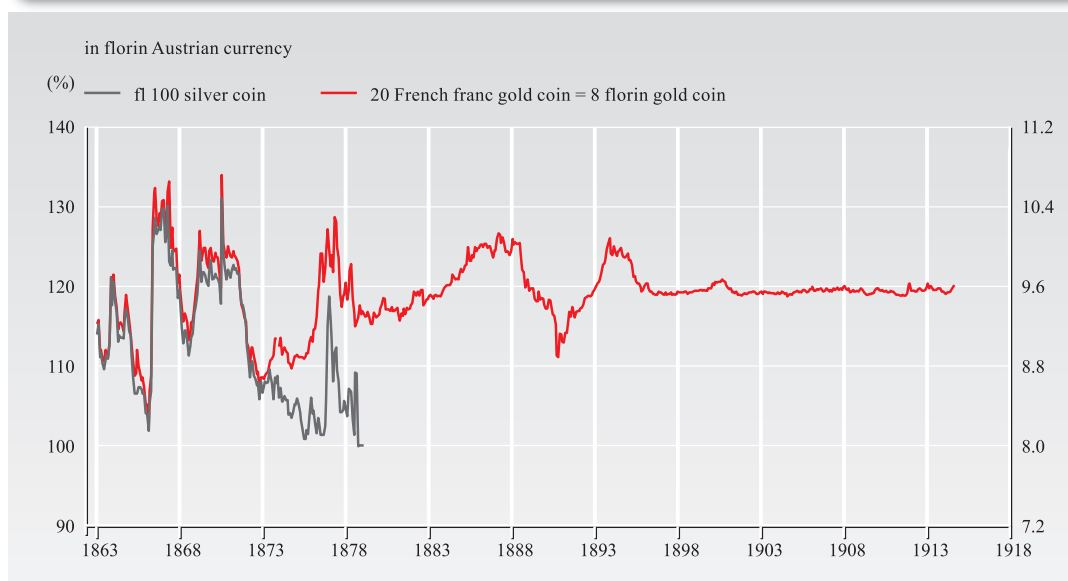
<sup>32</sup> Unlike for the interwar period, prices for Swiss francs and US dollar are not reported. For the Swiss franc, regular quotes are available from the early 1890s onwards. US dollar (New York) is listed in the bulletin of the Vienna stock exchange from 1893 onwards but no prices are given. For background concerning foreign exchange quotations in the late 19th century, see Flandreau and Jobst (2005).

<sup>33</sup> For the same reason, bills denominated in southern German florin were not quoted from 29 July to 31 July 1870. The entry for 31 July 1870 actually refers to the quotation from 1 August 1870.

<sup>34</sup> Except for July 1867, where the entry refers to bills in southern German florin payable in Augsburg.

Finally, the data table AH3 on exchange rates comprises time series on the notations of the 20 French franc gold coin<sup>35</sup> (AH3E) and of fl 100 in silver coins (AH3F) that can be used to calculate the gold and silver agio. Following the decline in the international silver price, silver coins were no longer quoted from February 1879.

**FIGURE 3 Price of Silver and Gold at the Vienna Stock Exchange, 1863–1914**



Source: Vienna Stock Exchange.

Note: The right-hand and left-hand axis are aligned according to the gold-silver ratio of the Latin Monetary Union (LMU). Until 1874 the two lines representing the price of gold and silver coins more or less overlap, afterwards the gap between the two lines tracks the deviation of the gold-silver ratio in international markets from the LMU ratio.

## 2.4 GOVERNMENT FINANCES

Until 1867, the Austrian Empire had a single budget for the entire empire. The compromise of 1867 granted the lands of the Hungarian crown significant autonomy also in the fiscal domain. Only a few areas of policy, notably defence and foreign policy, continued to be run by the central government with its own budget, the so-called Common Ministry. Otherwise, Austria and Hungary were independent in their revenue and spending decisions (Pammer 2010). This means that, after 1867, there were three relevant budgets on the central level.

### 2.4.1 Revenue and expenditure

Over the 19th century, the reporting of revenues and expenditures underwent several significant changes (Wysocki 1975). 1848 saw the beginning of comprehensive budgets that covered all areas of government revenues and spending. Until 1863, however, budgets were drawn up on a net basis, i.e. in many areas receipts and expenditures were netted out, with only the net amounts entering the budget. 1863 marked the shift to gross budgeting, which date was therefore chosen as the starting point for

<sup>35</sup> The 20 French franc gold coin was not quoted at the Vienna stock exchange from 12 November to 31 December 1873. The entry for the latter date actually refers to the quotation from 2 January 1874.

the time series reported here. Budgets initially covered the period from 1 November until 31 October. The fiscal year was aligned with the calendar year from January 1865. As a result, the 1864 budget refers to the 14-month period from 1 November 1863 to 31 December 1864. For Hungary, the first budget is available for 1867, but it did not cover a full year. The 1868 budget was drawn up on a net basis, and 1869 is the first year for which a comparable gross budget is available and is also the first year reported here (Magyary 1924, pp. 4–5). All series are in florin until 1899 and in crown from 1900.

Expenditure and revenue figures reported in the secondary literature typically refer only to the ordinary budget, a subset of the total budget. For reasons of consistency, these numbers are also reported here. In addition, we included data that help to calculate expenditure and revenue series that better fit modern concepts. In some cases however, the information given in the statistical yearbooks is not sufficient to allow full reconstruction according to modern criteria.<sup>36</sup>

The following two conventions in the reporting of expenditures and revenues have to be taken into account when using the series.

(1) At the time, a distinction was made between ordinary (*ordentlich, rendes*) and extraordinary (*außerordentlich, rendkívüli*) budgets.<sup>37</sup> In principle, the idea was to distinguish expenditures that would result from the normal course of government from expenditures that either occurred only once or at least exceeded normal requirements. A similar distinction applied to revenues (Wagner 1863).<sup>38</sup> In practice, however, the distinction was less than straightforward and lent itself to manipulation, so that in fact, extraordinary expenditures came to include all expenditures that could not be temporarily fitted into the ordinary budget or that the government wanted to keep outside, in particular (but not only) investment in railroads and telegraphs. From an economic perspective, therefore, these expenditures (and revenues) should be added to the ordinary budget when looking for total expenditures and revenues.

(2) Related to the definition of ordinary and extraordinary transactions is the treatment of financial transactions. Given its one-off nature, the raising of debt typically qualified as extraordinary revenue. In the same manner, a one-off repayment of debt was classified as extraordinary expenditure. Given their regularity, debt repayments scheduled over a longer period, as e.g. in the case of debt annuities, were subsumed under ordinary expenditures, though. According to modern national accounting, all such financial transactions should be excluded from both expenditures and revenues; only interest payments should be included.

#### *Austrian budget*

Ordinary expenditures as reported in series AH4A correspond to the numbers most often reported in studies on the Austrian budget (e.g. Püregger 1912, Wysocki 1973). Ordinary expenditures include both interest payments (*Zinsaufwand*, AH4B) and debt redemptions (*Tilgungen*, AH4C). Adjusted extraordinary expenditures exclude financial transactions and are reported in series AH4D. The series was constructed by looking, item by item, whether a transaction was financial or not. Details on the transactions and decisions taken can be found in Jobst and Scheiber (2014). Extraordinary expenditures from non-financial transactions are particularly high in 1866 and 1867 due to the Austro-Prussian War. Some modest extraordinary expenditures reappear between 1874 and

<sup>36</sup> Reconstruction would require a detailed item-by-item study of government account statements (*Rechnungsabschlüsse*), which is outside the scope of this chapter.

<sup>37</sup> Ordinary revenues include both tax and non-tax revenues. The distinction between them and extraordinary revenues stems from the regularity of flows.

<sup>38</sup> The balance of the ordinary budget such defined could be considered a predecessor of the modern structural budget balance.

1879, and again from the late 1890s until 1913, when significant infrastructure investment programmes were booked in the extraordinary budget. Series AH4E gives ordinary revenues, while adjusted extraordinary revenues (again excluding financial transactions) are reported under AH4F. Adjusted extraordinary revenues from non-financial transactions are very low throughout the period and consist only of excess returns from school funds that were siphoned off. To calculate a budget balance according to modern standards, revenues should therefore be defined as the sum of AH4E and AH4F, while expenditures should be defined as the sum of ordinary and adjusted extraordinary expenditures minus debt repayments ( $AH4A + AH4D - AH4C$ ).

#### *Hungarian budget*

Ordinary expenditures are reported in series AH4G. Unlike for Austria, the Hungarian statistical yearbook does not allow singling out debt repayments and interest service.<sup>39</sup> Extraordinary expenditures are given in series AH4H.<sup>40</sup> From 1879 onwards, these figures are net of extraordinary expenditures on debt; unfortunately, for the years before 1879, a similar adjustment cannot be made on the basis of the statistical yearbook. Correspondingly, series AH4I reports ordinary revenues and AH4J shows extraordinary revenues, where again an adjustment for revenues from the issuance of debt is only possible from 1879 onwards.

#### *Common budget (Gemeinsamer Haushalt)*

The central Austro-Hungarian government comprised the three common ministries of foreign affairs, war and finance. The total of ordinary and extraordinary expenditures is given in series AH4K. Extraordinary expenditures typically include the purchase of new military equipment and other military expenditures considered extraordinary.<sup>41</sup> Some small revenues of the different departments aside (series AH4L, covering about 2% of expenditures), the main source of revenues were customs duties (*Zolleinnahmen*), given in series AH4M. Since deductions were made for some indirect taxes, net customs revenues can be negative in some years. As the common ministry would not issue any debt, all expenditures not paid out of central revenues had to be covered by contributions from the Austrian and the Hungarian budget.<sup>42</sup> Contributions were paid according to a quota (*Quote*) that was renegotiated every ten years and was supposed to reflect the relative economic size of the two states as measured by tax receipts. In 1868, the Austrian share was set at 70%; it declined to 63.6% before World War I (Mischler and Ulbrich 1895–97, pp. 867–870).<sup>43</sup> The total of the Austrian and the Hungarian contributions (*Nettoerfordernis*) is given in series AH4N. Note that these contributions are already included in the expenditure figures for Austria and Hungary above.

#### 2.4.2 Government debt

Before 1867, the debt of the central government consisted of the debt of the Austrian Empire and the much smaller debts of the Lombardo-Venetian Kingdom. With the loss of Lombardy in 1859

<sup>39</sup> Additional information is available from other sources. The *Tabellen zur Währungsstatistik* (1893, p. 291) contain interest expenditures for the years 1868 to 1892, but the data on expenditures and revenues on p. 286 do not match fully with the statistical yearbook. The same is true for the series in Matlekovits (1900). All series are reproduced in Jobst and Scheiber (2014).

<sup>40</sup> Including extraordinary contributions to the common budget. On the common budget, see below.

<sup>41</sup> The common expenditures remained pretty stable until 1900 except for the occupation of Bosnia and Herzegovina in 1878/79 and the 1887/88 crisis. On average, 95% of the common expenditures were related to the department of war. Yet, these common military expenditures were only part of Austria-Hungary's total military expenditure, since both countries had additional autonomous military budgets.

<sup>42</sup> In order to ensure a balanced common budget, first, delegates of the two parliaments passed the common budget bill, and then Austria and Hungary independently concluded their own budget acknowledging their contributions.

<sup>43</sup> After the annexation of the Military Frontier by Hungary, the quota declined to 69.7:30.3 (Austria: Hungary) in 1872 and to 68.6:31.4 in 1873. The compromises of 1878 and 1887 confirmed this quota. In addition, the 1887 compromise abolished the deduction of some indirect taxes from customs revenues, which partly explains the significant increase of customs revenues starting in 1888. The quota was 65.6:34.4 from 1900 and declined further to 63.6:36.4 in 1908 (Paulinyi 1973, pp. 573–581).

and Venetia in 1866, the debts of these regions were transferred to the Kingdom of Sardinia, later Italy (Pammer 2010, p. 151).<sup>44</sup> The sum of the Lombardo-Venetian debt and the debt of the Austrian Empire is given in series AH4O. When Austria and Hungary agreed on a budgetary separation in 1867, Hungary refused to acknowledge responsibility for the earlier debts of the Austrian Empire, but agreed to contribute to amortisation and interest service. Until the demise of the monarchy, no new debts were contracted by Austria and Hungary together. Instead, both the Austrian and the Hungarian governments created and issued new debt securities under their own responsibility.

The following debt series are reported here:

First, the debts contracted before 1867 continued to exist as the so-called ‘general debt’ (*Allgemeine Staatsschuld*). The economic burden with respect to amortisation and interest service was mainly borne by Austria. Consequently, the general debt was reported in the Austrian budget. Series AH4O contains all categories of the general debt, including consolidated, floating and a (small) category of other debts.<sup>45</sup>

Second, excluded from AH4O are the liabilities that arose as a consequence of the abolition of feudal rights and dues (*Grundentlastung*) in 1848. In partial compensation of claims lost, the feudal lords received negotiable emancipation bonds. Interest and amortisation were covered from direct payments by peasants and from a surcharge on the land tax. In addition, the government guaranteed payment. Therefore, in contemporary statistics the emancipation bonds often figure as part of government debt. Here they are reported separately under AH4Q. From 1868 onwards, the series for the *Austrian emancipation bonds* AH4Q (*Grundentlastungsschuld*) only includes Austrian liabilities, while the *Hungarian emancipation bonds* are reported separately in series AH4S (*Földtehermentesítési adósság*).

Third, the debts contracted by the Austrian government after 1867 are given in series AH4P, those by the Hungarian government in series AH4R. These series include again consolidated as well as floating and other debts. Since the available sources give different values for the Hungarian debt<sup>46</sup>, we used the Hungarian statistical yearbook, as it is available throughout the entire period (with the exception of 1868–1873, which we currently take from the *Compass*) and gives most details on the composition of debt, which is not true for the other sources.

## 2.5 PRICES AND PRODUCTION

### 2.5.1 Consumer price index

Public monitoring of price developments in the Austrian monarchy dates back to the 18th century, but price data have been compiled systematically only since the second half of the 19th century, in light of the introduction of the gold standard. An aggregated index of consumer prices for the period 1800 to 1914 was derived by Mühlpeck, Sandgruber and Woitek (1979). The computation of the consumer price index applies the Laspeyers method (1914=100). Starting point for the weighting of the basket of consumer goods was a 1912 survey of working class households in

<sup>44</sup> In 1866, Venetian debt amounted to fl. 65.9 million.

<sup>45</sup> Hungary bore 23.8% of the economic burden of the debt service related with the general consolidated debt, which was significantly less than its share in the common budget. Common floating debt represented the value of state notes issued by the government in 1866. For details, see subsection 2.1.2.

<sup>46</sup> Numbers in k.k. Finanzministerium (1893, Table 173, p. 290) and Matlekovits (1900) vary by up to 10% compared to the Hungarian statistical yearbook, but differences do not appear to be systematic.



Vienna. The derived weights were kept constant over the entire period from 1800 to 1914, which is consistent with the Laspeyres method. Mühlpeck et al. present plausible evidence that the composition of the consumption basket may not have changed substantially during that period, at least for the dominant food component. The basket consists of 37 items of 7 different components, i.e. food and beverages including alcohol and tobacco (weight of the component: 59.4%), accommodation (15%), clothing (9.2%), lighting and heating (4.6%), culture and newspapers (3.9%), dues and fees (3.8%), personal hygiene and sanitation (2.8%). The CPI series AH5A is representative for the territory of today's Republic of Austria.<sup>47</sup> No consumer price index is available for the monarchy as a whole.

### 2.5.2 Industrial production

Comprehensive indices of manufacturing production for both Imperial Austria (AH5B) and Imperial Hungary (AH5C) from 1870 to 1913 have been published by Schulze (2000). The indices of total manufacturing production comprise weighted sub-indices on the production of food (beer, sugar, tobacco, spirits, flour, and other food-processing), iron (smelting and refining), engineering (mechanical and electrical engineering, transport and instruments), metalworking, energy (petroleum, electricity, fuel and light), textiles (cotton, woollen and linen textiles), construction materials as well as a residual 'other manufacturing'.<sup>48</sup> The index is based on constant 1913 prices (1913=100). Schulze resorts to product-specific prices from Mühlpeck et al. (1979).

## 2.6 NATIONAL ACCOUNTS AND POPULATION

### 2.6.1 Gross domestic product

#### *Nominal GDP*

We applied a hybrid GDP deflator to derive nominal GDP for Imperial Austria and Imperial Hungary from the real GDP estimates in Schulze (2000). The GDP deflator is based on the one published by Kausel (1979). Since Kausel's index of the GDP deflator (1913=100) only comprises entries for the years 1870, 1880, 1890, 1900, 1910 and 1913, we interpolated annual figures using information on the development of prices expressed in the consumer price index from Mühlpeck et al. (1979), which was rebased to 1913. Nominal GDP series have been calculated backward starting with 1913. The series AH6A (Austria) and AH6B (Hungary) comprise annual entries for nominal GDP from 1870 to 1913.

#### *Real GDP*

Several attempts have been made to estimate the real GDP of Austria-Hungary and its two halves, Imperial Austria and Imperial Hungary, starting from contemporary Fellner (1916) and including Komlos (1983a) and Good (1984). The most recent estimate was made by Schulze (2000) and is reproduced here. Schulze estimated GDP in constant 1913 prices for the primary (agriculture, forestry), secondary (manufacturing, mining, handicraft, construction), and tertiary sector (trade, transport, communications, public and private services, housing), exploiting various data sources and earlier research in this field. The aggregation procedure applies constant 1913 value-added shares as weights. All figures were converted into 1913 prices, relying on product-specific price indices from Mühlpeck et al. (1979). The series AH6C (Austria) and AH6D (Hungary) comprise

<sup>47</sup> Mühlpeck et al. recommend chain-linking their consumer price index with subsequent indices using July 1914=1 and an exchange rate of 1 gold crown=1.44 *Altschilling* (see Mühlpeck et al. 1979, pp. 680f). A chain-linked consumer price index from 1800 to 1998 has been published by Butschek (1999), who also used the data provided by Mühlpeck et al.

<sup>48</sup> The sub-indices have been published in Schulze (2000), too.

annual entries for real GDP from 1870 to 1913; series AH6E (Austria) and AH6F (Hungary) show real GDP per capita as computed by Schulze (2000) for the same period.<sup>49</sup>

### 2.6.2 Foreign trade

The collection of foreign trade data is intimately linked to fiscal considerations. In 1863, the '*k.k. Statistische Central-Commission*' was founded with the task of collecting comprehensive statistics on trade, among other things. Annual publications of trade statistics reported trade volumes and the values of 1,300 items for 48 countries of origin or destination and by mode of transport. In 1862, experts at the central statistics commission started to use average market prices for the evaluation of traded goods. In the following years, the methodology was improved repeatedly. Starting in 1877, each unit of a good imported was evaluated at its average market price in silver florin at the border or seaport, excluding tariffs and the cost of transportation from the border to the final destination within Austria-Hungary. *Vice versa*, each unit of a good exported was evaluated at its average market price in silver florin including domestic transport costs up to the border or seaport. These principles correspond more or less to the modern Incoterms CIF and FOB (Grossendorfer 1979, p. 629).<sup>50</sup>

Data table AH6 reports annual values of exports (AH6G) and imports (AH6H) at current prices of the general customs area of the Austro-Hungarian Empire for the entire period 1863–1914.

### 2.6.3 Population

In the Habsburg Monarchy, population counting was dominated by military considerations. General conscription was introduced in 1769 but, due to opposition from the Hungarian aristocracy, the regular census ultimately often excluded Hungary. Hence data on population developments in Hungary relied mainly on extrapolation using church records. The census of 1857 was conducted in the whole empire, yet a modern methodology of population census was first applied in 1869 only. The Compromise of the Austro-Hungarian Empire established the legal basis for the decennial population census. Until the outbreak of World War I, four further censuses were conducted in 1880, 1890, 1900 and 1910, each on 31 December.<sup>51</sup>

The entries of the AH6I series for the years 1863 to 1866 comprise the entire population of the Austrian Empire. The drop in total population in 1866 is due to the loss of the Kingdom of Lombardy-Venetia. From 1867 on, the populations of Imperial Austria and Imperial Hungary (AH6J) are presented separately. Although Bosnia and Herzegovina had been annexed in 1908, they were not included in the total population at the time (and are not included in our data).<sup>52</sup>

Official yearly entries in the annual reports of the *k.k. Statistische Central-Commission* exist only for Imperial Austria. The yearly entries between two censuses were computed by the *k.k. Statis-*

<sup>49</sup> The population series used by Schulze for the calculation of per capita figures deviates marginally from the population numbers reported below. Furthermore, Schulze (2000) published real GDP time series for Imperial Austria and Imperial Hungary for the primary, secondary and tertiary sectors.

<sup>50</sup> In 1877, commodities made up 54% of total imports in value terms and 50% of exports. The main trading partner was Germany, with an import share of 62% and an export share of 65%. By the turn of the century, Germany was still the main trading partner thanks to intensified trade, but its relative share in total imports had declined to 25% and the export share had declined to 33%. The share of commodities had increased to 58% of imports and decreased to 40% of total exports (Grossendorfer 1979, pp. 629–630).

<sup>51</sup> A comprehensive overview of the Austro-Hungarian Empire's demography was published by Helczmanovszki (1979).

<sup>52</sup> According to the censuses of 1879 and 1885, Bosnia and Herzegovina had a civil population of 1.158 million inhabitants and 1.336 million inhabitants, respectively. The total population (including military) of Bosnia and Herzegovina was 1.591 million inhabitants in 1900 and 1.932 million in 1910.

*tische Central-Commission* on the basis of yearly cases of live birth and death and adjusted for migration. The figures comprise both civil and military population. For Imperial Hungary, no such numbers could be found. We refrained from interpolating annual entries for Hungary.

### 3 DATA SOURCES

Our main source for the reserves is the annual reports of the OeNB and OeUB, respectively. The balance sheet files in the historical archives of the OeNB contain preparatory material and additional detail necessary for series AH1A, B, C, E, F and G. Monthly series AH1A to AH1D for 1863–1876 were retrieved from Lucam (1876), Tables 34–46; data for 1877–1913: *Compass*,<sup>53</sup> volumes 9–48 (1876 to 1915), and complemented using the weekly statements as published in the Vienna daily *Wiener Zeitung*.<sup>54</sup> Monthly series AH1E and AH1F are also available from the preparatory material in the balance sheet files.

Banknotes in circulation (AH1I, 1863–1875) are from Lucam (1876), Tables 34–46; and for 1876–1914 are from *Compass*, issues 9–48 (1876 to 1915). State notes in circulation (AH1J) for 1866–1891 are from k.k. Finanzministerium (1892a), *Denkschrift zum Gang der Währungsfrage*, Table 103, p.154–155; data 1892–1895: k.k. Finanzministerium (1896–1899), *Tabellen zur Währungsstatistik*, Table 70, pp. 176–77; and for 1896–1907 from *Österreichisches Statistisches Handbuch für die im Reichsrat vertretenen Königreiche und Länder*, vol. 1896 to vol. 1907.

The data on the amount of state notes held by the OeNB or OeUB, respectively, were retrieved from the following sources: data 1866–1875: Lucam (1876), Table 37–46; data 1876–1888 (June): *Wiener Zeitung*, and complemented using *Compass* as well as Leonhardt (1886), Table 2; data 1888 (July)–1893: *Compass*, issues 20–25 (1888 to 1893); data 1894–1907: *Österreichisches Statistisches Handbuch für die im Reichsrat vertretenen Königreiche und Länder*, vol. 1894 to vol.1907.

Other central bank liabilities considered part of monetary base (AH1K): data 1863–1875: Lucam (1876), Tables 34–46; and data 1876–1914: weekly statements as published in the *Wiener Zeitung*, complemented using *Compass*. Giro deposits (AH1L): data 1863–1875: weekly statements as published in the *Wiener Zeitung*, complemented using *Compass*.

The monetary aggregates M1 (AH1M) and M3 (AH1N) for the years 1867–1913 were published by Komlos (1983b, Table 8).

The data on official interest rates are from Lucam (1876), Tables 9 and 15 for 1863–1875; for 1876–1885 are from Leonhardt (1886), Table 42; and for 1886–1914 from *Compass*, issues 19–48 (1886 to 1915).

The data on short-term market rates are from *Coursblatt des Gremiums der k. k. Börse-Sensale* for 1863–1870; for 1871–1891 from k.k. Finanzministerium (1892a), *Denkschrift zum Gang der Währungsfrage*, Table 131, p. 205; for 1892–1904 from k.k. Finanzministerium (1903–1906), *Tabellen zur Währungsstatistik*, Table 95, p. 499; and for 1905–1914 from *Neue Freie Presse*, complemented using *Wiener Zeitung*.

<sup>53</sup> The *Compass*, which had been published since 1868, was the most important financial yearbook in the dual monarchy.

<sup>54</sup> The bank charter of 1862 required the bank to publish weekly statements on its balance sheet. These statements had earlier been printed in the newspaper *Wiener Zeitung*.

For the long-term interest rates, prices are taken from the bulletin of the Vienna stock exchange as reproduced in the Vienna daily *Neue Freie Presse*.

Exchange rates are taken from the bulletin of the Vienna stock exchange as reproduced in the Vienna daily *Wiener Zeitung* (data from January 1863 to August 1868) and *Neue Freie Presse* (data from September 1868 onwards).

The series on the Austrian budget are mainly taken from Püregger (1912) and Jobst and Scheiber (2014). We were able to exactly reproduce the series from Püregger for the period 1867 to 1913 using the Austrian statistical yearbooks. Yet, for the entries before 1867, some minor discrepancies remain unresolved. The figures on the Hungarian budgets and debt are taken from the Hungarian statistical yearbooks, while the figures on the common budget, central government debt and Austrian debt originate from the Austrian statistical yearbook.

Analytically, Austrian government ordinary expenditure (AH4A), ordinary revenue (AH4E), interest payment (AH4B) and debt redemption (AH4C): Data 1863–1911: Püregger (1912), Table VII, pp. 574–575; data 1912/13: *Österreichisches statistisches Handbuch für die im Reichsrate vertretenen Königreiche und Länder*, vol. 35 (1916), XXII. Finanzwesen, Table A.12, pp. 443–448.

Austrian government adjusted extraordinary expenditures (AH4D) and extraordinary revenues (AH4F): for details on the computation of the adjusted series see Jobst and Scheiber (2014). The authors quote the following sources for their computations: data 1865–1869: *Statistisches Jahrbuch der Österreichischen Monarchie*, vol. 1866 to vol. 1870, Finanzwesen – Hauptübersicht der gesamten Staatsgebahrung; data 1870–1913: *Österreichisches statistisches Handbuch für die im Reichsrate vertretenen Königreiche und Länder*, vol. 3 (1884) to vol. 35 (1916), Finanzwesen – Hauptübersicht der gesamten Staatsgebahrung.

Hungarian government ordinary and extraordinary expenditures (AH4G, AH4H) as well as ordinary and extraordinary revenues (AH4I, AH4J): Due to occasional data revisions, the data table includes only numbers of the most recent publication of the statistical yearbooks. Data 1869–1880: *Ungarisches Statistisches Jahrbuch*, vol. 1875 to vol. 1880, Staatshaushalt. Data 1881–1913: *Ungarisches Statistisches Jahrbuch*, vol. 1884, 1895, 1900, 1905, 1909, 1913 and 1914, Staatshaushalt.

Common budget expenditure (AH4K), revenue (AH4L), customs duties (AH4M) and contributions (AH4N): Due to occasional data revisions, the data table includes only numbers of the most recent publication of the statistical yearbooks. Data 1868–74: *Österreichisches statistisches Handbuch für die im Reichsrate vertretenen Königreiche und Länder*, vol. 2 (1883), XIX. Anhang, p. 249; data 1875–1880: *Österreichisches statistisches Handbuch für die im Reichsrate vertretenen Königreiche und Länder*, vol. 7 (1888), XXII. Anhang, p. 267; data 1881–1892: *Österreichisches statistisches Handbuch für die im Reichsrate vertretenen Königreiche und Länder*, vol. 14 (1895), XXV. Anhang, p. 316; data 1893–1899: *Österreichisches statistisches Handbuch für die im Reichsrate vertretenen Königreiche und Länder*, vol. 26 (1907), XXXII. Anhang, p. 477; data 1900–1913: *Österreichisches statistisches Handbuch für die im Reichsrate vertretenen Königreiche und Länder*, vol. 35 (1916/17), Anhang, p. 352.

Pre-1867 government debt (AH4O), Austrian government debt (AH4P) and Austrian emancipation bonds (AH4Q): Data 1863–1878: *Statistisches Jahrbuch der Österreichischen Monarchie*, vol. 1866 to vol. 1880, Finanzwesen – Hauptübersicht der Staatsschuld; complemented using *Com-*

*pass*, vol. 17 (1884) for Austrian government debt 1868–1878; data 1879–1913: Österreichisches statistisches Handbuch für die im Reichsrath vertretenen Königreiche und Länder, vol. 2 (1883) to vol. 33 (1914), Finanzwesen – Staatsschuld.

Hungarian government debt (AH4R), Hungarian emancipation bonds (AH4S): Data 1868–1873: *Compass*, issue 16 (1884); data 1874–1895: Ungarisches Statistisches Jahrbuch, vol. 1874 to vol. 1896, Staatsschuld (*Állami tartozások*); data 1896–1910: *Compass*, issues 35–46 (1903–1914); data 1911–1913: Ungarisches Statistisches Jahrbuch, vol. 1914, Staatsschuld (*Állami tartozások*).

The data entries on the consumer price index for Austria (AH5A) are taken from Mühlpeck, Sandgruber and Woitek (1979), pp. 676–679.

The data on the manufacturing production index for Imperial Austria (AH5B, Cisleithania) and Imperial Hungary (AH5C, Transleithania) are from Schulze (2000), Tables A3 and A4.

The data on nominal GDP (AH6A, AH6B) are authors' own calculations based on Schulze (2000) and Kausel (1979). Real GDP data (AH6C, AH6D) are from Schulze (2000), Tables A1 and A2. The data on real GDP per capita (AH6E, AH6F) are from Schulze (2000), Tables A1 und A2.

Imports (AH6G) and exports (AH6H) data are from Statistisches Jahrbuch der Österreichischen Monarchie, vol. 1864 to vol. 1881 for the period 1863–1881; and for 1882–1914 from Österreichisches statistisches Handbuch für die im Reichsrath vertretenen Königreiche und Länder, vol. 1 (1882) to vol. 35 (1916).

The data on the population for Austria (AH6I) are taken from Statistisches Jahrbuch der Österreichischen Monarchie, vol. 1865 to vol. 1869 for 1863–1866; for 1867–1871 from Bolognese-Leuchtenmüller (1978), Teil II, Table 1; and for 1872–1913 from Österreichisches statistisches Handbuch für die im Reichsrath vertretenen Königreiche und Länder, vol. 33 (1914). The data on the population for Hungary (AH6J) are from Matlekovits (1900), p. 67 for the censuses of 1869, 1880 and 1890 and for the censuses of 1890, 1900 and 1910 are from Kovacsics (1963), Annex table 6.

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**Note:** In the following tables “..” indicates that the item did not exist; in case of reconstructed data, that the entry was not calculated for that point in time. “.” indicates missing value. An absolute zero is coded as “-“, while “0.0” codes a rounded zero. For details on the unit of the series, see index table in section 2.

TABLE AH I.1\_A Total reserves, 1863–1913

Year	Total statutory reserve	Gold	Silver	Foreign bills included in statutory reserves	Foreign bills not included in statutory reserves	Foreign deposits	Foreign liabilities
	AH1A_A	AH1B_A	AH1C_A	AH1D_A	AH1E_A	AH1F_A	AH1G_A
1863	110.7	1.8	108.9	-	0.6	.	.
1864	112.2	1.6	110.6	-	5.2	.	.
1865	121.5	1.5	120.0	-	8.2	.	.
1866	104.0	3.3	100.7	-	43.5	.	.
1867	108.3	2.0	106.4	-	40.6	.	.
1868	108.6	0.2	108.4	-	38.7	.	.
1869	116.9	0.2	116.6	-	30.5	.	.
1870	147.3	1.4	112.9	33.0	0.1	.	.
1871	143.5	44.4	99.1	-	7.8	.	.
1872	142.9	69.4	73.5	-	4.7	.	.
1873	143.8	70.5	73.3	-	4.4	0.0	.
1874	139.4	72.7	66.6	-	4.5	.	.
1875	134.4	67.9	66.6	-	11.3	.	.
1876	136.6	66.5	70.1	-	11.1	.	.
1877	137.5	67.4	70.1	-	11.3	.	.
1878	153.9	67.4	86.5	-	11.5	.	.
1879	164.2	58.6	105.6	-	20.3	-0.1	.
1880	173.3	65.0	108.3	-	14.2	.	.
1881	190.9	68.7	122.1	-	10.5	0.1	.
1882	193.7	79.2	114.6	-	0.1	.	.
1883	199.4	77.7	121.7	-	1.6	0.1	.
1884	205.4	78.8	126.6	-	0.3	.	.
1885	198.8	69.1	129.7	-	10.2	.	.
1886	205.6	66.7	138.8	-	12.5	.	.
1887	216.1	71.0	145.1	-	8.2	0.3	.
1888	233.0	59.0	154.0	20.0	0.0	.	.
1889	241.4	54.3	162.2	25.0	0.0	.	.
1890	244.5	54.0	165.5	25.0	0.0	0.8	.
1891	245.9	54.5	166.6	24.9	0.0	0.2	.
1892	289.2	103.2	169.0	17.0	13.5	0.5	.
1893	278.2	101.8	162.0	14.4	13.5	0.4	4.0
1894	307.0	155.3	139.2	12.5	13.5	1.2	1.2
1895	377.5	244.1	126.6	6.8	13.5	4.5	2.1
1896	448.3	302.1	125.7	20.4	13.5	5.2	3.7
1897	506.0	363.8	123.3	18.9	15.0	15.5	10.7
1898	490.1	359.4	123.9	6.7	15.0	8.6	3.5
1899	509.2	393.0	106.1	10.1	15.0	3.7	7.0
1900	1218.1	919.6	238.5	60.0	6.1	61.5	6.8
1901	1448.1	1116.1	271.9	60.0	23.7	34.2	6.3
1902	1465.2	1107.4	297.8	60.0	103.3	20.8	21.1
1903	1462.4	1109.6	292.8	60.0	121.9	36.7	57.2
1904	1507.6	1153.0	294.5	60.0	88.8	16.0	59.6
1905	1425.1	1074.1	290.9	60.0	45.8	23.2	69.0
1906	1454.3	1112.3	282.1	60.0	38.0	20.9	68.8
1907	1440.9	1099.4	281.5	60.0	28.9	26.2	60.8
1908	1535.8	1182.4	293.4	60.0	79.6	37.0	64.6
1909	1713.0	1354.0	299.0	60.0	37.0	21.8	88.1
1910	1669.2	1320.5	288.6	60.0	19.4	44.5	58.3
1911	1635.7	1291.9	283.8	60.0	19.9	28.4	47.9
1912	1507.6	1209.8	237.7	60.0	22.8	53.1	7.5
1913	1562.5	1241.0	261.5	60.0	26.2	41.2	0.9

TABLE AH I.2\_A Monetary base and broader monetary aggregates, 1863–1913

Year	Monetary base	Banknotes in circulation	State notes in circulation	Other central bank liabilities at sight	of which: Giro deposits	Narrow money	Broad money
	AH1H_A	AH1I_A	AH1J_A	AH1K_A	AH1L_A	AH1M_A	AH1N_A
1863	402.2	396.7	..	5.5	0.0	..	..
1864	381.9	375.8	..	6.1	0.0	..	..
1865	356.6	351.1	..	5.5	0.0	..	..
1866	470.6	284.0	179.7	7.0	0.0	..	..
1867	550.1	247.0	296.8	6.3	0.3	548.5	892.5
1868	584.7	276.2	301.3	7.2	0.2	705.0	1100.5
1869	605.6	283.7	315.0	6.9	0.1	759.5	1231.5
1870	652.6	296.9	345.5	10.2	0.1	823.0	1367.0
1871	696.4	317.3	370.8	8.3	0.0	962.0	1605.5
1872	702.6	318.4	371.2	13.0	2.5	1260.5	2006.5
1873	710.0	358.9	341.8	9.2	1.2	1017.0	1797.5
1874	645.7	293.8	342.0	10.0	2.6	814.0	1678.0
1875	638.5	286.2	342.1	10.2	4.7	745.0	1662.0
1876	655.5	295.9	352.0	7.5	0.1	748.0	1696.5
1877	632.2	282.2	340.9	9.1	0.1	733.0	1725.5
1878	653.1	288.8	360.8	3.5	1.2	751.0	1779.0
1879	634.4	316.7	309.4	8.3	2.8	771.0	1892.0
1880	667.9	328.6	317.9	21.4	5.3	801.0	2004.0
1881	691.8	354.2	316.7	20.9	2.0	880.5	2181.5
1882	721.6	368.6	343.3	9.6	4.1	913.0	2230.0
1883	732.6	380.4	346.1	6.1	4.1	920.0	2368.0
1884	733.7	375.7	343.7	14.3	11.3	944.0	2447.5
1885	704.9	363.6	329.3	12.1	4.8	907.5	2504.0
1886	715.6	371.7	336.8	7.1	1.7	934.5	2638.0
1887	726.1	391.1	331.8	3.2	2.7	982.5	2753.5
1888	758.8	425.7	326.0	7.1	4.7	1027.5	2902.0
1889	797.8	434.7	346.8	16.3	13.7	1151.0	3169.5
1890	808.1	445.9	352.4	9.8	6.5	1207.0	3328.0
1891	830.8	455.2	364.2	11.4	8.4	1304.0	3504.0
1892	820.3	478.0	329.0	13.3	9.9	1385.5	3778.5
1893	826.5	486.6	323.5	16.4	12.9	1441.5	3960.5
1894	798.5	507.8	276.8	13.8	9.6	1558.0	4222.5
1895	811.9	619.9	166.0	25.9	12.6	1679.5	4493.5
1896	816.4	659.7	126.9	29.8	10.4	1648.0	4579.0
1897	845.8	699.9	118.0	27.9	10.7	1746.5	4833.5
1898	883.9	737.5	113.4	33.0	10.8	1855.0	5059.5
1899	863.0	729.0	104.9	29.1	21.6	1924.0	5232.5
1900	1724.9	1494.0	85.8	145.1	48.7	4180.0	11204.0
1901	1768.9	1584.9	23.3	160.6	135.5	4369.0	11710.0
1902	1832.0	1635.2	4.2	192.7	171.1	4368.0	12131.0
1903	1903.1	1770.8	2.9	129.4	102.0	4482.0	12644.0
1904	2014.7	1751.3	2.7	260.7	232.8	4952.0	13629.0
1905	2022.5	1847.0	2.6	172.9	.	5439.0	14619.0
1906	2216.6	1982.0	2.5	232.0	.	6478.0	16238.0
1907	2205.3	2028.0	..	177.3	.	6616.0	17013.0
1908	2256.5	2112.9	..	143.6	.	6836.0	18004.0
1909	2403.4	2188.0	..	215.4	.	7282.0	19229.0
1910	2601.1	2375.9	..	225.2	.	8161.0	21205.0
1911	2786.6	2541.0	..	245.6	.	9215.0	23222.0
1912	3090.8	2815.8	..	275.0	.	9642.0	23712.0
1913	2681.2	2493.6	..	187.6	.	10089.0	24407.0

TABLE AH 2\_D Official interest rates, 1860–1914

Year	Month	Day	Official discount rate	Official lombard rate	Year	Month	Day	Official discount rate	Official lombard rate
			AH2A_D	AH2B_D				AH2A_D	AH2B_D
1860	9	28	5.5	5.5	1894	2	9	4.0	5.0
1862	2	17	5.0	unchanged	1895	9	13	5.0	6.0
1866	12	10	4.0	5.0	1896	1	24	4.5	5.5
1868	11	9	unchanged	4.5	1896	2	14	4.0	5.0
1869	7	29	unchanged	5.0	1898	10	14	4.5	5.5
1869	8	27	5.0	5.5	1898	11	25	5.0	6.0
1870	7	22	6.0	6.5	1899	5	19	4.5	5.5
1871	2	18	5.0	6.0	1899	9	19	5.0	6.0
1871	9	9	6.0	7.0	1899	10	6	6.0	7.0
1871	11	10	6.5	7.5	1899	12	7	5.5	6.5
1871	12	15	6.0	7.0	1900	1	22	5.0	6.0
1872	3	1	5.0	6.0	1900	2	6	4.5	5.5
1872	7	5	6.0	7.0	1901	3	1	4.0	5.0
1873	3	21	5.0	6.0	1902	2	5	3.5	4.5
1874	9	26	4.5	unchanged	1905	10	20	4.5	5.5
1875	11	5	5.0	unchanged	1906	5	28	4.0	5.0
1876	1	28	4.5	unchanged	1906	9	28	4.5	5.5
1879	5	9	4.0	5.5	1907	6	28	5.0	6.0
1882	4	14	4.0	5.0	1907	11	11	6.0	7.0
1882	10	20	5.0	6.0	1908	1	11	5.0	6.0
1883	2	3	4.5	5.5	1908	2	4	4.5	5.5
1883	2	23	4.0	5.0	1908	5	8	4.0	5.0
1887	10	7	4.5	5.5	1910	10	24	5.0	6.0
1888	1	11	4.0	5.0	1911	2	4	4.5	5.5
1888	9	11	4.5	5.5	1911	2	23	4.0	5.0
1889	1	25	4.0	5.0	1911	9	22	5.0	6.0
1889	11	6	5.0	6.0	1912	10	26	5.5	6.5
1890	1	24	4.5	5.5	1912	11	16	6.0	7.0
1890	2	14	4.0	5.0	1913	11	28	5.5	6.5
1890	9	5	4.5	5.5	1914	1	21	5.0	6.0
1890	10	3	5.0	6.0	1914	2	4	4.5	5.5
1890	10	17	5.5	6.5	1914	3	13	4.0	5.0
1891	1	9	4.5	5.5	1914	7	27	5.0	6.0
1891	2	5	4.0	5.0	1914	8	1	6.0	7.0
1891	9	4	5.0	6.0	1914	8	3	8.0	9.0
1892	1	9	4.0	5.0	1914	8	21	6.0	7.0
1893	10	6	5.0	6.0	1914	10	30	5.5	6.5
1894	1	23	4.5	5.5					

TABLE AH 2\_A Interest rates, 1863–1913

Year	Official discount rate	Official lombard rate	Short term market rate	Austrian 4% gold bond	Austrian yield in gold	Hungarian 4% gold bond	Hungarian yield in gold
	AH2A_A	AH2B_A	AH2C_A	AH2D_A	AH2E_A	AH2F_A	AH2G_A
1863	5.00	5.50	5.13	..	..	..	..
1864	5.00	5.50	5.21	..	..	..	..
1865	5.00	5.50	5.21	..	..	..	..
1866	4.92	5.46	5.00	..	..	..	..
1867	4.00	5.00	3.83	..	..	..	..
1868	4.00	4.92	3.79	..	..	..	..
1869	4.42	4.96	4.21	..	..	..	..
1870	5.50	6.00	5.33	..	..	..	..
1871	5.46	6.42	5.69	..	..	..	..
1872	5.67	6.67	6.08	..	..	..	..
1873	5.17	6.17	5.25	..	..	..	..
1874	4.83	6.00	4.59	..	..	..	..
1875	4.58	6.00	4.35	..	..	..	..
1876	4.50	6.00	4.13	70.80	7.03	..	..
1877	4.50	6.00	4.13	73.90	6.63	..	..
1878	4.50	6.00	4.08	73.10	6.45	..	..
1879	4.17	5.67	3.54	78.68	5.91	..	..
1880	4.00	5.50	3.19	87.34	5.37	..	..
1881	4.00	5.50	3.55	93.40	5.01	90.35	5.19
1882	4.25	5.38	3.76	94.41	5.03	87.09	5.45
1883	4.08	5.08	3.73	98.70	4.82	88.15	5.40
1884	4.00	5.00	3.67	102.83	4.70	92.43	5.23
1885	4.00	5.00	3.31	108.33	4.57	98.19	5.04
1886	4.00	5.00	3.29	115.58	4.32	104.78	4.76
1887	4.13	5.13	3.58	111.38	4.50	99.85	5.02
1888	4.17	5.17	3.56	110.01	4.47	99.61	4.94
1889	4.17	5.17	3.73	109.98	4.31	101.25	4.68
1890	4.46	5.46	4.09	108.50	4.25	102.38	4.50
1891	4.38	5.38	4.07	109.93	4.22	104.57	4.43
1892	4.00	5.00	3.68	113.28	4.19	110.80	4.28
1893	4.25	5.25	3.81	118.09	4.17	115.88	4.24
1894	4.04	5.04	3.59	122.08	4.06	120.73	4.11
1895	4.33	5.33	4.20	122.91	3.93	122.78	3.93
1896	4.04	5.04	3.86	122.73	3.89	122.28	3.90
1897	4.00	5.00	3.71	123.13	3.87	122.23	3.90
1898	4.21	5.21	3.97	121.30	3.93	120.76	3.95
1899	4.96	5.96	4.83	118.63	4.03	118.39	4.04
1900	4.54	5.54	4.34	116.89	4.12	116.27	4.14
1901	4.08	5.08	3.69	118.28	4.03	118.09	4.03
1902	3.54	4.54	2.74	120.76	3.95	120.28	3.96
1903	3.50	4.50	3.10	120.73	3.95	119.98	3.97
1904	3.50	4.50	3.20	119.15	4.00	118.30	4.03
1905	3.75	4.75	3.40	119.22	4.01	116.59	4.10
1906	4.33	5.33	4.15	117.53	4.07	113.46	4.21
1907	4.96	5.96	4.73	115.81	4.13	111.40	4.29
1908	4.21	5.21	3.85	115.74	4.13	110.94	4.31
1909	4.00	5.00	3.34	116.56	4.09	112.72	4.23
1910	4.17	5.17	3.83	116.63	4.09	112.75	4.23
1911	4.42	5.42	4.13	115.73	4.12	111.22	4.29
1912	5.21	6.21	4.89	112.16	4.27	107.52	4.45
1913	5.92	6.92	5.70	105.35	4.54	100.97	4.73

TABLE AH 3\_A Exchange rates, 1863–1913

Year	10 Pound sterling (London)	100 French franc (Paris)	f100 Southern German currency (Frankfurt)	100 Mark (Frankfurt, later German places)	20 FF gold coin	f100 Austrian currency in silver coin
	AH3A_A	AH3B_A	AH3C_A	AH3D_A	AH3E_A	AH3F_A
1863	113.479	44.921	96.142	..	9.088	113.046
1864	115.975	45.988	98.292	..	9.333	115.446
1865	108.946	43.321	91.338	..	8.764	107.633
1866	120.529	48.142	102.008	..	9.720	119.633
1867	126.016	50.058	105.429	..	10.128	123.854
1868	116.388	46.211	97.179	..	9.300	114.379
1869	123.758	49.212	103.125	..	9.898	121.283
1870	124.013	49.219	104.038	..	9.946	122.008
1871	121.271	46.357	102.088	..	9.669	119.933
1872	110.404	43.175	93.000	..	8.823	108.775
1873	110.896	43.513	93.788	..	8.853	107.825
1874	110.908	43.979	93.133	..	8.901	105.088
1875	111.788	44.271	..	54.383	8.933	103.229
1876	121.327	48.042	..	59.063	9.674	105.025
1877	122.171	48.654	..	59.596	9.783	108.425
1878	117.858	46.954	..	57.587	9.430	103.908
1879	116.613	46.158	..	57.038	9.293	100.000
1880	117.792	46.554	..	57.367	9.384	..
1881	117.842	46.598	..	57.492	9.349	..
1882	119.600	47.412	..	58.504	9.498	..
1883	119.908	47.496	..	58.671	9.517	..
1884	121.988	48.172	..	59.683	9.673	..
1885	124.921	49.463	..	61.233	9.896	..
1886	125.963	49.889	..	61.731	9.981	..
1887	126.542	50.007	..	62.076	10.019	..
1888	124.225	49.094	..	60.879	9.829	..
1889	119.550	47.378	..	58.480	9.483	..
1890	116.058	46.002	..	56.938	9.213	..
1891	116.800	46.264	..	57.333	9.268	..
1892	119.317	47.401	..	58.496	9.483	..
1893	123.817	49.163	..	60.680	9.838	..
1894	124.738	49.562	..	61.138	9.923	..
1895	121.729	48.192	..	59.515	9.655	..
1896	120.083	47.658	..	58.822	9.538	..
1897	119.667	47.554	..	58.696	9.521	..
1898	120.271	47.596	..	58.828	9.535	..
1899	120.475	47.812	..	58.963	9.563	..
1900	241.775	96.209	..	118.017	19.248	..
1901	239.604	95.228	..	117.245	19.051	..
1902	239.639	95.231	..	117.099	19.058	..
1903	239.329	95.216	..	117.146	19.055	..
1904	239.417	95.203	..	117.188	19.048	..
1905	240.054	95.467	..	117.325	19.103	..
1906	240.396	95.509	..	117.378	19.113	..
1907	240.962	95.660	..	117.555	19.133	..
1908	239.836	95.425	..	117.503	19.106	..
1909	240.015	95.306	..	117.322	19.069	..
1910	240.413	95.281	..	117.503	19.080	..
1911	240.398	95.023	..	117.485	19.063	..
1912	241.243	95.616	..	117.826	19.130	..
1913	241.300	95.541	..	117.888	19.113	..

TABLE AH 4.1\_A Government finances - Austrian budget, 1863–1913

Year	Austrian government ordinary expenditure AH4A_A	Austrian government interest payment AH4B_A	Austrian government debt redemption AH4C_A	Adjusted Austrian government extraordinary expenditure AH4D_A	Austrian government ordinary revenue AH4E_A	Adjusted Austrian government extraordinary revenue AH4F_A
1863	401958.0	121719.0	45824.0	..	328666.5	..
1864	672129.0	112308.0	34039.5	..	531042.5	..
1865	496546.0	118021.5	51670.0	69977.3	444448.0	-
1866	761363.0	126123.0	82040.5	150839.3	501272.0	-
1867	489300.0	126433.5	18486.5	334363.7	462559.5	-
1868	324968.0	83625.0	21866.0	1412.6	325251.5	-
1869	300479.5	72582.5	12326.0	12645.6	323192.5	-
1870	332332.5	83209.5	14723.5	200.0	355570.5	-
1871	345645.5	84065.0	14348.5	407.0	356297.0	-
1872	353038.0	80069.5	7620.0	-	367206.0	-
1873	398851.5	80334.5	12359.5	211.0	398851.5	-
1874	400248.0	82879.0	12802.0	17872.0	400248.0	-
1875	391764.0	81373.5	9628.0	26827.0	391764.0	-
1876	415904.5	85177.5	17283.5	17006.0	381418.0	-
1877	415478.5	91818.0	17673.0	51830.0	388130.5	-
1878	503512.0	92403.0	35937.0	12077.0	410597.0	-
1879	454920.5	98361.5	18439.5	35176.0	394766.0	-
1880	432075.0	103000.0	11048.0	-	422197.0	-
1881	479643.5	103880.5	32716.0	10.0	442333.0	-
1882	507288.5	105583.0	21825.0	-	486078.5	45.0
1883	514867.0	107042.0	11947.5	13.0	489032.0	-
1884	542955.5	108386.5	12588.5	13.0	510405.0	-
1885	529458.5	110506.0	9298.5	-	524576.0	3.0
1886	521930.5	112083.0	9519.0	-	524704.0	24.0
1887	566864.0	119973.5	10548.0	39.0	528773.0	-
1888	567302.0	127715.0	11566.5	8.0	513692.5	-
1889	551203.5	135671.5	11982.5	1.0	562393.5	-
1890	559597.5	133958.0	13003.0	-	581814.5	1396.0
1891	587091.5	132736.0	12479.0	-	600708.5	100.0
1892	610666.0	133876.0	13143.5	-	617697.5	8.0
1893	629812.5	140305.0	13684.5	-	659162.5	-
1894	640242.5	141820.5	13681.0	-	660304.5	52.0
1895	664763.0	146806.0	15933.5	1206.0	698353.0	-
1896	689015.5	151694.0	14908.0	-	707847.5	3540.0
1897	708652.0	151053.5	15051.5	60052.0	741101.5	-
1898	760166.5	153539.0	16109.0	45218.0	781824.0	-
1899	769049.5	153418.5	16502.5	80286.0	799063.0	2.0
1900	1605195.0	306371.0	34484.0	60582.0	1654232.0	296.0
1901	1666811.0	305846.0	35487.0	39587.0	1686785.0	-
1902	1715318.0	315072.0	37959.0	82229.0	1727585.0	7.0
1903	1759686.0	317587.0	37791.0	118806.0	1757792.0	2.0
1904	1794673.0	314541.0	42432.0	222050.0	1797794.0	-
1905	1829864.0	316987.0	38157.0	168842.0	1882001.0	-
1906	1862292.0	328769.0	38772.0	151547.0	2008495.0	112.0
1907	2209093.0	339671.0	44301.0	134995.0	2253052.0	-
1908	2373894.0	340552.0	56738.0	187782.0	2388384.0	19.0
1909	2883648.0	383360.0	57363.0	3727.0	2795703.0	19.0
1910	2901364.0	417722.0	66905.0	231251.0	2895492.0	-
1911	3004036.0	421123.0	76972.0	201657.0	3082732.0	36.0
1912	3184361.0	427421.0	60710.0	190526.0	3173309.0	-
1913	3461133.0	435032.0	54246.0	468458.0	3486078.0	135.0



TABLE AH 4.2\_A Government finances - Hungarian budget, 1869–1913

Year	Hungarian government ordinary expenditure	Hungarian government extraordinary expenditure	Hungarian government ordinary revenue	Hungarian government extraordinary revenue
	AH4G_A	AH4H_A	AH4I_A	AH4J_A
1863	..	..	..	..
1864	..	..	..	..
1865	..	..	..	..
1866	..	..	..	..
1867	..	..	..	..
1868	.	.	.	.
1869	161892.0	32297.0	167211.0	66506.0
1870	172642.0	34170.0	175959.0	7376.0
1871	145073.0	40791.0	147818.0	25874.0
1872	155677.0	45935.0	155951.0	2041.0
1873	195085.0	49337.0	175011.0	64891.0
1874	202801.0	38262.0	182963.0	5617.0
1875	207323.0	23650.0	187967.0	3780.0
1876	212511.0	28668.0	203304.0	2850.0
1877	237149.0	1612.0	213722.0	4463.0
1878	240075.0	.	217518.0	7899.0
1879	264664.0	30035.0	247139.0	3396.0
1880	272981.0	16667.0	244822.0	17613.0
1881	309730.0	21818.0	275235.0	30728.0
1882	286271.0	50870.0	265363.0	33844.0
1883	300018.0	40303.0	279809.0	29421.0
1884	305639.0	66642.0	286009.0	13051.0
1885	327027.0	33092.0	306007.0	8537.0
1886	320264.0	27725.0	295970.0	5040.0
1887	324465.0	43613.0	306148.0	13086.0
1888	321776.0	40104.0	321082.0	40480.0
1889	319031.0	28964.0	334576.0	6297.0
1890	323796.0	32432.0	367814.0	10840.0
1891	364322.0	41058.0	410231.0	15738.0
1892	378667.0	38110.0	420821.0	12149.0
1893	381030.0	113872.0	924964.0	85659.0
1894	435867.0	82367.0	944252.0	40734.0
1895	429092.0	66402.0	948048.0	34647.0
1896	445967.0	66073.0	992412.0	17937.0
1897	455491.0	89730.0	1014408.0	18432.0
1898	452370.0	69738.5	1014158.0	17223.0
1899	454886.0	57702.5	1002783.0	11307.0
1900	957471.0	125444.0	1039263.0	48498.0
1901	982918.0	118910.0	1036096.0	12799.0
1902	981409.0	121617.0	1060643.0	19944.0
1903	1034027.0	108843.0	1023979.0	10307.0
1904	1040325.0	165907.0	1174288.0	19327.0
1905	1049263.0	133157.0	1012467.0	17451.0
1906	1112173.0	130418.0	1332057.0	21456.0
1907	1209731.0	186008.0	1367215.0	22852.0
1908	1319539.0	294098.0	1406267.0	114434.0
1909	1392557.0	325614.0	1448919.0	284303.0
1910	1418777.0	236883.0	1539902.0	183679.0
1911	1531709.0	232755.0	1699948.0	15769.0
1912	1667544.0	342757.0	1800652.0	56708.0
1913	1780180.0	535094.0	1835913.0	473361.0

TABLE AH 4.3\_A Government finances – common budget, 1868–1913

Year	Common budget expenditure	Common budget revenue	Common budget custom duties	Common budget Austrian and Hungarian contributions
	AH4K_A	AH4L_A	AH4M_A	AH4N_A
1863	..	..	..	..
1864	..	..	..	..
1865	..	..	..	..
1866	..	..	..	..
1867	..	..	..	..
1868	111714.0	3916.0	12250.0	95548.0
1869	95664.0	4431.0	16204.0	75029.0
1870	113576.0	4458.0	12550.0	96568.0
1871	126468.0	7321.0	15257.0	103890.0
1872	113613.0	6636.0	19842.0	87135.0
1873	116407.0	5887.0	17536.0	92984.0
1874	117891.0	5672.0	11111.0	101108.0
1875	114794.0	5186.0	11969.0	97639.0
1876	127031.0	4971.0	6459.0	115601.0
1877	125225.0	5560.0	4719.0	114946.0
1878	220734.0	4897.0	3856.0	211981.0
1879	142130.0	5096.0	2570.0	134464.0
1880	119133.0	3373.0	4908.0	110852.0
1881	123208.0	3285.0	-1730.0	121653.0
1882	149701.0	3134.0	15614.0	130953.0
1883	128611.0	3087.0	16069.0	109455.0
1884	133072.0	2984.0	20933.0	109155.0
1885	127579.0	3099.0	4826.0	119654.0
1886	127484.0	2979.0	18489.0	106016.0
1887	160469.0	2964.0	8755.0	148750.0
1888	169516.0	2808.0	39357.0	127351.0
1889	151937.0	4594.0	39782.0	107562.0
1890	143807.0	2897.0	41527.0	99383.0
1891	145464.0	2935.0	44866.0	97663.0
1892	148711.0	2825.0	47283.0	98603.0
1893	152218.0	2786.0	54956.0	94476.0
1894	156446.0	2898.0	54695.0	98853.0
1895	156637.0	3128.0	53711.0	99798.0
1896	158998.0	2898.0	53537.0	102563.0
1897	174188.0	2953.0	62267.0	109018.0
1898	186969.0	3064.0	71148.0	112757.0
1899	183495.0	3408.0	58494.0	121593.0
1900	361194.0	13030.0	131048.0	217116.0
1901	382906.0	8383.0	118113.0	256410.0
1902	395357.0	8249.0	122295.0	264813.0
1903	408375.0	12476.0	129682.0	266217.0
1904	417975.0	9933.0	141185.0	266857.0
1905	449983.0	11913.0	148630.0	289440.0
1906	432399.0	12805.0	154578.0	265016.0
1907	442903.0	9374.0	162032.0	271497.0
1908	525129.0	10753.0	169931.0	344445.0
1909	656723.0	13145.0	197980.0	445598.0
1910	585798.0	12048.0	228452.0	345298.0
1911	564347.0	10775.0	222717.0	330855.0
1912	693890.0	10618.0	238645.0	444627.0
1913	927006.0	14610.0	227669.0	684727.0

TABLE AH 4.4\_A Government debt, 1863–1913

Year	Pre-1867 government debt	Austrian government debt	Austrian emancipation bonds	Hungarian government debt	Hungarian emancipation bonds
	AH4Q_A	AH4P_A	AH4Q_A	AH4R_A	AH4S_A
1863	2526368.0	..	522670.0	..	..
1864	2547835.6	..	520913.0	..	..
1865	2600994.3	..	522220.0	..	..
1866	2598013.5	..	525856.0	..	..
1867	3025315.9	2500.0	519460.0	..	..
1868	2692067.0	1938.0	253306.0	22296.0	244054.0
1869	2680898.7	1411.0	247155.0	43904.0	241740.0
1870	2653156.0	796.0	241107.0	100568.0	250419.0
1871	2628742.0	7.0	233619.0	237006.0	251712.0
1872	2644875.0	18928.3	225246.0	153638.0	249943.0
1873	2675565.6	19346.2	218706.0	295624.0	251303.0
1874	2735708.0	22788.2	212091.0	300336.0	248079.0
1875	2789690.8	47731.1	205513.0	378275.0	245215.0
1876	2837925.0	79671.1	198625.0	467021.0	241342.0
1877	2949952.0	153319.1	191894.0	497385.0	238030.0
1878	3001589.0	226315.1	184285.0	591354.0	233850.0
1879	2763471.0	392373.0	177550.0	771834.0	229496.0
1880	2755828.0	408616.0	170155.0	869398.0	224436.0
1881	2769945.0	442285.0	162775.0	1005535.0	219887.0
1882	2744827.0	482846.0	154831.0	957121.0	214358.0
1883	2750927.0	499946.0	146842.0	991901.0	208392.0
1884	2752331.0	539477.0	137864.0	1317536.0	202063.0
1885	2772589.0	551224.0	129875.0	1147120.0	195261.0
1886	2770700.0	646593.0	120592.0	1190082.0	188120.0
1887	2782499.0	884572.0	103990.0	1246910.0	180632.0
1888	2787793.0	1058637.0	92820.0	1289982.0	172616.0
1889	2771778.0	1056704.0	71779.0	1378680.0	199243.0
1890	2761667.0	1058813.0	56595.0	1594789.0	198695.0
1891	2752333.0	1055491.0	49266.0	1866337.0	198124.0
1892	2788405.0	1075500.0	41159.0	1863861.0	197531.0
1893	2759930.0	1226784.0	10271.0	1880373.0	196914.0
1894	2757673.0	1274074.0	1036.0	1948514.0	196271.0
1895	2756100.0	1435217.0	182.0	1971895.0	195603.0
1896	2751026.0	1434137.0	7.0	1982777.0	194908.0
1897	2763120.0	1472747.0	-	2018803.0	194184.0
1898	2735243.0	1479398.0	-	2019579.0	193432.0
1899	2719495.0	1581758.0	-	2069591.0	192648.5
1900	5443543.0	3376419.0	-	4238486.0	383668.0
1901	5447346.0	3619129.0	-	4232468.0	381973.0
1902	5450204.0	3640593.0	-	4231284.0	380210.0
1903	5424366.0	3761393.0	-	4289602.0	378375.0
1904	5403177.0	3872568.0	-	4391727.0	376468.0
1905	5383561.0	4030030.0	-	4378340.0	374480.0
1906	5366352.0	4243248.0	-	4380978.0	372414.0
1907	5258934.0	4584865.0	-	4382410.0	370264.0
1908	5240025.0	4733979.0	-	4435277.0	368027.0
1909	5220443.0	5524657.0	-	4709676.0	365700.0
1910	5199884.0	6911566.0	-	4954048.0	363280.0
1911	5179043.0	7061628.0	-	5046198.0	360760.0
1912	5158396.0	7312753.0	-	5162429.0	358140.0
1913	5141255.0	7467346.0	-	5840562.0	355413.0

TABLE AH 5\_A Prices and production, 1863–1913

Year	Consumer price index for Austria (1914=100)	Manufacturing production index for Austria (1914=100)	Manufacturing production index for Hungary (1913=100)
	AH5A_A	AH5B_A	AH5C_A
1863	92.4	..	..
1864	92.6	..	..
1865	85.2	..	..
1866	84.8	..	..
1867	84.4	..	..
1868	82.7	..	..
1869	84.3	..	..
1870	87.0	33.3	18.7
1871	89.7	38.5	20.3
1872	96.2	38.2	19.1
1873	98.3	35.0	19.2
1874	97.1	35.6	19.7
1875	94.1	35.4	17.9
1876	92.7	35.2	17.2
1877	93.0	36.5	19.1
1878	89.4	36.9	24.2
1879	89.3	37.1	22.4
1880	89.8	36.9	21.9
1881	88.0	40.1	26.4
1882	87.3	41.6	32.4
1883	87.0	43.6	36.6
1884	86.0	43.7	36.6
1885	82.8	41.3	37.0
1886	80.0	41.0	35.5
1887	82.0	44.7	36.4
1888	80.8	43.8	41.0
1889	82.1	45.6	38.4
1890	82.2	48.8	40.4
1891	82.6	52.0	46.3
1892	78.6	52.8	46.7
1893	79.1	55.0	55.4
1894	78.6	57.9	55.9
1895	80.5	60.3	58.7
1896	77.2	60.0	59.8
1897	77.8	62.4	56.2
1898	78.4	65.5	56.5
1899	80.0	66.7	61.0
1900	80.4	66.7	60.8
1901	78.0	68.3	55.6
1902	78.6	71.6	59.9
1903	79.9	72.4	63.3
1904	81.4	74.7	61.7
1905	85.6	77.8	66.3
1906	86.8	83.0	75.9
1907	90.3	90.9	77.9
1908	90.8	93.1	79.1
1909	91.8	93.8	84.1
1910	95.4	92.7	88.9
1911	99.5	98.8	95.6
1912	100.8	106.2	104.9
1913	101.2	100.0	100.0

TABLE AH 6.1\_A National accounts, 1863–1913

Year	Nominal GDP, Austria AH6A_A	Nominal GDP, Hungary AH6B_A	Real GDP, Austria AH6C_A	Real GDP, Hungary AH6D_A	Real GDP per capita, Austria AH6E_A	Real GDP per capita, Hungary AH6F_A
1863	..	..	..	..	..	..
1864	..	..	..	..	..	..
1865	..	..	..	..	..	..
1866	..	..	..	..	..	..
1867	..	..	..	..	..	..
1868	..	..	..	..	..	..
1869	..	..	..	..	..	..
1870	3530.7	1835.1	4348.7	2260.3	211.5	145.6
1871	3862.4	1870.5	4599.8	2227.6	222.8	143.3
1872	4158.2	2010.7	4594.5	2221.7	221.7	142.7
1873	4121.2	2052.8	4446.3	2214.7	214.4	142.1
1874	4239.1	2024.9	4627.1	2210.3	221.4	141.6
1875	4092.3	1991.6	4610.4	2243.7	218.4	143.6
1876	4042.2	1913.2	4620.3	2186.8	216.7	139.8
1877	4196.7	2119.0	4774.5	2410.8	222.4	153.9
1878	4135.7	2081.8	4897.2	2465.1	226.6	157.1
1879	3991.1	2103.8	4725.3	2490.8	216.7	158.6
1880	4079.8	2228.7	4795.9	2619.9	218.2	166.6
1881	4150.4	2360.9	4976.5	2830.8	225.1	178.5
1882	4155.0	2602.1	5016.9	3141.8	225.2	196.8
1883	4254.3	2565.3	5148.3	3104.4	229.5	192.1
1884	4313.8	2613.9	5276.4	3197.2	233.2	195.3
1885	4105.8	2535.2	5216.5	3221.1	229.0	194.4
1886	3997.6	2402.6	5256.5	3159.2	229.1	188.3
1887	4286.0	2575.2	5485.2	3295.7	237.0	194.6
1888	4224.4	2626.2	5481.7	3407.8	235.0	199.1
1889	4308.7	2546.3	5491.7	3245.3	233.1	187.2
1890	4539.1	2684.4	5769.9	3412.3	243.4	195.2
1891	4657.3	2812.5	5882.2	3552.3	246.2	201.7
1892	4564.2	2634.2	6058.6	3496.7	251.6	197.7
1893	4594.5	2842.2	6050.2	3742.8	249.4	209.5
1894	4822.9	2765.9	6383.2	3660.7	261.2	202.8
1895	5026.2	3112.0	6481.6	4013.1	263.0	219.8
1896	4839.6	2968.8	6505.2	3990.5	261.3	216.3
1897	4973.3	2795.8	6622.3	3722.8	263.3	199.5
1898	5280.6	3010.8	6966.2	3971.9	274.3	211.1
1899	5525.0	3201.2	7129.5	4130.9	277.9	217.1
1900	11049.8	6545.2	14166.0	8391.1	546.5	435.9
1901	11042.5	6174.8	14579.1	8152.4	556.9	420.0
1902	11408.2	6577.5	14923.2	8604.2	564.6	439.7
1903	11684.0	6989.7	15010.0	8979.4	562.8	455.1
1904	12117.9	6333.4	15255.1	7973.1	566.7	400.9
1905	13514.2	7472.4	16146.7	8928.0	596.3	445.3
1906	14287.8	8370.8	16810.6	9848.8	614.4	487.3
1907	15559.2	8326.4	17568.6	9401.7	636.5	461.3
1908	15987.2	8514.3	17929.4	9548.6	644.0	464.7
1909	16357.1	8916.0	18120.8	9877.4	645.6	476.7
1910	16934.1	9848.2	18027.4	10484.0	636.6	501.9
1911	18120.3	10178.5	18471.6	10375.9	647.7	493.4
1912	19394.7	10993.3	19493.4	11049.3	678.0	520.2
1913	19140.8	10971.6	19140.8	10971.6	661.2	512.4

TABLE AH 6.2\_A Trade and population, 1863–1913

Year	Imports	Exports	Population, Austria	Population, Hungary
	AH6G_A	AH6H_A	AH6I_A	AH6J_A
1863	262.3	303.0	37.710	.
1864	272.5	351.3	37.884	.
1865	278.9	365.1	38.137	.
1866	245.2	380.4	35.600	.
1867	294.3	407.4	20.015	.
1868	387.4	428.9	20.193	.
1869	420.6	438.1	20.395	15.509
1870	436.0	395.4	20.598	.
1871	540.8	467.6	20.777	.
1872	613.7	388.0	20.908	.
1873	583.1	423.6	20.920	.
1874	627.5	502.8	21.082	.
1875	549.3	550.9	21.285	.
1876	534.3	595.2	21.499	.
1877	555.3	666.6	21.648	.
1878	552.1	654.7	21.792	.
1879	556.6	684.0	21.990	.
1880	613.5	676.0	22.144	15.739
1881	641.8	731.5	22.279	.
1882	654.2	781.6	22.443	.
1883	624.9	749.9	22.602	.
1884	612.6	691.5	22.791	.
1885	557.9	672.1	22.940	.
1886	539.2	698.6	23.115	.
1887	568.6	672.9	23.310	.
1888	533.1	728.8	23.491	.
1889	589.2	766.2	23.720	.
1890	610.7	771.4	23.895	17.464
1891	613.3	786.7	24.097	.
1892	646.9	765.5	24.231	.
1893	697.3	860.7	24.450	.
1894	720.5	837.5	24.624	.
1895	743.5	784.1	24.838	.
1896	727.0	816.2	25.086	.
1897	783.0	809.8	25.341	.
1898	852.6	855.0	25.585	.
1899	836.8	983.8	25.843	.
1900	1749.0	2061.7	26.151	19.255
1901	1694.3	1981.0	26.408	.
1902	1770.3	1999.4	26.663	.
1903	1936.4	2236.5	26.897	.
1904	2111.0	2182.0	27.145	.
1905	2213.1	2390.7	27.312	.
1906	2411.3	2598.0	27.584	.
1907	2587.1	2658.1	27.828	.
1908	2467.2	2389.6	28.073	.
1909	2821.3	2475.1	28.300	.
1910	2929.7	2587.6	28.572	20.886
1911	3275.2	2582.6	28.763	.
1912	3669.9	2926.7	28.996	.
1913	3508.7	2987.5	29.193	.



## Greece: from 1833 to 1949

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### I MAJOR MONETARY EVENTS

The story of Greece is rich in fiscal crises, debt defaults, multiple switches on and off fixed exchange-rate regimes and political and military events. The lessons drawn from historical experience are very important. Pre-WWII Greek governments tried repeatedly to end histories of macroeconomic instability through participation in the prevailing international monetary system. This is because they understood that the participation of an ‘emerging market economy’ with a weak currency and a thin money market in a monetary group of powerful economies could enable it to develop sound monetary and fiscal institutions. This is what Caballero et al. (2004) have called ‘country’ and ‘currency trust’.<sup>2</sup> Moreover, participation could improve that economy’s international credit standing and imply important benefits in terms of exchange-rate and price stability, and long-term foreign borrowing.

The country’s pre-WWII monetary history was marked by experiments with silver monometallism in the very early years of the Greek State, bimetallism in the middle 19th century, the classical gold standard in the last quarter of the century and the gold-exchange standard in the years between the two world wars. As an even stronger form of commitment, Greece joined the Latin Monetary Union (LMU) in 1867.<sup>3</sup>

In particular, between its independence in 1828, when a national monetary system based on silver was first introduced, and 1936, when the country entered the ‘Sterling Area’<sup>4</sup>, the Greek economy experienced eight episodes of suspension of metallic or foreign exchange convertibility (see Table 1). Budget deficit difficulties were the reason for the suspension of silver monometallism

<sup>1</sup> *Economic Analysis and Research Department*. The presentation concerning the Greek data elaborates on the former release of a small part of the SEE historical database edited by the OeNB, *Workshops 13* (2008) and the Bank of Greece *Working Paper 94* (2009a). I am grateful to Roumen Avramov, Michael Bordo, Claude Diebolt, Dragana Gnjatovic, Yüksel Görmez, Martin Ivanov, Clemens Jobst, Matthias Morys, Şevket Pamuk, Martin Pontzen, Thomas Scheiber, Milan Sojic, George Virgil Stoenescu and Alina Blejan, and Gianni Toniolo for their insightful comments and suggestions. Special thanks are due to Antonis Antoniou, George Kostelenos and Vangelis Prontzas for kindly allowing me to use some of their data. I am mostly grateful for their patience in endless hours of discussion that enriched my knowledge on specific topics of Greek economic history. I am also so thankful to Ioanna Kakli, Nicos Karabalis, Euripides Kontelis and Vassilios Megas for their valuable assistance in resolving several of my queries. I am grateful to Peter Mooslechner for support and encouragement. Many thanks are also due to Kate Procopaki and Vassilis Belecoukias who patiently read the manuscript several times and made editorial changes. Finally yet importantly, I wish to thank the *Historical Archive* of the National Bank of Greece, the *Library* of the Bank of Greece and the *National Library* of Greece for kindly providing their material; without their valuable help, this project would not have been possible. The views expressed herein are strictly those of the author and do not necessarily reflect the views of the Bank of Greece and the Eurosystem. I alone am responsible for any errors.  
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<sup>2</sup> In particular, sound fiscal institutions mean the existence of an efficient tax system; the avoidance of excessive public debt exposure; and the credible commitment to balanced budgets. Sound monetary institutions include the credible adherence to a monetary agreement such as the classical gold standard by holding sufficiently large gold reserves to minimise mismatch between hard currency liabilities and domestic currency revenue.

<sup>3</sup> For a detailed discussion of the Greek monetary system and the monetary policy pursued in the context of the international monetary surrounding, see Alogoskoufis and Lazaretou (2002) and Lazaretou (1999, 2004 and 2005a, b).

<sup>4</sup> The close tie with the pound sterling was maintained until the start of the Axis occupation in April 1941.

in 1831. The government tried, though to no avail, to finance, with foreign borrowing, the increased expenditures required for the relief of the Greek refugees coming from regions that were still under Turkish occupation. Access to foreign borrowing was impossible; Greece's inability to repay the Independence Loans of 1824–25 (0.8 million pounds sterling at 5% and 1.1 million at 6%) destroyed its reputation as a borrower. Paper notes were thus issued (Gervinus 1863, Gennadios 1878 and Andreades 1904). Two years later, bimetallism was adopted, and the gold-silver drachma (*δραχμή*) replaced the silver phoenix (*φοίνικας*). The adoption of bimetallism was supported by a large foreign loan (60 million drachmas at 6%) under the aegis of the Great Powers (the UK, France and Russia). Ultimately, the loan was wasted in other uses and it was impossible to mint silver coinage, thus causing money scarcity in the domestic market. Nevertheless, the country's economic stagnation quickly caused new fiscal difficulties, which finally forced the government to unilaterally suspend loan repayment in 1843<sup>5</sup>, while in April 1848 a short-lived suspension of metallic convertibility took place in response to a worldwide financial panic.

Greece always made hard efforts to adopt bimetallism and rebuild its creditworthiness: a debt compromise on past foreign loans was reached in 1864 (final settlement of the 1832 loan); in 1878–79 (final settlement of the 1824–25 loans); and again in 1898,<sup>6</sup> following the 1893 debt repudiation. Efforts were made to join the LMU system in 1868, 1870, 1880–84, 1885–86 and again in 1898. However, the episodes of inconvertibility lasted for many years. Fiat money standards came into existence in 1868, 1877, 1885 and 1914 as the result of excessive wartime emergencies; in 1932, as the ultimate result of the worldwide economic and monetary crisis of the early 1930s; and again in 1936 due to large deficits in the balance of payments. With the exception of the short-lived 1885 episode of adherence to gold, Greece pursued, for the first time, consistently a specie standard rule as late as 1910, and only four years before the collapse of the classical gold standard. Again, it joined gold in 1928. A key feature of all pre-war episodes was that specie flows were always resumed at the original parity, i.e. the par value of 1:1 against the French franc. The 1928 resumption, however, was an exception to that rule: the drachma, before joining, was devalued.

In 1927 the government implemented successfully a two-year stabilisation programme followed by fiscal consolidation, monetary stringency and a *de facto* devaluation of the drachma. The stabilisation effort was supported by a large foreign loan (9 million pounds sterling) that the country negotiated through the mediation of the League of Nations.<sup>7</sup> The severe deflation waves of the 1929 crash reached Greece with a lag of more than one year (Chouliarakis and Lazaretou 2014). The impact was primarily on the balance of payments and the drachma exchange rate. Greece, however, did not follow Britain out of gold in September 1931 and switched from pegging against the pound sterling to pegging against the US dollar, which remained on gold. The drachma soon came under heavy selling pressure. The central bank reacted by imposing exchange controls (see the Law on the Protection of the Domestic Currency, September 1931 and February 1932). Convertibility ultimately ended in April 1932; the drachma returned to a free float and started to depreciate heavily (by 66.9% in May compared to April; by 44.8% compared to the stabilisation rate). A month later, the government declared a unilateral moratorium on the servicing of its outstanding foreign debt. The dollar's devaluation in March 1933 allowed the increase of the country's foreign exchange reserves and thus in June the drachma joined the Gold Bloc, and started pegging against the Swiss

<sup>5</sup> In 1856, International Finance Control (IFC) was imposed for the first time; a final compromise was settled in 1864.

<sup>6</sup> For a second time, IFC was established by law. The IFC committee took full control and management of public finances in the context of a strict long-lived stabilisation programme followed by fiscal consolidation, money squeeze, persistent deflation and heavy currency appreciation up to the original parity. For an analysis of the 1898 IFC and an assessment of its impact on the country's economy, see Lazaretou (2013).

<sup>7</sup> Foreign creditors demanded two pre-conditions for lending to Greece: (i) the restoration of convertibility and (ii) the foundation of a central bank (i.e. the Bank of Greece).



franc. It was devalued again, though moderately, in September 1936 and eventually returned to a managed float, when it joined the ‘Sterling Area’ after the Bloc’s dissolution. It remained fixed against the pound sterling, recording only slightly fluctuations. To a significant extent, this was the result of a generalised system of exchange controls imposed on capital and trade flows.<sup>8</sup>

Well up to now, in all international empirical studies Greece is systematically neglected or included only occasionally and sporadically in their cross-country samples. Therefore, the Greek monetary history is more or less *terra incognita*. In the national literature also there is not much more on this topic. Venezis (1953), Bank of Greece (1975), Freris (1986) and Mazower (1989, 1991, 1992) present the country’s political economy in the interwar period. The two special editions of the Bank of Greece (2009b, 2011) try to shed light on the monetary policy pursued during the interwar crisis. More recently, Christodoulakis (2013) develops a currency peg model for interwar Greece and provides empirical evidence that the Greek failure to cope with the crisis was chiefly attributed to ‘...a number of specific mistakes and policy debacles’. Moreover, Chouliarakis and Lazaretou (2014) use the 1930s crisis as a useful testing ground to detect similarities and differences of the current and the interwar Greek crisis episodes.

Pre-WWII Greece was a typical example of a SEE ‘emerging market economy’.<sup>9</sup> The country began that time gradually but steadily to move from a closed economy to an open economy and to build economic and political institutions. It was also at the ‘periphery’<sup>10</sup> of the international monetary system. There were three typical features placing it among the peripheries. *First*, it had experienced an exceptionally large number of exchange rate regime switches. *Second*, the frequent alternations between metallic and paper currency standards and the short-lived adoption of the specie rule revealed the government’s inability to maintain fixed rates. Thus, before joining, the country would have to implement major institutional reforms chiefly in the field of budget finances. *Third*, and notwithstanding the above, the periodic abandonment of and return to metallic standards revealed the government’s strong desire for adherence to the specie convertibility rule.

It is evident that Greece always tried to follow international monetary developments. The evolution of the country’s monetary system was affected both by developments in the international

<sup>8</sup> The imposition of dictatorship in August 1936 allowed for a widespread and rigorous enforcement of the exchange controls regime.

<sup>9</sup> Although the term was loosely defined, i.e. any economy with low to middle per capita income, it is used to denote a country which, irrespective of its size, has embarked upon economic development and reform programmes and has begun to open its markets and ‘emerge’ onto the global market economy. Until the outbreak of WWI, all SEE countries were trying to strike a balance between separation and convergence regarding the establishment of their national currency systems (Einaudi 2008). Mooslechner (2008) provides useful insights on a number of issues related to the choice of the exchange rate regime, placing emphasis on the recent challenges of SEE countries. A number of detailed studies of the experience of the European peripheries have recently emerged, shedding light on the intentions of their monetary authorities to participate in the international monetary arrangements designed by the core countries. See, for example, the work by Martín-Aceña and Reis (2000), Lazaretou (2005a), Ögren (2006), Esteves et al. (2007), Øksendal (2007), Morys (2008), Bernholz (2008) and Branco et al. (2010). The growing body of historical and empirical research on the national stories or comparisons among them provides rich evidence on the ‘nominal’ and the ‘real’ effects of the monetary regime for a peripheral economy (see Bordo and Kydland 1995, Bordo and Schwarz 1997 and Meissner 2002 on the ‘nominal’ effects; and Bordo et al. 1999, Flandreau and Sussman 2004, Bordo and Rockoff 1996, Eichengreen and Hausmann 1999, Eichengreen et al. 2003 and Flandreau and Maurel 2001 on the ‘real’ effects).

<sup>10</sup> Participating countries are divided into ‘core’ and ‘peripheral’ according to their faithfulness to specie rules. The core countries (the UK, the US, France and Germany) always adhered strictly to the specie rule. They were leading financial centres, capital and commodity exporters and world bankers, and their national currencies were used as the ‘nominal anchor’ for the other countries. See Eichengreen (2011). By contrast, the peripheral countries only temporarily maintained fixed rates. Peripheries were open economies, albeit economically and financially underdeveloped. They were capital and commodity importers, could not borrow in their own currency and often suffered from weak public finances. They could not therefore influence the international monetary regime and thus had to obey the rules set by the core countries. Whenever they faced pressing financial needs or imbalances in the external sector, they would abandon the specie rule. The country’s size did not matter in the choice of nominal exchange rate regime. For example, small countries, like Belgium or Denmark, were among the core countries in the region, whereas large countries, like Russia or Austria-Hungary, were at the system’s periphery.

environment and by domestic fiscal disturbances. In the course of a 100-year period, the country experienced important demographic and territorial changes, which raised consumption and aggregate demand but also put a burden on the budget. Sudden population increases were due to the country's territorial enlargements that were the outcome of its involvement in frequent hostilities with the Ottoman Empire, the Balkan Wars and WWI.<sup>11</sup>

In particular, the serial suspensions of money convertibility in Greece were due both to the occurrence of some sudden event, usually unexpected and unpredictable, such as war, threat of war and financial and banking panics<sup>12</sup>, and to the government's failure to pursue fiscal and monetary policies compatible with its commitment to fixed exchange rates. Sudden events were accompanied by currency and debt crises.<sup>13</sup> Data and historical accounts confirm that the key determinants of the Greek crisis events were closely related to country-specific factors: all crisis events were preceded by periods of fiscal laxity, rapid monetary expansion and limited coverage of the domestic money.<sup>14</sup>

Equally, the country's financial system was weak and thin. Throughout the 19th century the process of financial intermediation went at a slow pace. From the turn of the century onwards, monetary stability and rapid economic growth boosted money transactions, bank deposits and the demand for money. In the early 1920s, the banking system expanded further, while in the interwar period the process of financial development slowed down. Key inefficiencies of the country's financial system were: banks' capital inadequacy, high leverage and poor asset-liability management; and the absence of a central bank and a regulatory framework for the supervision of commercial banking activities.<sup>15</sup>

The country's financial system took its first steps with the inception of the National Bank of Greece (NBG, *Εθνική Τράπεζα της Ελλάδος*) in 1842. This was the first commercial bank in modern Greece. It was created and functioned as a 'universal bank', that is a deposit and a discount bank as well as a provider of short- and long-term private credit (see the establishing Law of NBG, 30 March 1841).<sup>16</sup> At the same time, it was granted the monopoly of note issue (see the Amending Act of 19 August 1841). Soon, it became the biggest in resources and exerted dominance over the domestic money market.<sup>17</sup> The NBG's monopoly covered almost the entire territory except Crete, the

<sup>11</sup> Important territorial enlargements followed by large population increases occurred in 1864, 1881, 1905 and 1913 and again in 1922–23, which for the most part shaped the country's current borders.

<sup>12</sup> Lazaretou (1995) provides narrative and empirical evidence that Greece followed a fixed-rate regime with the accepted 'escape clause' for war emergencies. Once the war ceased, government authorities made efforts to return to the 'natural state', i.e. specie convertibility.

<sup>13</sup> For a detailed discussion of the types of financial instability, see the work by Kindlerbeger (1989), Bordo (2006, 2008), Bordo et al. (2001), Eichengreen and Lindert (1989) and more recently by Reinhart and Rogoff (2009, 2010) and Reinhart (2010).

<sup>14</sup> For the pattern of financial crises in Greece over a long time span and the key aggravating factors, see Lazaretou (2012).

<sup>15</sup> Over the pre-WWII period, financial development measured as the ratio of bank credit-to-GDP stood at levels lower than 40%. The data refer to bank gross loans to firms and households gathered by the balance sheets of 8 biggest domestic banks. The period from 1905 to 1913 was an exception: private credit grew by a factor of 1.5. That was the time when the country took efforts for adopting, eventually in 1910, the classical gold standard.

<sup>16</sup> On 31 November 1841, the General Meeting of Shareholders held for the first time. The bank began operations on 22 January 1842. It was a private limited company (*société anonyme*) located in Athens with initial capital of 5 million drachmas, divided into 5000 shares of 1000 drachmas (Valaoritis 1902, volume 2). The majority stake was held by the Rothschild bankers (55% or 2750 shares). Until 1870, the Greek State held 1000 shares and through its commissioner exerted control over the bank's activities.

<sup>17</sup> On the eve of 1929 crash, the NBG was by far the biggest among the top 8 largest banks. More than half of the private deposits were kept with it. It extended half of the loans to the domestic money market and held 54% of the total assets and 42% of the total equity capital. Therefore, it exerted a monopolistic power over the market. Bank competition was extremely weak and in conjunction with interest-inelastic demand for lending and supply of private deposits, the interest rate spread was high. The short-term market lending rate (4 biggest banks) fluctuated between 11–13% whereas the return on bank deposits was rather low (3.5 to 4.5% for deposits up to 3 months). For an analysis of the pre-war Greek financial system, see Lazaretou (2008, 2012). For the history of the NBG, see Valaoritis (1902), Kirkilitsis (1934, 1935), NBG (2001) and Kostis and Kostelenos (2003). For a recent overview of its history, see Bank of Greece (2014).

‘new provinces’ of Epirus and Thessaly and the Ionian islands. Three other smaller banks with both commercial and note-issuing activities had the exclusive privilege of note issue in these specific regions, namely the Bank of Epirus and Thessaly (1882–1899, *Προνομιοῦχος Τράπεζα Ηπειροθессαλίας*), the Bank of Crete (1899–1919, *Τράπεζα Κρήτης*) and the Ionian Bank (1839–1920, *Ιονική Τράπεζα*). Located in the country’s provinces, they issued and circulated their own notes, although for a short time interval and/or in a very limited geographical area. They gradually waived their privilege in favour of the NBG.

Like several other countries in Europe, Greece lacked a central bank before 1927. A system of multiple issue banks was in effect until 1920. Afterwards and until mid-1927 there was only one note-issuing bank, namely the NBG, which also engaged in commercial activities. On 15 September 1927 the Bank of Greece (BoG, *Τράπεζα της Ελλάδος*) was established as the country’s central bank with the monopoly of money issue and the primary objective of ensuring price and exchange rate stability. It started operations on 14 May 1928, the day that the country joined the interwar gold standard and the drachma was *de jure* stabilised.

**TABLE I** Chronology of monetary standards

Dates of Convertibility Resumption	Dates of Suspension	Reasons for Suspension	Change in the Exchange Rate
1. 1828 ( <i>silver monometallism</i> )	June 1831 Fiat money	Government failure. Budget deficit difficulties. No access to foreign borrowing.	Paper notes were issued.
2. February 1833 ( <i>bimetallism</i> )	April 1848 Fiat money	Response to a worldwide financial panic.	The silver drachma replaced the silver phoenix, silver-gold ratio: 15.5:1.
3. December 1848 ( <i>bimetallism</i> )	December 1868 Fiat money	War: the Cretan Revolution.	The resumption was made at the original parity.
4. July 1870 ( <i>bimetallism</i> )	June 1877 Fiat money	The Russo-Turkish War.	The resumption was made at the original parity.
5. January 1885 ( <i>LMU, gold standard</i> )	September 1885 Fiat money	Commercial and economic crisis, government failure, war threat.	The resumption was made at the bimetallic LMU drachma/French franc parity (1:1).
6. March 1910 ( <i>Latin Monetary Union, gold-French franc standard</i> )	August 1919 Free floating	Asia Minor Expedition. Printing money.	The resumption was made at the original parity (1:1).
7. May 1928 ( <i>gold-exchange standard</i> )	April 1932 Free floating	Worldwide monetary instability, unilateral debt repudiation.	Drachma’s devaluation.
8. June 1933 ( <i>Gold Bloc</i> )	September 1936 Gold Bloc collapse	Gold Bloc dissolution, balance of payments deficits.	Drachma’s devaluation.
9. September 1936 ( <i>‘Sterling Area’, i.e. managed float: a currency band. The drachma was tied to the sterling and floated freely against gold and other currencies.</i> )	April 1941 Free floating	World War II and Axis occupation.	The drachma lost the functions of money; successive devaluations.

Source: Author’s compilation.

## 2 DEFINITION AND DESCRIPTION OF VARIABLES

We present a comprehensive long-term historical database on newly-developed key macroeconomic time series classified in six groups, namely: monetary variables; interest rates; exchange

rates; government finances; prices, production and labour; national accounts and population. The accompanying index table provides significant information on the list of variables, the series codes and the list of tables, the unit of account, the time span and the data frequency. Each group of variables contains certain components defined in detail and described in sub-sections. All series cover the period from 1870, or even earlier, to the eve of WWII and have annual and monthly frequencies. Three series, namely the index of the cost-of-living in Athens, the exchange rate and banknotes in circulation cover also the WWII period and its aftermath, 1940–1949. The currency area examined refers to the ‘old state’ up to 1881 and the ‘new provinces’ thereafter. The currency unit, *i.e.* legal tender, was the LMU drachma (*νέα δραχμή*).<sup>18</sup>

## INDEX TABLE - Country: GREECE

continue

List of Variables	Time Span	Data Frequency	Unit of account	Series Code
<b>I. MONETARY VARIABLES</b>				<b>Table GR1</b>
<i>Currency reserves (official)</i>				
<i>First period: 1842–1927 (all issuing banks)</i>				
– total reserves	1842–1927	annual	in national currency (thousands), end-of-period	GR1A_A
	Jan.1865–Dec.1927	monthly		GR1A_M
– metallic (gold plus silver)	1842–1927	annual	in national currency (thousands), end-of-period	GR1B_A
	Jan.1872–Dec.1927	monthly		GR1B_M
– foreign exchange holdings (in convertible foreign currencies)	1869–1927	annual	in national currency (thousands), end-of-period	GR1C_A
	Jan. 1872–Dec.1927	monthly		GR1C_M
<i>Second period:1928–1939 (BoG)</i>				
– total reserves	1928–1939	annual	in national currency (thousands), end-of-period	GR1D_A
	May 1928–Dec.1939	monthly		GR1D_M
– gold	1928–1931	annual	in national currency (thousands), end-of-period	GR1E_A
	May 1928–April 1932	monthly		GR1E_M
– foreign exchange holdings (in convertible foreign currencies)	1928–1939	annual	in national currency (thousands), end-of-period	GR1F_A
	May 1928–Dec.1939	monthly		GR1F_M
– securities (government bonds)	1932–1939	annual	in national currency (thousands), end-of-period	GR1G_A
	March 1932–Dec.1939	monthly		GR1G_M
<i>Monetary aggregates</i>				
– M3 (broad money)	1842–1939	annual	in national currency (thousands), end-of-period	GR1H_A
	Dec.1928–Dec.1939	monthly		GR1H_M
– M0 (narrow money)	1842–1939	annual	in national currency (thousands), end-of-period	GR1I_A
	Dec.1928–Dec.1939	monthly		GR1I_M
– money (M3) multiplier	1842–1939	annual	ratio	GR1J_A
	May 1928–Dec.1939	monthly	ratio	GR1J_M
– reserve-banknote ratio	1842–1939	annual	ratio	GR1K_A
	Jan.1865–Dec.1939	monthly	ratio	GR1K_M
<i>banknotes in circulation (all issuing banks)</i>	1842–1927	annual	in national currency (thousands), end-of-period	GR1L_A
	Jan.1865–April 1928	monthly		GR1L_M
<i>Money balances (BoG)</i>				
– currency in circulation	1928–1939	annual	in national currency (thousands), end-of-period	GR1M1_A
	May 1928–Dec.1939	monthly		GR1M1_M
– vault cash	1928–1939	annual	in national currency (thousands), end-of-period	GR1M2_A
	Dec.1928–Dec.1939	monthly		GR1M2_M
– deposits with the central bank	1928–1939	annual	in national currency (thousands), end-of-period	GR1M3_A
	Dec. 1928–Dec.1939	monthly		GR1M3_M
<i>Bank deposits</i>	1842–1939	annual	in national currency (thousands), end-of-period	GR1N_A
	Dec.1928–Dec.1939	monthly		GR1N_M

<sup>18</sup> See Section 2.3.

## INDEX TABLE - Country: GREECE

continue

List of Variables	Time Span	Data Frequency	Unit of account	Series Code
<b>2. INTEREST RATES</b>				
<b>Table GR2</b>				
<i>Short-term interest rates</i>				
– Official interest rates: the NBG discount rate	1841–1927	date of change	in per cent p.a.	GR2A_D
	March 1841–April 1927	monthly	in per cent p.a.	GR2A_M
the BoG discount rate	1928–1941	date of change	in per cent p.a.	GR2B_D
	May 1928–Nov.1941	monthly	in per cent p.a.	GR2B_M
<i>– money market lending rates</i>				
NBG collateralised loans	1843–1931	date of change	in per cent p.a.	GR2C_D
NBG collateralised credit line	1849–1931	date of change	in per cent p.a.	GR2D_D
short-term market lending rate	1928–1941	date of change	in per cent p.a.	GR2E_D
	Dec.1928–Nov.1941	monthly	in per cent p.a.	GR2E_M
– bank deposit rates	1842–1941	date of change	in per cent p.a.	GR2F_D
	Jan.1928–Nov.1941	monthly	in per cent p.a.	GR2F_M
<i>Long-term interest rates</i>				
– fixed-rate government bonds (10 foreign loans)				
market prices	1901–1940	annual	in FRF, in 1929 drachmas	GR2G(1...10)_A
	Jan.1929–Dec.1940	monthly	in FRF, in 1929 drachmas	GR2G(1...10)_M
current yields	1901–1940	annual	in per cent p.a.	GR2H(1...10)_A
	Jan.1929–Dec.1940	monthly	in per cent p.a.	GR2H(1...10)_M
– mortgage-backed loans	1849–1925	date of change	in per cent p.a.	GR2I_D
<b>3. EXCHANGE RATES</b>				
<b>Table GR3</b>				
Pound sterling	1881–1941	annual	in LMU drachmas	GR3A_A
	May 1877–Nov.1941	monthly		GR3A_M
FRF	1878–1941	annual	in LMU drachmas	GR3B_A
	Jan.1877–Nov.1941	monthly		GR3B_M
US dollar	1914–1941	annual	in LMU drachmas	GR3C_A
	Jan.1914–Nov.1941	monthly		GR3C_M
Gold drachma	1885–1903	annual	paper drachmas	GR3D_A
	1920–1940	annual		GR3D_A
<b>4. GOVERNMENT FINANCES</b>				
<b>Table GR4</b>				
<i>Flows</i>				
– total public revenue	1833–1939	annual	in national currency (thousands)	GR4A_A
– total taxes	1833–1939	annual	in national currency (thousands)	GR4B_A
– direct taxes	1833–1939	annual	in national currency (thousands)	GR4C_A
– indirect taxes	1833–1939	annual	in national currency (thousands)	GR4D_A
– government expenditure	1833–1939	annual	in national currency (thousands)	GR4E_A
– interest payments	1833–1939	annual	in national currency (thousands)	GR4F_A
– defence spending	1833–1939	annual	in national currency (thousands)	GR4G_A
<i>Stocks: nominal domestic public debt</i>				
– claims on the government	1842–1939	annual	in national currency (thousands)	GR4H_A
– claims on the government	1842–1939	annual	% in note-issuing or central bank's total assets	GR4I_A
<b>5. PRICES, PRODUCTION AND LABOUR</b>				
<b>Table GR5</b>				
<i>Prices</i>				
– consumer prices (2009=100)	1914–1941	annual	index	GR5A_A
	Jan.1923–Nov.1941	monthly	index	GR5A_M
– wholesale prices (1913–14=100)	1929–1941	annual	index	GR5B_A
	Jan.1931–March 1941	monthly	index	GR5B_M

## INDEX TABLE - Country: GREECE

List of Variables	Time Span	Data Frequency	Unit of account	Series Code
<b>5. PRICES, PRODUCTION AND LABOUR</b>				<b>Table GR5</b>
– export prices (1914=100)	1914–1932	annual	index	GR5C_A
	Jan.1923–April 1932	monthly	index	GR5C_M
– import prices (1914=100)	1914–1932	annual	index	GR5D_A
	Jan.1923–April 1932	monthly	index	GR5D_M
<i>Production and Labour</i>				
– industrial production (value)	1921–1938	annual	in national currency (thousands)	GR5E_A
– industrial production (1928=100)	1928–1939	annual	index	GR5F_A
	Jan. 1933–Dec.1939	monthly	index	GR5F_M
– economic activity (1928=100)	1928–1939	annual	composite index	GR5G_A
	Jan. 1933–Dec.1939	monthly	composite index	GR5G_M
– employment (1928=100)	1928–1939	annual	index	GR5H_A
– wages (1928=100)	1928–1939	annual	index	GR5I_A
<b>6. NATIONAL ACCOUNTS AND POPULATION</b>				<b>Table GR6</b>
GDP, nominal terms	1833–1939	annual	in national currency (thousands), at current prices	GR6A_A
GDP, real terms	1833–1938	annual	in national currency (thousands), at 1914 prices	GR6B_A
GDP deflator (1914=100)	1833–1938	annual	index	GR6C_A
Real GDP per capita	1833–1938	annual	LMU drachmas	GR6D_A
Imports (c.i.f)	1851–1944	annual	1929 paper drachmas (thousands)	GR6E_A
	Jan.1928–Dec.1944	monthly	1929 paper drachmas (thousands)	GR6E_M
Exports (f.o.b)	1851–1944	annual	1929 paper drachmas (thousands)	GR6F_A
	Jan.1928–Dec.1944	monthly	1929 paper drachmas (thousands)	GR6F_M
Population	1833–1939	annual	in million inhabitants	GR6G_A
<b>7. WWII PERIOD 1939–1949</b>				<b>Table GR7</b>
Money stock (M0)	1939–1949	annual	in national currency (thousands)	GR7A_A
	1939–1949	annual	index (1938.09–1939.08=100)	GR7A_A_I
	Jan.1939–Dec.1949	monthly	in national currency (thousands)	GR7A_M
	Jan.1939–Dec.1949	monthly	index (1938.09–1939.08=100)	GR7A_M_I
Cost-of-living (1938.09–1939.08=100) until November 1944; afterwards 1938=100	1939–1949	annual	index	GR7B_A_I
	Jan.1939–Dec.1949	monthly	index	GR7B_M_I
Drachma/British gold sovereign	1939–1949	annual	in drachmas	GR7C_A
	1939–1949	annual	index (1938.09–1939.08=100)	GR7C_A_I
	Jan.1939–Dec.1949	monthly	in drachmas	GR7C_M
	Jan.1939–Dec.1949	monthly	index (1938.09–1939.08=100)	GR7C_M_I

Notes: Entries of value terms are denominated in LMU (new) drachma. The code of each variable is generated by the country prefix (GR), the number of the variable group (1, 2, 3, 4, 5, 6 and 7) and a letter identifying the respective time series within the group (A, B, C...); at the end, A stands for annual data; M for monthly data, D for the date of change and I for an index (in variable group 7).

## 2.1 MONETARY VARIABLES

This group contains the newly-developed monetary aggregates M0 and M3, the banknotes in circulation, the currency reserves, the money multiplier and the reserve-banknote ratio.<sup>19</sup>

<sup>19</sup> The information on monetary aggregates draws heavily on my earlier work (see Lazaretou 2010). A part has already been published by the OeNB (2008) and the Bank of Greece (2009a).

### 2.1.1 Currency reserves

A first issue that should be stressed from the very beginning is the concept of currency reserves. In metallic regimes, reserves were meant to ensure banknote convertibility.<sup>20</sup> Nowadays, reserve data are built on two related concepts: international reserves and foreign currency liquidity (see IMF 2013). International reserves, which are often referred to as ‘official reserve assets’, refer to ‘...those assets that are readily available to and controlled by monetary authorities for meeting balance of payments financing needs, for intervention in exchange markets to affect the currency exchange rate, and for other related purposes (such as maintaining confidence in the currency and the economy, and serving as a basis for foreign borrowing’ (IMF, BPM6, 6.64).<sup>21</sup> This can be viewed as the ‘official gross concept’, which is based on the balance sheet framework. Foreign currency liquidity refers to ‘...foreign currency resources, both ‘official’ and other foreign currency assets at the disposal of the authorities<sup>22</sup> that readily can be mobilised to meet demands for foreign exchange resulting from short-term foreign currency liabilities and off-balance-sheet activities of the authorities’ (IMF 2013, pp. 3–4). It becomes apparent that foreign currency liquidity is a broader notion which concerns on- and off-balance-sheet items of the authorities (monetary authorities and the government).

Herein, we rely on the concept of international reserve assets and present a data series which is based on the balance sheet activities (either gross or net) of the country’s monetary authorities (i.e. all issuing banks until 1927 and the central bank onwards). Moreover, the reported data series is the sum of the amount of metallic reserves (silver and/or gold in bars and minted) and foreign exchange holdings abroad that could be used to settle international claims. In other words, it does not only concern the amount of the minimum reserve level (i.e. statutory limit) to which banknotes issue was tied.<sup>23</sup> Rather, it includes total (‘official’) reserve assets.<sup>24</sup> Up to 1927, foreign currency liabilities (e.g. bank deposits in foreign currency) have not been subtracted since a complete data series on deposits in foreign currency is not available; hence the series refers to gross total reserve assets. Afterwards, it refers to net assets.

A second issue is that of currency reserves valuation. The NBG used to report its reserves in the domestic monetary unit converted using the current exchange rate of the drachma at the day of reporting. Under the law establishing the NBG, all balance sheet items were valued at the current market rate of the drachma (see Article 11 of the 1841 establishing Law and Article 3 of the 1841 Amending Act). The same methodology was also followed by the other, smaller issuing banks. The BoG valued its assets at 1929 devalued drachmas (current paper drachmas).

Series GR1A\_A of Table GR1.1\_A displays the total currency reserves of all issuing banks for the period prior to 1928. GR1B\_A and GR1C\_A display metallic reserves (*μεταλλικόν, εις χρυσόν και άργυρον*) and foreign exchange holdings (*εξωτερικοί λογαριασμοί-αντίτιμον μεταλλικού εις εξωτερικόν*), respectively. For the Bank of Epirus and Thessaly, the only available series is metallic holdings in its vault (1882–1899)<sup>25</sup> and abroad (the 1882, 1883 and 1884 data points are

<sup>20</sup> For a discussion of the concept of currency reserves, see Chapter II.

<sup>21</sup> I.e. Balance of Payments and International Investment Position Manual.

<sup>22</sup> Both the central bank and the central government.

<sup>23</sup> Quantified reserve requirements were clearly set in the 1841 Banking Law, as well in the NBG’s statute (25%). The same holds true for the BoG (40%).

<sup>24</sup> This practice is also justified by the fact that total banknote circulation (and not the statutory level alone) was entered on the liability side of the balance sheet.

<sup>25</sup> End-of-year data. The 1897 value is missing. The 1899 value corresponds to the end-June entry. The data are available upon request.

the only available values). For the Bank of Crete the yearly entries refer to both metallic in its vault (1899–1917) and abroad (1899–1917).<sup>26</sup>

Reserve holdings<sup>27</sup> by the NBG consisted of three components.<sup>28</sup> The first component included metallic reserves, namely reserves in precious metal, gold and silver, which the NBG used to hold in its vault either minted (coins) or in bars. Until 1876, ‘metallic’ consisted mainly of silver coins and bars, while from 1877 onwards the proportion of gold stock increased considerably. Specie came mainly from trade and a small proportion from direct investment in residential and commercial property as well as portfolio investment.<sup>29</sup> The second component included reserves in foreign exchange. As of 1869, the NBG started to hold interest-bearing deposits with foreign central banks or correspondent banks abroad denominated in foreign currencies, chiefly French francs and pounds sterling, and readily convertible into gold. The third component included the foreign exchange reserves that the NBG was obliged to hold according to the rules set by the 1910 gold-French franc exchange-rate based regime (see Section 2.3). It was stipulated by law that the NBG could hold, as official reserves, interest-bearing deposits denominated in FRF, while only 10% of its reserves could be held as gold stock (coins and/or bars).

GR1A\_A is the sum of GR1B\_A and GR1C\_A mentioned above. The yearly observations refer to the end-of-year data points (on the last day of the year). From 1922 to 1926, total reserves – apart from the items shown in the table – also included metallic reserves held in the vault of the Bank of England (25 million drachmas). However, the 1927 value for the metallic item already included the above-mentioned amount.

Prior to 1865, the NBG did not publish monthly data on its total currency reserves. The only available entries concern the years 1843, 1844, 1845 and 1848; they refer to the last day of the month and are seasonally unadjusted. However, the end-June and the end-December entries were reported in the NBG’s annual and semi-annual *Balance Sheet*, while the year averages were published in its *Annual Report*.<sup>30</sup> A complete time series for total currency reserves at monthly frequency is available from 1865 onwards, while monthly observations for the components of precious metal and coins and foreign exchange started to appear only from 1872.<sup>31</sup> As with the yearly data, from 1922 to 1926 total currency reserves also included metallic reserves held in the vault of the Bank of England. For the year 1927, these holdings had been already included in the NBG’s metallic holdings. For the months January 1928 to April 1928, data do not exist.

For the period 1928 to 1939, currency reserves at annual frequency (end-of-year) (see Table GR1.1\_A) refer to the total reserves<sup>32</sup> (GR1D\_A) held by the BoG and their main components. Specifically, total reserves include the gold stock (gold coins and bars) held in the BoG’s vault (*χρυσός εν τοις ταμείοις*, GR1E\_A, for which data are available only up to 1931; from then onwards,

<sup>26</sup> End-of-year data. The entries for the years 1918 and 1919 are missing. The data are available upon request.

<sup>27</sup> I.e. gross currency reserves. Metallic and foreign exchange liabilities are not taken into account. All note-issuing banks accepted deposits, albeit not sizeable, in specie and in foreign currencies both by private customers and the government. Government deposits were reported separately.

<sup>28</sup> Money credits pledged but not eventually released by the Entente for the years 1918, 1919 and 1920 were included in total reserves. The data series on the various components are available upon request.

<sup>29</sup> The country’s modernisation and the implementation of many large public works in the last quarter of the 19th century attracted foreign investment capital usually from rich Greek emigrants, who chiefly invested in residential and commercial properties or put their money in portfolio investments. See Valaoritis (1902) and the Annual Report of the NBG (various issues).

<sup>30</sup> According to its founding legislation, the NBG should draw annual and semi-annual balance sheets and publish them in the daily press to inform shareholders. Its first balance sheet was in French and hand-written. From 1843 onwards, balance sheets were bilingual, both in Greek and French.

<sup>31</sup> Missing values have been calculated using the method of linear interpolation. See footnote 49.

<sup>32</sup> Net currency reserves; gold and foreign exchange liabilities are not included.





the BoG did not report data on metallic reserves), the foreign exchange reserves, mainly in pounds sterling and US dollars (*εξωτερικόν συνάλλαγμα εις χρυσόν*, GR1F\_A) as well as the government bonds readily convertible into specie (*δάνεια δημοσίου εις χρυσόν*, GR1G\_A).<sup>33</sup> Until 1933, the BoG included the government bonds in gold into its total reserves. From 1934 to 1939 total reserves included only metallic and foreign exchange holdings.

Concerning the monthly data points (see the volume's CD Table GR1.1\_M), total reserves (GR1D\_M) are available from May 1928 to December 1939. The 'metallic' component (GR1E\_M) was reported only from May 1928 to April 1932. Foreign exchange (GR1F\_M) is available throughout the period, while government bonds in gold (GR1G\_M) are available from March 1932 to December 1939. However, from January 1934, the published data for total reserves refer to foreign exchange holdings only; government bonds convertible in gold were not included. Precisely, when the drachma joined the Gold Bloc in June 1933 total reserves consisted mainly of foreign exchange readily convertible into gold. The data points refer to the last day of the month and are not seasonally adjusted. Until December 1933, total reserves consisted of metallic reserves, foreign exchange and government bonds in gold (until April 1933). However, total reserves are not the direct sum of the main components, since they also included gold coins and bars and foreign exchange convertible into gold.<sup>34</sup> On the day of the BoG's inception (14 May 1928), gold stock was 876.3 million drachmas, foreign exchange was 3,087.7 million drachmas and total currency reserves were 3,964 million drachmas.

### 2.1.2 Monetary aggregates

For Greece, definitions of money primarily referred to the liabilities of private financial institutions, namely deposits and currency. Therefore, banks' Balance Sheets and their Annual Reports are the primary sources of historical monetary aggregates data. However, definitions of money as a means of payment such as M1 or M2 or even a liquidity index as M3 appeared nowhere. In particular, for the pre-1928 period, data on banknotes circulated by the NBG were reported for the first time in 1842. Again, the reported data did not refer to a consistent time series of narrow or broad money definition but to data points of money in circulation and private bank deposits, at monthly and yearly frequencies.

An outline of the data inflows reported and used in the construction process is of paramount importance, since many changes had been made in distinct sub-periods both in data collection process and/or publication practices. Explicitly, 1842 is the starting point of our sample. It was the year when the NBG first issued and circulated banknotes 'payable to the bearer on demand' that were readily and fully convertible into specie.<sup>35</sup> Pre-1880, banknotes were circulated in a limited amount. During that period, financial development went at a very slow pace. Bank deposits were negligible, and exchange was largely based on barter. However, in the period 1880–1911 the picture changed markedly. The gradual urbanisation and the fast emergence of a strong creditor-urban class dominated the country's economic and financial environment. The expansion of the NBG branch network across the country played a crucial role in the increasing circulation of banknotes and their use by the public as a means of payment and a store of value. Moreover, the gradual territorial enlargement of the country during that time led to the establishment and operation of other issuing banks that circulated their own notes in the new provinces. Fortunately, such banks fol-

<sup>33</sup> I.e. gilt-edged government debt securities purchased by the BoG.

<sup>34</sup> See Law 5422.

<sup>35</sup> The founding law of March 1841 and the Amending Act of August 1841 provided that the NBG had the right to issue banknotes of a nominal value less than or equal to 2/5 of its equity.

lowed the same data reporting practices as the NBG, i.e. they reported the stock of the banknotes in circulation on the last day of every year or month. However, data on the banknotes issued and circulated by the Ionian Bank do not exist, since only the consolidated financial statement of the parent bank in London was published.

Data on total bank private deposits started to be officially reported on an annual basis as late as 1912. Until then, the series for bank money deposits refers chiefly to the private deposits only kept with the note-issuing banks.<sup>36</sup>

During the last distinct sub-period under study, i.e. from 1928 to 1939, major institutional reforms took place concerning central and commercial banking. Strict rules of prudential banking supervision and regulation were put in place by legislation enacted in 1931.<sup>37</sup> The BoG became the regulatory authority. Among other rules, all commercial banks were obliged to hold reserves with the central bank to meet shocks to liquidity demand. Thus, from that year onwards, data on reserve requirements were also officially reported. Until then, smaller banks used to hold deposits with the biggest bank, i.e. the NBG. The latter, however, saw fit to act as an ‘implicit’ or ‘unofficial’ central bank or a banks’ bank. Data on these deposits do not exist, since the NBG used to report only the sum of all (non-government) deposits kept with it.

Two monetary aggregates have been built: (i) a broad definition of money (M3), which serves as an index of liquidity in the domestic economy and includes less close substitutes of money; and (ii) a narrow definition of money referred to as the monetary base (M0), which has been measured using the note-issuing and central banks’ liabilities, i.e. the uses side of the base (currency and deposits with the central bank). The sample period is 1842–1939. The values are shown at annual (end-of-year) frequency and are not seasonally adjusted.<sup>38</sup>

As early as 1842, the Greek monetary authorities, in accordance with the monetary policy rules applying in the context of a metallic regime, tried to measure the stock of money in the domestic economy by simply reporting the stock of banknotes in circulation. Furthermore, the metallic monetary regimes required each country’s central bank or note-issuing bank to maintain a minimum ratio of reserves-to-banknotes in circulation. This was because excess uncovered note issue was thought to strengthen inflationary pressures in the domestic economy and to cause capital outflows and reserve losses. In other words, the reserve-banknote ratio determined the relationship between domestic money supply and metallic and foreign exchange holdings. Obviously, banknote circulation was a key monetary variable, since the central or note-issuing bank was obliged to announce and preserve a statutory minimum proportion of the banknotes in circulation that should be gold- and/or foreign exchange-backed. Therefore, the precise knowl-

<sup>36</sup> Nevertheless, the largest part of the private deposits was kept within these banks. From the turn of the century, however, financial intermediation proceeded at a quick pace and numerous deposit banks were created.

<sup>37</sup> See the laws of 30 June and 7 July 1931.

<sup>38</sup> For the years 1928–1939, the values are shown at both annual (end-of-year) and monthly (end-of-month) frequencies. As a breakdown of commercial bank deposits between sight, savings and time deposits becomes accurate at first solely for the biggest banks and only from 1928 onwards for all banks, we can only construct a broad definition of money over a considerable number of years. Narrow definitions such as M1 or M2 cannot be built. In addition, since the call dates for many key series refer to the end of the year, monetary aggregates can only be shown at annual frequency. The series were based on the respective bank’s financial statement, which was regularly published on the last day of every month or year. We follow the monetarist approach (Friedman and Schwartz 1970) to measuring money. This is an empirical rather than an *a priori* definition. Explicitly, we assume that (i) the best way to define money is to rely on the statistical correlation between money supply and national output; (ii) money supply is equal to the aggregate value of several items treated as money (e.g. notes, deposits, bonds); and (iii) an ‘optimal monetary aggregate’ is that with the highest correlation with either current or lagged values of real income. Lazaretou (2010) gives full details of the definitions used and the method of construction followed in building those aggregates.

edge of the stock of banknotes in circulation was of paramount importance if banknote's convertibility was to be secured.<sup>39</sup>

Specifically, according to the statute of the note-issuing NBG (Article 36), no less than 25% of its banknotes in circulation (outside the NBG) should be covered by metallic and/or foreign exchange reserves and the rest (75%) should be covered with mortgage loans worth twice the amount (see the 1841 Amending Act, Articles 6 and 19). Similarly, the BoG's statute (Article 61) strictly stated that no less than 25% of 'actual' or 'effective' money in circulation (i.e. coins and banknotes in circulation) should be convertible into specie or foreign exchange. The same article also specified that a lower bound of 40% of 'potential' money in circulation should be covered. 'Potential' money circulation, as opposed to 'actual' or 'effective' circulation, was defined as the sum of coins and notes in the hands of the non-bank public plus reserves and commercial balances with the central bank, namely what today we call 'monetary base'.<sup>40</sup>

Broad (M3) money aggregate (Table GR1.2\_A; GR1H\_A) has been computed as the sum of the following items: (i) total private deposits (sight, time and savings deposits and bank bonds) only kept with all note-issuing banks until 1911 and with all purely commercial banks from 1912 to 1939; (ii) coins in circulation held by the non-bank public, i.e. low denomination fractional banknotes of 1, 2 and 0.5 drachmas; and (iii) banknotes in circulation held by the non-bank public. Vault cash held by banks has been subtracted. Due to lack of data, until 1927 vault cash was held solely by the note-issuing banks<sup>41</sup> among their notes and all deposit institutions from 1928 to 1939. From 1928 onwards, vault cash referred to money balances held by all commercial banks.

Monetary base (M0) aggregate (Table GR1.2\_A; GR1I\_A) is the sum of the following items: (i) banknotes in circulation (plus fractional notes) held by the non-bank public; (ii) vault cash held both by note-issuing and commercial banks; and (iii) commercial bank deposits with the central bank (sight deposits and deposits with a maturity up to 35 days).<sup>42</sup> Until 1931, no commercial bank was required to hold reserves with the central bank, and only the NBG was obliged to keep money balances with the BoG.<sup>43</sup>

Fortunately, in the 19th and the early 20th centuries the money stock could be well measured by simply adding up money in circulation and private bank deposits.<sup>44</sup> Figure 1 plots the growth rates of broad money and the monetary base over time. As seen, changes in the monetary base largely

<sup>39</sup> Apparently, the advocates of the 'currency school' of the 19th century could not consider other items – apart from banknotes – such as bank deposits as money substitutes. Therefore, even though reserves (i.e. metallic and foreign exchange) were endogenously determined, the statutory reserve-banknote ratio was regarded as a key policy variable, i.e. an exogenous variable. This might explain why monetary authorities of that time were not concerned with monetary aggregates.

<sup>40</sup> See the note in Figure 2. The BoG started to measure the quantity of money and build aggregates by using the standard money definitions as late as the early 1950s.

<sup>41</sup> As the series 'banknotes in circulation' is derived from the note-issuing bank's balance sheet, it does not include its vault cash in its own notes but it does include its notes held by the other note-issuing banks and/or deposit institutions in their vaults. We should recall that in the case of Greece the note-issuing banks also engaged in commercial activities. Therefore, they held vault cash in their notes and in the notes issued by the other issuing banks. Vault cash in the notes of the other note-issuing banks should be thus deducted to derive note circulation outside the banking system but vault cash in its own notes should be taken into account in assessing the monetary base.

<sup>42</sup> Government deposits are excluded. However, due to a lack of data we cannot include the deposits held with the BoG by public enterprises or public entities. Besides, they are meaningless.

<sup>43</sup> According to the new 1931 Banking Law, the required reserve ratio was initially set at 7% of the total bank savings and demand deposits in domestic currency held with the central bank or 12% of the total bank deposits held in the form of required reserves as vault cash by the commercial banks. The imposition of the required reserve ratio was the most important institutional change, as a new tool for monetary control was thus introduced. Using that tool, the BoG could control more effectively bank lending activities and check their liquidity conditions.

<sup>44</sup> Unlike the past, nowadays the possibility of substituting across a wide variety of financial assets, given the involved low cost makes it more difficult to measure and control money.

dominated changes in money balances. It has been found (Lazaretou 2008) that more than 86% of the changes in money supply could be explained by monetary base variations, while the money multiplier had a minor impact (14%). This implied that, for most of the time under study, the convertibility rule was suspended and money creation primarily determined the money stock.<sup>45</sup>

Two other monetary statistics have been compiled. GR1J\_A shows the money multiplier. This is defined as the ratio of broad money (M3) to monetary base (M0). It is a metric of public confidence in the domestic banking and monetary system and reflects the lending activity of the banks. GR1K\_A depicts the reserve-banknote ratio, computed as total reserves over banknotes in circulation (see Figure 2). For both metrics, the values are shown at annual frequency for the years 1842–1939, while for the years 1928–1939 both annual and monthly values are reported (GR1J\_M; GR1K\_M).

### Banknotes in circulation

Up to 1927, the data on banknotes in circulation (*τραπεζικά γραμμάτια εις κυκλοφορίαν*, Table GR1.3\_A; GR1L\_A) refer to the notes issued and circulated by all issuing banks, i.e. the NBG (1842–1927), the Bank of Crete (1901–1917)<sup>46</sup> and the Bank of Epirus and Thessaly (1882–1899),<sup>47</sup> and held by the non-bank public. Consequently, vault cash (*ταμείον*), i.e. cash held by the note-issuing banks in their own notes, is not included in the series, as banknote circulation is based on data from the issuing banks' balance sheets. However, the vault cash held in the notes of the other note-issuing banks with commercial activities too, is included and should thus be subtracted.<sup>48</sup> The circulation of fractional notes of 1, 2 and 0.5 drachmas (*κερματικά γραμμάτια δίδραχμα και μονόδραχμα*) is also included. Data on the vault cash of the other purely commercial banks do not exist. Similarly, data on the notes circulated by the Ionian Bank do not exist. However, data on the notes issued and circulated by the Ionian Bank which were held in the vaults of the other issuing banks do exist and have been taken into account. The data are shown at annual frequency (as at the last day of the year) and are not seasonally adjusted. For the same period, the monthly values refer only to the NBG's notes in circulation (i.e. outside the NBG), since monthly data for the other two issuing banks were not reported at regular intervals. Further, monthly data for the NBG's notes which were held in the vaults of the other note-issuing or commercial banks do not exist. Similarly, monthly data for banknotes of low value money in circulation do not exist either.

Therefore, the monthly data (end-of-month, seasonally unadjusted) concern the banknotes solely issued and circulated by the NBG and are displayed in the volume's CD (Table GR1.3\_M; GR1L\_M). Moreover, a complete time series at monthly frequency is available only from 1865. Prior to that year, the NBG did not regularly report monthly data on its note circulation. Sporadic monthly data appeared only for the years 1842, 1843, 1844, 1845 and 1848. However, the end-June and the end-December entries appeared in the NBG's *Balance Sheet*, while the year averages data were reported regularly in its *Annual Report*.<sup>49</sup>

<sup>45</sup> This was a common feature of all peripheral countries. See, for example, Fratianni and Spinelli (2001) on Italy and Martín-Aceña (2007) on Spain and Portugal.

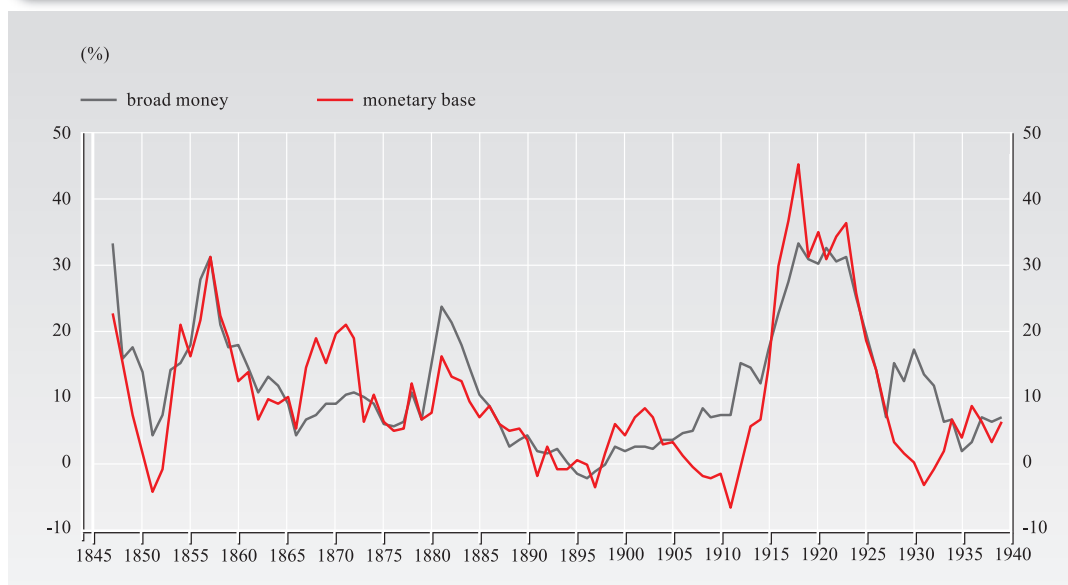
<sup>46</sup> The Bank of Crete began operations on 21 October 1899. It first issued and circulated notes in 1901.

<sup>47</sup> The Bank of Epirus and Thessaly began operations on 19 June 1882. Because of the 1897 Greco-Turkish War the bank did not publish a balance sheet for that year. Thus, the 1897 value is missing.

<sup>48</sup> However, the cash kept by one note-issuing bank with another is not sizeable. Besides, until the end of the 19th century, strong banking institutions, other than the NBG, did not exist; bureaux of exchange and short-lived local deposit and credit institutions were the only to operate. Therefore, we can safely consider that the series named 'banknotes in circulation' in the NBG's balance sheet refers to the money balances held outside the banking system.

<sup>49</sup> Missing values for the years 1846, 1847, 1849–1864 have been calculated using the method of linear interpolation, i.e.  $x_1 = \{[(t_2 - t_1)/(t_2 - t_0)] * x_0\} + \{[(t_1 - t_0)/(t_2 - t_0)] * x_2\}$  based on the year average values and the end-June and the end-December data points.

FIGURE I Monetary Aggregates, 1846–1939



Note: Annual percentage changes in averages based on a 5-year rolling time span.

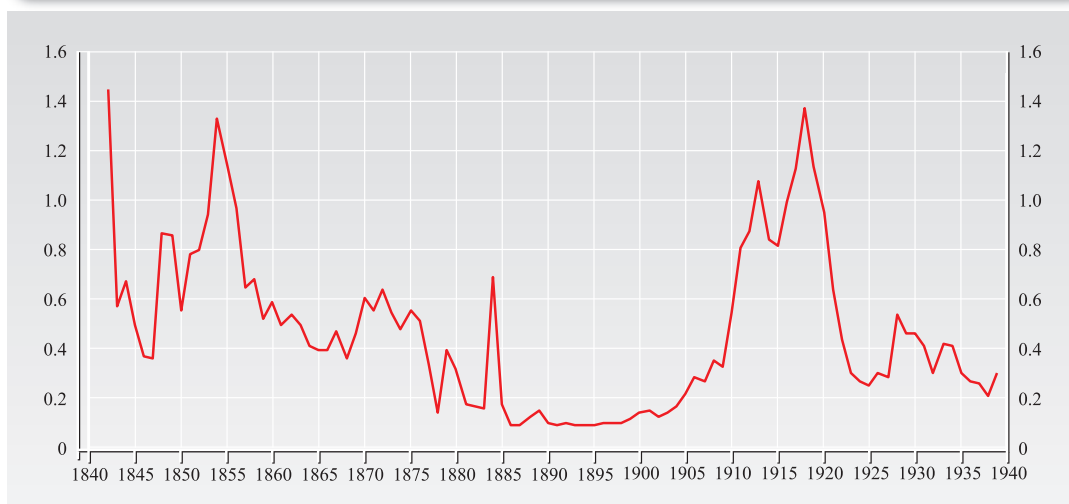
The first banknotes were placed in circulation on the same day of start of the NBG's operations (January 1842). They were printed in Paris and were of very high denominations (25, 50, 100 and 500 drachmas). A note of smaller denomination (10 drachmas) was first placed in circulation seven years later, in 1849. Since 1852, all subsequent issues (10, 25 and 100 drachmas) were printed in the UK. They were signed by the Royal Commissioner.

Until 1909, the NBG's note circulation consisted of two main components: the government's floating debt to the NBG and the 'uncovered' note circulation, i.e. unbacked paper money outside the NBG, held either by the public or other note-issuing and purely commercial banks. The latter refers to the 'effective' note circulation and not to an upper statutory limit. By the law of 26 February 1898, the use of money creation as a financing instrument was strictly prohibited. That law set a statutory limit of 66 million drachmas in notes (Article 30), meaning that the NBG was no longer allowed to increase 'uncovered' note circulation over and above this limit. The same article specified that, starting from 1900, the government should amortise its floating debt to the NBG by 2 million drachmas annually and the note circulation should therefore be reduced by the same amount every year.<sup>50</sup> Yearly (end-of-year) observations for both components are available from 1877 to 1927. Monthly observations (end-of-month) are available only from 1897. From September 1910 onwards, banknote circulation consisted of three components, namely 'uncovered' paper money outside the NBG, 'uncovered' paper money held by the government and 'covered' notes outside the NBG that were fully convertible into gold or foreign exchange at par (1:1) according to the new monetary law of 19 March 1910 (*Nóμος ΓΧΜΒ*) by which the drachma joined gold. The component named 'covered' is shown at annual and monthly frequencies (end-of-year and end-of-month call dates) for the years 1910–1927. A last component named 'buy foreign exchange' (May 1923–December 1926) denotes the notes used to buy foreign exchange.<sup>51</sup>

<sup>50</sup> That simply meant that the NBG destroyed the excess money stock. For that purpose, it bought a furnace for burning excess notes.

<sup>51</sup> The data series at yearly intervals up to 1914 have already been published in OeNB (2008) and at monthly intervals over the same period in Bank of Greece (2009a). The values from 1915 to 1927 are available upon request.

FIGURE 2 Reserve-Banknote Ratio, 1842–1939



Notes: 'Effective' note circulation by the NBG till 1927 and 'potential' by the BoG from 1928 onwards. Total reserves were held by the NBG (1842–1927) and the BoG (1928–1939). For 1842–1927, total reserves (in gold and foreign exchange) were held by the NBG. Money credits pledged by the Entente are also included. For 1928–1939, total reserves were held by the BoG; gold and foreign exchange liabilities are not included. 'Potential' note circulation, as opposed to 'effective' (i.e. money in the hands of the non-bank public), is defined as the sum of the coins and banknotes circulated (vault cash is included) plus demand liabilities at sight (i.e. reserves and commercial bank balances within the BoG, current accounts of the government with the BoG, notes and bills of exchange in domestic currency and other liabilities at sight), while the balances of the International Economic Aid are not included. In its own calculation, the BoG includes international economic aid and many other liabilities such as amortisation and interest payments on public debt, private deposits, dividends to shareholders, BoG inter-branch transfers. We have thought it better to reach a simple and clear-cut definition of M0 which should be comparable to the post-war definition used by the BoG, i.e. the sum total of commercial banks' vault cash, notes and coins in circulation outside the monetary system, all commercial bank deposits with the BoG and deposits of public enterprises and entities.

During the period 1928–1939, money was solely issued and circulated by the BoG. Money balances in the hands of the non-bank public are calculated as the difference between currency (notes and coins) circulated by the BoG and commercial banks' vault cash (Table GR1.4\_A; GR1M1\_A, GR1M2\_A). Currency circulation in the hands of the non-bank public, i.e. money balances is shown at monthly (GR1M1\_M; on the last day of the month) and annual (GR1M1\_A; on the last day of the year) intervals from May 1928 to December 1939 and is not seasonally adjusted.<sup>52</sup> Vault cash (GR1M2\_A; GR1M2\_M) and reserves kept with the BoG (GR1M3\_A; GR1M3\_M) refer to all commercial banks;<sup>53</sup> foreign-owned banks that operated in Greece are also taken into account. The data series are shown at yearly and monthly intervals for the period starting in December 1928 and ending in December 1939 and are not seasonally adjusted. Data do not exist for the period from May to December 1928. For the year 1929, the reported values are only quarterly (March, June, September and December).<sup>54</sup>

### Bank deposits

GR1N\_A in Table GR1 displays end-of-year data points<sup>55</sup> of total private deposits (*τραπεζικά καταθέσεις*) kept with only note-issuing banks<sup>56</sup> until 1911 and with all commercial banks from 1912

<sup>52</sup> On the day of its start, i.e. 14 May 1928, currency circulation was 4,863.3 million drachmas.

<sup>53</sup> A total number of 38 banks. Prior to 1931, only the NBG was required to hold reserves with the BoG.

<sup>54</sup> The 1929 monthly values presented in the volume's CD Table GR1.4\_M have been computed using the method of linear interpolation.

<sup>55</sup> For the year 1927, the data points refer to the end-of-April value.

<sup>56</sup> I.e., the NBG (1842–1939), the Bank of Epirus and Thessaly (1882–1896, 1898–1899) and the Bank of Crete (1899–1917). Almost half of the deposits were kept with the NBG.

to 1939.<sup>57</sup> Total private deposits with commercial banks include sight (*όψεως ή άνευ τόκου*), time (*προθεσμίας*), and savings deposits (*ταμιευτηρίου*) and bank bonds (*τραπεζικαί ομολογίαι*)<sup>58</sup> and are denominated in specie, foreign exchange and drachmas.<sup>59</sup> Government deposits are not taken into account. A breakdown becomes accurate first only for the biggest banks and only from 1928 for all banks. The data refer to private deposits kept with 15 commercial banks and the NBG for the years 1912–1926, with 43 banks and the NBG for the year 1927 and with 38 banks from 1928 to 1939. Monthly observations (shown on the last day of the month) are available for all commercial banks (38 banks; sight, time and savings deposits and bank bonds denominated in drachmas and foreign exchange) from December 1928 onwards (see the volume’s CD Table GR1.5\_M; GR1N\_M). Data do not exist for the period May–November 1928. For the year 1929, quarterly data are the only available. Prior to 1928, monthly data values are available only for private deposits kept with the NBG (1911–1939, end-of-month data points).<sup>60</sup>

## 2.2 INTEREST RATES

This section deals with the short-term and long-term lending and deposit interest rates. Special emphasis is placed on the note-issuing bank’s (i.e. the NBG’s) and the central bank’s (i.e. the BoG’s) discount rate.

### 2.2.1 Short-term interest rates

#### Official interest rates: the discount rate

In metallic monetary regimes, the control of the stock of money in the domestic economy was pursued by means of a ‘bank rate policy’. Specifically, the short-term rate (i.e. the discount rate or the Lombard rate or the bank rate) that was imposed on discounts and advances provided by the note-issuing or the central bank to the commercial banks to meet temporary shortages of liquidity, was the operating target of monetary policy. The monetary rule was simple and clear-cut. The higher the discount rate, the lower the amount of money that banks would decide to borrow and vice versa. In other words, manipulation of the discount window could influence the short-term rates in the domestic money market.<sup>61</sup>

Concerning the Greek case, until 1927, the discount rate charged by the NBG can be roughly considered a monetary policy instrument. It was imposed on very short-term advances to traders, i.e. bills of exchange with a 3-month maturity (called *προεξοφλήσεις συναλλαγματικών και γραμματίων*). It was therefore a short-term bank lending rate. At the same time, the NBG used it in its lending to other smaller commercial banks and the government. According to the law of 1836, the lending rate on trade advances could not exceed 12%. However, non-bank money

<sup>57</sup> From 1848 onwards, the data refer to both head offices and branches.

<sup>58</sup> For time deposits, exceeding 3,000 drachmas, a bank bond was issued with a maturity of up to 6 months (certificate of deposit). The minimum acceptable deposit was 1 drachma. Bank bonds were not reported separately but were included in the sum total of the time deposits. From 1859 onwards, bank bonds referred to mortgage-backed bonds issued by the NBG.

<sup>59</sup> Deposits in specie and/or foreign currencies were not sizeable. However, a breakdown is not possible for the whole sample period since the banks typically reported the sum of their deposits denominated either in domestic or in foreign currency. The inclusion of deposits in foreign currencies is justified by the absence of capital or exchange controls. Controls on capital and trade flows were imposed on the eve of WWI and in the interwar turbulent period.

<sup>60</sup> From 1927 to 1939, the only available values refer to the end-June and the end-December call dates. From June 1927, when a new specialised bank on mortgage credit was founded with the decomposition of the respective department from the NBG, a part of the NBG deposits appeared on the side of the liabilities of the new bank.

<sup>61</sup> In the euro area, the ECB uses a similar rate, the rate on the marginal lending facility and chiefly the rate on main refinancing operations.

lenders charged usurious interest rates at more than 20% in urban centres and even higher in the provinces.<sup>62</sup> The excessively high cost of borrowing was an obstacle to the development of trade and to domestic economic activity in general. At the time of the NBG's inception in March 1841 (Article 23), the discount rate was set at a much lower rate (8%), thus borrowing became much cheaper. In the 1880s, the discount rate was cut to 7%. That was a time when the country was making efforts to join the LMU and enjoyed long-term foreign borrowing on favourable terms. In 1890, the discount rate was slightly reduced to 6.5%. Throughout the 1890s, the rate remained stable at high levels; in the provinces, however, it was even higher (by 0.5 percentage point). In the 1890–97 period Greece's creditworthiness tottered, especially after the 1893 debt default.

Post-1898, borrowing from abroad became much cheaper (4%) as the country's creditworthiness improved thanks to the 1898 debt compromise and the successful implementation of a long-term stabilisation programme. However, the domestic short-term lending rate continued to stand at high levels. The intense anti-inflationary policy implemented throughout the 1900s caused excess money demand and thus kept the discount rate stuck at the high level of 6.5–7%. On the eve of the country's entry into the gold standard in 1910, the rate was cut by one percentage point, but later, with the outbreak of WWI, it increased sharply to 8%. Six months later, in November, it was again reduced to a level close to 6%. In wartime, it fluctuated between 5.5% and 6%. In May 1920 it rose to 6.5%, while in the underground credit market the rates were three times as high, 18–20%. The period from 1923 to 1926 was marked by successive increases in that rate, against the background of strong inflationary pressures and selling attacks on the drachma.

Series GR2A\_D of Table GR2.1\_D lists the dates of change in the NBG's discount rate (*προεξοφλητικός τόκος*), while Figure 3 traces the evolution of the rate over time. As seen, changes were infrequent. Profit motives and the priority of safeguarding the convertibility of its banknote prevented the NBG from operating as a 'banker to banks' and a 'lender of last resort' in times of crisis. It usually appeared reluctant to take part in rescue operations through rediscounts; therefore, it did not use its rate as an instrument for effective money control.

Further, the NBG extended short-term advances to the government at the same high rate as the one applied on advances to traders. Before the 1878–79 foreign debt compromise, Greece was unable to have access to international capital markets due to its bad reputation as a borrower. Foreign markets were closed to Greek bonds after the debt repudiation in 1826 and again in 1843. The only option for the government to meet pressing finance requirements was short-term domestic debt issues at a very high rate. The sole purchaser of these bonds was the NBG. However, the NBG charged the government with punitively high risk premiums: it lent at 7–8%, compared with the much lower rates prevailing abroad, 2.5–4.5%.

According to the BoG's statute (1928, Part I, Part II, Articles 4, 5, 61) which provided the framework for monetary policy implementation under the gold-exchange standard, the main task of the newly established central bank was to maintain the currency's convertibility and price stability. The rules of its credit policy were also rigorously specified by its statute: it was allowed to provide only short-term lending facilities to commercial banks via discounted trade bills. Therefore,

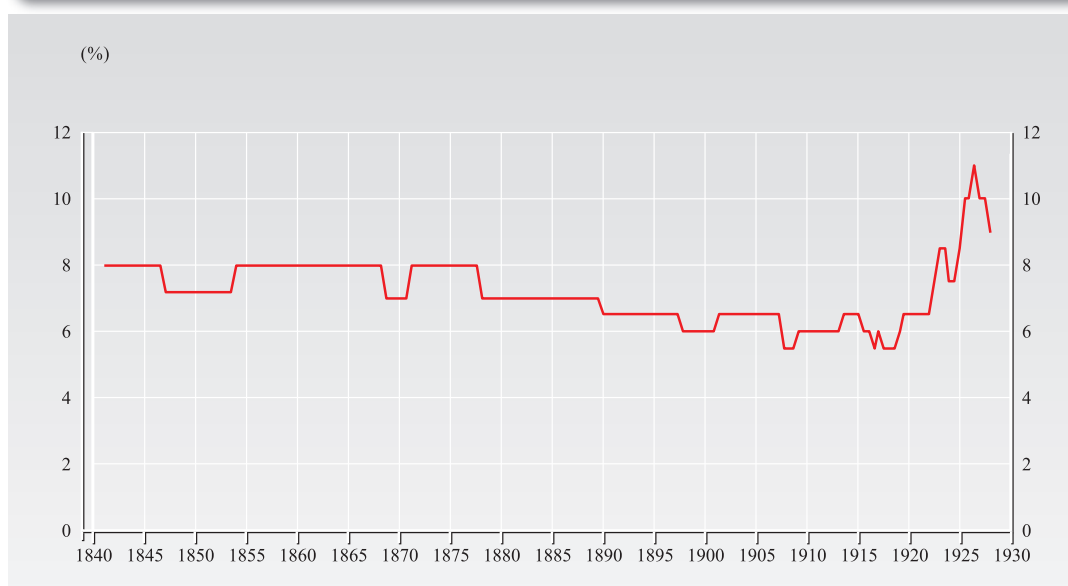
<sup>62</sup> The law of 1836 was never implemented and was eventually abolished in 1841. Details concerning the lending rate in the first half of the 1830s were scarce. Money transactions with a maturity of less than 30 days were not allowed. Orders to pay wages and retirement benefits in advance at a monthly rate of 3% (36% annually) and 3-month trade advances at a usurious interest rate of 18–20% annually were the only credit options.



the BoG used to change its ‘discount window’<sup>63</sup> taking into account inflation trends and liquidity conditions in the domestic money market so as to keep foreign exchange reserves intact and preserve the stability of the international price of the national currency. GR2B\_D of Table GR2.1\_D lists the dates of change in the BoG’s official discount rate (*αναπροεξοφλητικός τόκος*) from May 1928 to November 1941 and Figure 4 shows its evolution along with the short-term market lending rate. As seen, borrowing was very expensive. The market lending rate was almost always far higher than the official rate.

The BoG was quite active in terms of the number of its discount rate changes, adjusting its rate twelve times over almost one and a half decade and four times in a single year, 1932. However, its discount rate policy proved unsuccessful (see BoG 2009b, Lazaretou 2008, 2012). At its very beginning, in May 1928, the bank’s credit policy aimed, albeit unsuccessfully, at easing private borrowing by lowering the high lending rates charged by commercial banks. Two years later, in the wake of the 1929 crisis, the BoG failed to respond to the crisis by bailing out the commercial banks in distress or lowering its discount rate. Instead, its misjudged response, in the aftermath of the 1931 pound sterling crisis, was to increase its rate, thereby causing a credit squeeze in the economy. Not until April 1932, when the country abandoned the golden fetter and reverted to flexible rates, did the stance of the monetary policy pursued change considerably, allowing the discount rate to gradually decline from 12% to 9%. Actually, by the second half of 1933, foreign capital flowed again into the country and the money balances hoarded in the years of the crisis reappeared. Bank reserves thus increased, and the BoG was able to gradually reduce its discount rate. Ultimately, it managed to lower the market lending rate charged by the commercial banks and made capital cheaper, without however altering its anti-inflationary monetary policy stance. The discount rate fell from 10% in May 1928 to 6% in January 1937.

**FIGURE 3 The Discount Rate of the National Bank of Greece, 1841–1928**



Note: Based on the dates of change, in percentages per annum, end-of-month data.

<sup>63</sup> Therefore, the BoG’s policy rate was the discount window and not the Lombard rate. As known, the latter is the rate charged by a central bank for very short-term loans to commercial banks against eligible collateral of securities.

### Money market lending rates and deposit rates

Table GR2.1\_D also lists the dates of change in the short-term bank lending rate imposed on collateralised loans. GR2C\_D and GR2D\_D of the Table report the dates of change in the NBG's rate on loans and credit lines using securities as collateral, with maturities from 4 to 12 months. The period covered is 1842–1939.<sup>64</sup> The value of the collateral should cover no less than 75% of the total lending amount. GR2E\_D lists the dates of change in the short-term market lending rate from 1928 to 1941. It was imposed by the 4 largest domestic commercial banks on commercial bills (re-discounts) and was more than 3 percentage points above the bank deposit rate.

A complete time series at monthly frequency is available from March 1841 to April 1928 for the NBG's discount rate, from May 1928 to November 1941 for the BoG's discount rate and from January 1928 to November 1941 for the short-term market lending rate (see Table GR2.1\_M in the volume's CD).

**FIGURE 4** The Discount Rate of the Bank of Greece and the Market Lending Rate, May 1928–November 1941

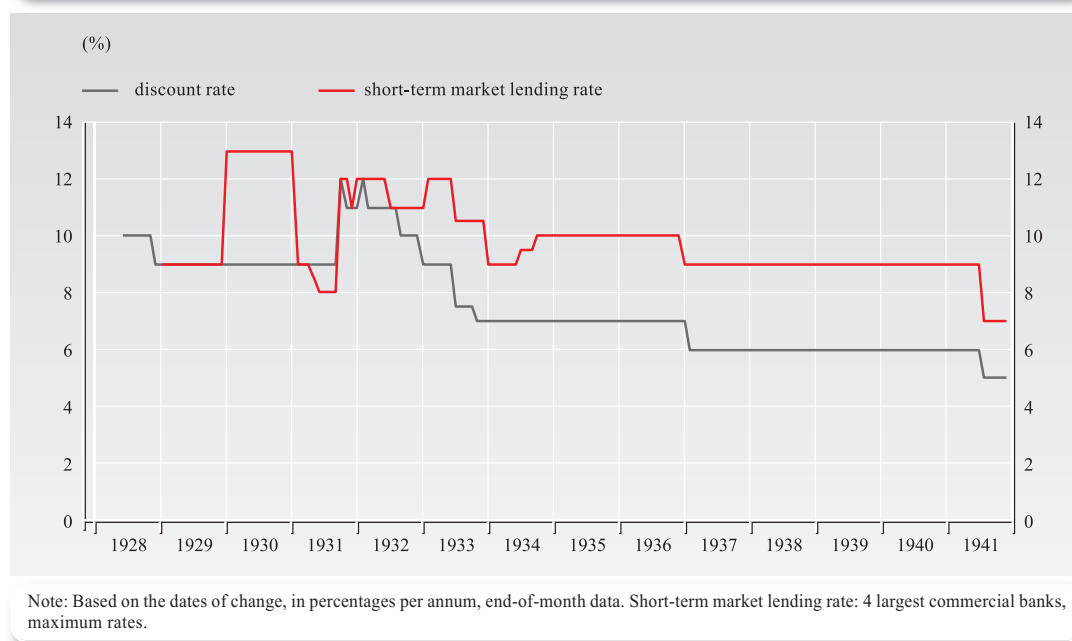


Table GR2.1\_D (GR2F1\_D to GR2F6\_D) lists the dates of change in the bank deposit rates. They refer to yearly rates on sight, time and savings deposits in drachmas and in foreign exchange. For the 19th century, the rates are predominantly those applied by the NBG, while for the period from 1928 to 1941 they are those applied by all domestic commercial banks and specialised credit institutions operating in the country. A complete time series at monthly frequency is available only from January 1928 to November 1941 and only for the rate on sight deposits in drachmas (see Table GR2.1\_M in the volume's CD; GR2F\_M).

<sup>64</sup> The NBG was not only the biggest deposit bank during the 19th and the 20th centuries, but also the country's sole credit institution for the best part of the 19th century. Therefore, its rate can be safely considered as in some sense reflecting the domestic money market lending rate.

### 2.2.2 Long-term interest rates

#### Fixed-rate government bonds: market prices and current yields

Table GR2.2\_A and Table GR2.3\_A display the market price data (GR2G1\_A to GR2G10\_A) and the current yield data (GR2H1\_A to GR2H10\_A) respectively, on foreign Greek government bonds of long maturities. In view of data availability, the loans reported are: the ‘old’ foreign loans of 1881, 1884, 1887, 1889 and 1890 contracted before the 1893 debt default and traded in Paris, Berlin, Frankfurt, London and Athens; and the ‘new’ foreign loans of 1902, 1907, 1910, 1914 and 1928, contracted after the 1898 debt compromise and the establishment of the International Finance Control in February 1898, which imposed fiscal and monetary discipline. Table 2 presents key information about the loans contracted.<sup>65</sup> Suffering from the so-called ‘original sin’, Greek governments were able to issue loans only in gold or in gold-based foreign currency such as the French franc and the pound sterling. The bonds always included ‘gold clauses’: interest and principle were payable in gold or in a gold-based foreign currency regardless of the *regime du jour*, since they entailed a high risk of default.

**TABLE 2 Greek foreign bond loans (fixed-rate bonds)**

Year of issue	Loan amount (millions FRF)	Coupon rate, coupon price, maturity	Comment
1. 1881	120	5%, 500 FRF, 40 years	Asset-backed loan: tax revenues were used to to back the loan. The issue price was 75.6%.
2. 1884	170	5%, 500 FRF, 37.5 years	The loan was contracted to restore gold convertibility. The issue price was 68.5%. The bonds were traded in Athens, Paris, London, Berlin and Frankfurt.
3. 1887	135	4%, 500 FRF, 75 years	Monopoly bond loan ( <i>Δάνειο των Μονοπωλίων</i> ). It was partially covered (91mn). The issue price was 78.5%. The bonds were issued and traded in Athens, Paris, London, Berlin and Frankfurt.
4. 1889	155 (30+125)	4%, 500 FRF	Perpetual loan ( <i>Πάγιον</i> ). The bonds of the 30 mn loan were sold at discount: 68 1/8%. The bonds of the 125 mn loan were also sold at discount (72 3/4%) and was partially covered (100 mn). The bonds were traded in Athens, London, Berlin and Frankfurt.
5. 1890	90	5%, 500 FRF, 99 years	Railway Network bond loan ( <i>Δάνειο των Ελληνικών Σιδηροδρόμων</i> ). The loan was partially covered (53 mn) The price of the two issues was 89% and 86%, respectively. The bonds were traded in Athens, London, Berlin and Frankfurt.
6. 1902	56.3	4%, 500 FRF, 98 years	Railway Network bond loan ( <i>Δάνειο των Ελληνικών Σιδηροδρόμων</i> ). The price of issue was 84%. The bonds were issued and traded in Athens, Paris and London.
7. 1907	20	5%, 100 FRF, 36 years	National Defence loan ( <i>Εθνικής Αμύνης</i> ). The price of issue was 97%. The bonds were issued and traded in Athens and London.
8. 1910	110	4%, 500 FRF, 50 years	The issue price was 86.5%. The bonds were issued and traded in Athens, Paris and London.
9. 1914	335	5%, 500 FRF, 50 years	The bonds were issued in three parts almost at par: 92 1/4%, 100% and 87 3/4% and traded in Athens, Paris and London.
10. 1928	£9 mn	6%, £20, 40 years	The tripartite loan ( <i>Τριμερές Δάνειο ή Δάνειο της Σταθεροποίησης</i> ) was issued under the aegis of the League of Nations and was used for currency stabilisation and refugee relief.

Source: Author's compilation.

<sup>65</sup> The table displays prices and yields for bonds traded only in Athens. The Rothschilds, Credit Mobilier and the Deutsche Reichsbank of Berlin were acting as under writers.

Until 1928, the annual data on the market price of the bond (GR2G1\_A to GR2G10\_A) refer only to the maximum and minimum bond price in a year quoted at the Athens Stock Exchange. Hence,  $(\max + \min / 2)$  is used as a proxy for the mean market bond price (annual observations).<sup>66</sup> From 1929 onwards, however, data refer to year averages derived from monthly averages. Table GR2.2\_M in the volume's CD tables presents the monthly data (GR2G1\_M to GR2G10\_M) based on the mean value of the daily entries. Until 1921, the data entries for both the face value and the market price are in gold French francs; from 1922 onwards, both the face value and the market value are in 1929 paper drachmas. The conversion rate of the gold drachma to 'new' 1929 devalued paper drachmas was  $14.87 \text{ new paper drachmas} = 0.29032 / 0.01952$ .<sup>67</sup> The Athens Stock Exchange remained closed from mid-September 1931 to mid-December 1932. However, unofficial data for some loans were published by the BoG, concerning the period from March 1932 to November 1932. Similarly, the Athens Stock Exchange was closed again from 28 October 1940 to 19 December 1940.

Current yield (GR2H1\_A to GR2H10\_A) is typically measured by the ratio of the annual interest payment to the bond's current market price<sup>68</sup>, namely

$$\text{current yield} = (\text{face value} \times \text{coupon interest rate}) / \text{market price} \times 100$$

where the face value and the market price are in French francs until 1921; from 1922 onwards are both in 1929 paper drachmas. The coupon rate is in decimal form. The multiplication by 100 converts the decimal into percentage return.

Current yield varies with the market price of the bond, as opposed to its face value, and represents the true return an investor would receive if he purchased the bond and held it for a year. However, it is not an accurate assessment of the true return since the latter depends on the bond's price when the investor sells it. Nor does it refer to the total return over the life of the bond that an investor would receive if he held the bond to maturity.<sup>69</sup>

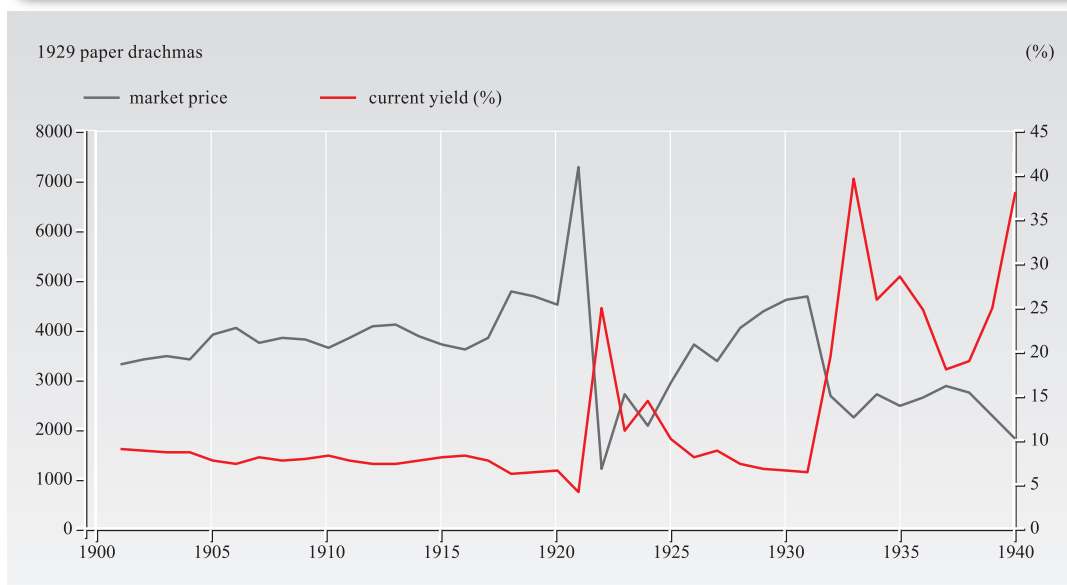
Figures 5a and 5b plot the current yield and the market price of two government bond loans, the 1887 Monopoly (4%) loan and the 1889 Perpetual (4%) loan over the period 1901–1940. We notice that in almost every year until 1920, the current yield was two or even three times higher than the coupon nominal interest rate, indicating that the bonds were sold at a significant discount. The picture changes dramatically post-1922. In 1920–21, market bond prices sharply increased and yields fell amid a short-lived euphoria that accompanied the Asia Minor expedition. However, bond prices collapsed in the aftermath of the Great Defeat and the Smyrna Disaster in September 1922. The yields increased enormously. At the same time, the 1920s was a period of massive paper money creation. Inflation erodes the purchasing power of a bond's future cash flows. The higher the current rate of inflation and the higher the expected future inflation, the higher the yields will turn out across the yield curve as investors will demand higher yields to compensate for inflation risk.

<sup>66</sup> Since the Athens Stock Exchange in its *Yearbook* used to publish two separate tables, one for the accrued interest and the other for the market price of the bond, we believe that the market price as retrieved from the second table refers to the 'clean' price.

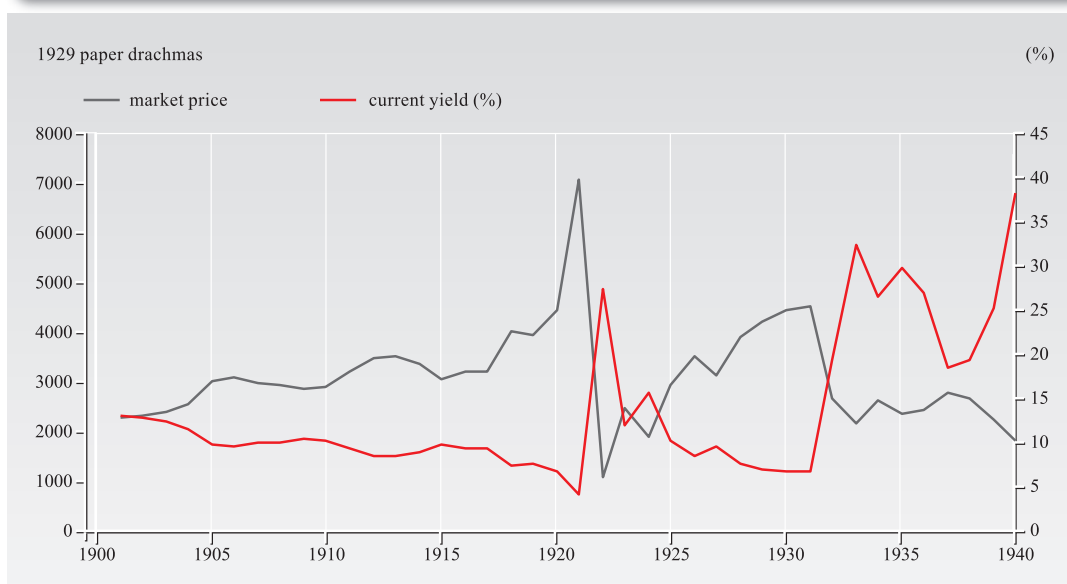
<sup>67</sup> To express the face value in paper drachmas we use the exchange rate of the gold drachma against the 1929 paper drachma. The pre-1929 old paper drachma contained 0.29032246 grams of fine gold. The 1929 new devalued paper drachma was equal to 0.01952634 grams of fine gold.

<sup>68</sup> In other words, the current yield simply reflects the percentage return that the annual coupon payment (i.e. the product of the coupon rate and the bond's face value) provides to the investor. If the current yield is higher than the coupon rate, then the bond is trading at a discount to its face value.

<sup>69</sup> Thus, it is not the yield to maturity, i.e. the interest rate at which the present value of all the future cash flows is equal to the bond's price. Nor does it capture any capital gains or losses the investor would make if the bond were sold at a discount or premium. To correct for this, the current yield calculation can be modified by adding the gain or loss that the price gives to the investor, i.e. the ratio of the difference between the bond's face value and the market price and the years to maturity.

**FIGURE 5a The 1887 Monopoly 4% Loan, Bond prices and Yields, 1901–1940**

Source: BoG and own calculations.

**FIGURE 5b The 1889 Perpetual 4% Loan, Bond Prices and Yields, 1901–1940**

Source: BoG and own calculations.

As stabilisation efforts started in 1927, market prices began to rise again and yields began to fall. Figure 6 plots the current yields for the loans of 1887, 1889 and 1928 over the period 1929 to 1940. We can observe that bond yields rose sharply after the country's debt default in May 1932 and remained at these high levels for the rest of the period. Yields jumped to a two-year high and were 4 to 6 times or even 7 times higher than the nominal interest rate.

## Mortgages

Series GR2I\_D of Table GR2.1\_D lists the dates of change in the rate applied by the NBG on mortgage-backed loans,<sup>70</sup> which can be considered a proxy for the long-term bank lending rate. In the very early years of the NBG's operation, the rate on mortgage-backed loans fluctuated between a minimum of 12% per annum that was the official rate prevailing in the cities, and a maximum of 20% prevailing in the provinces, as opposed to the exorbitant rates of 20–30% charged by non-bank (underground) lenders. In 1849, the NBG lowered its rate by two percentage points. In 1871, a maximum limit for mortgage loans was set by law at 8%, while in 1911 it was raised to 9%. In 1925, the official bank rate was set at 8%; however, non-bank money lenders charged more than 2.5 times higher.<sup>71</sup>

### 2.3 EXCHANGE RATES

Exchange rate data concern exchange market transactions relied on bills of exchange rather than on specie. Complete time series are available for the spot exchange rate, which is usually at or close to the current market rate. In particular, the reported exchange rate data concern the rate of a foreign exchange contract for immediate delivery (i.e. on the spot) in the Athens market (i.e. the NBG's headquarters until 1927 and afterwards the BoG). Forward exchange rate data on 3-month bills of exchange are only available for a limited number of years and thus are not reported.<sup>72</sup>

Exchange rate data include the nominal exchange rate of the drachma vis-à-vis three international currencies, i.e. the pound sterling (London), the French franc (FRF, Paris) and the US dollar (New York).<sup>73</sup> The FRF was defined as the common monetary unit in the LMU countries. Under the Law on Monetary System (*Νόμος Περί Νομισματικού Συστήματος*, 10 April 1867) and the accession declaration (26 September 1868), Greece signed the LMU agreement, accepting the principle of bimetallism and the equivalence of the gold drachma to the gold FRF (mint parity 1:1).<sup>74</sup> The minting of the new (LMU) drachma was permitted immediately after the publication of the law (Article 23). The new system was to become effective from the 1st January 1869. The law provided for the issue of gold coins worth 5, 10, 20 and 100 drachmas and silver 5-drachmas coins. It also provided for the issue of fractional silver coins of 2, 1 and 0.5 drachmas that could be used in payments of up to 100 drachmas.

<sup>70</sup> Agricultural land and residential property.

<sup>71</sup> It ranged between 18–22% on mortgage-backed loans in drachmas and 12–16% on mortgage-backed loans denominated in foreign exchange.

<sup>72</sup> The annual and monthly series on forward exchange rates are available upon request.

<sup>73</sup> A national monetary system based on silver was established for the first time in 1829. Until then, money transactions were carried out in Turkish coins. The silver phoenix became legal tender. Although it was defined as equal to 1/6 of the Spanish distilo (i.e. 4.074 grams of pure silver), it only weighed 3.747 grams. Bimetallism was introduced by the Royal Decree of 8 February 1833 on *Monetary System* to substitute the underweight silver phoenix with the silver drachma, which was heavier. The new legal tender was also linked to the Spanish distilo; it was equal to 1/6 of the distilo. It weighed 4.029 grams being clearly heavier than the phoenix, but still lighter than the distilo. Had the phoenix or the drachma not been underweight, the adulterated distilos would quickly have substituted the Greek coins, crowding them out of circulation.

<sup>74</sup> Money scarcity was the main reason for joining the LMU. The loan of 60 million drachmas which was granted to the newly founded Greek state in 1832 for the introduction of bimetallism was wasted in unproductive expenditures (Adreades 1904). Coins were only minted from precious metal in 1833–34 in Paris and Munich, gold in an extremely small amount and silver in a larger amount. The country's economic stagnation and inadequate public revenue made coin minting from precious metal impossible. Only bronze coins were minted almost every year. In order to facilitate money transactions, given the limited amount of silver drachmas in circulation, foreign currencies (29 silver and 16 gold coins) were allowed to circulate freely in the domestic money market (see the decree of 8 February 1883). Even the Turkish coins were accepted again in money transactions with the State (see the law of 1856). The majority of these were adulterated, with a face value much higher than their market value. Soon, Greek silver coins flowed out of the market and the drachma began a 'ghost currency' (Kehayias 1875). Holders of foreign debased coins exchanged them for silver drachmas, which they melted to obtain the precious metal. The need to reform the monetary system became urgent in the mid-1860s when Spain abandoned the monetary system that was based on the distilo.

Although the country signed the agreement, it did not participate as a full member. The adjustment process to the new monetary standard was rather slow and delayed. Wartime emergencies in 1868 postponed the adoption of the LMU system. Convertibility was resumed in July 1870. However, as late as 1873–74, the first Greek LMU coins were minted in Paris and placed into circulation; these were fractional coins of small denominations (2, 1, and 0.5 drachmas). In 1875, the silver 5-drachma coins were placed in circulation; they were also minted in Paris and in the agreed quantity of 6 drachmas per inhabitant. Gold coins were not minted. In the meantime, international monetary conditions changed with the collapse of bimetallism. Following the other LMU countries, in 1875 the NBG devalued silver against gold and a year later it prohibited silver minting in an attempt to restrain high inflationary pressures due to silver discoveries in Nevada.<sup>75</sup> Nevertheless, the country did not join the gold standard as did the other LMU countries. New wartime emergencies in 1877–78, on the one hand, and the insufficient issuance of the new drachma, on the other, prevented Greece from introducing gold and forced it to a more permanent suspension of the drachma's convertibility.

However, in 1880–81 Greece tried anew to join the LMU and thus in 1882 the government devalued the drachma. The silver drachma was fixed as equal to 4.029 grams of pure silver and the gold 20-drachma as equal to  $0.25994 \times 20 = 5.199$  grams of pure gold. In other words, the silver drachma contained 15.5 times as many grams of silver as of gold, implying a legal ratio of 1:15.5. However, according to the LMU agreement, the members' currencies should be equal to one another. The gold FRF (20 FRF) was fixed as equal to  $0.2903 \times 20 = 5.806$  grams of pure gold, while one Greek gold drachma (20 drachmas) was equal to only 5.199 grams of pure gold. Thus, the par exchange rate was 1 FRF = 1.1168 drachmas. To achieve the 1:1 parity, the new (i.e. LMU) drachma was ultimately minted in November 1882 in Paris and was introduced as the new monetary unit. It was fixed as equal to 0.29 grams of pure gold and the new-to-old drachma equivalence was 0.8954 new drachmas per 1 old drachma.

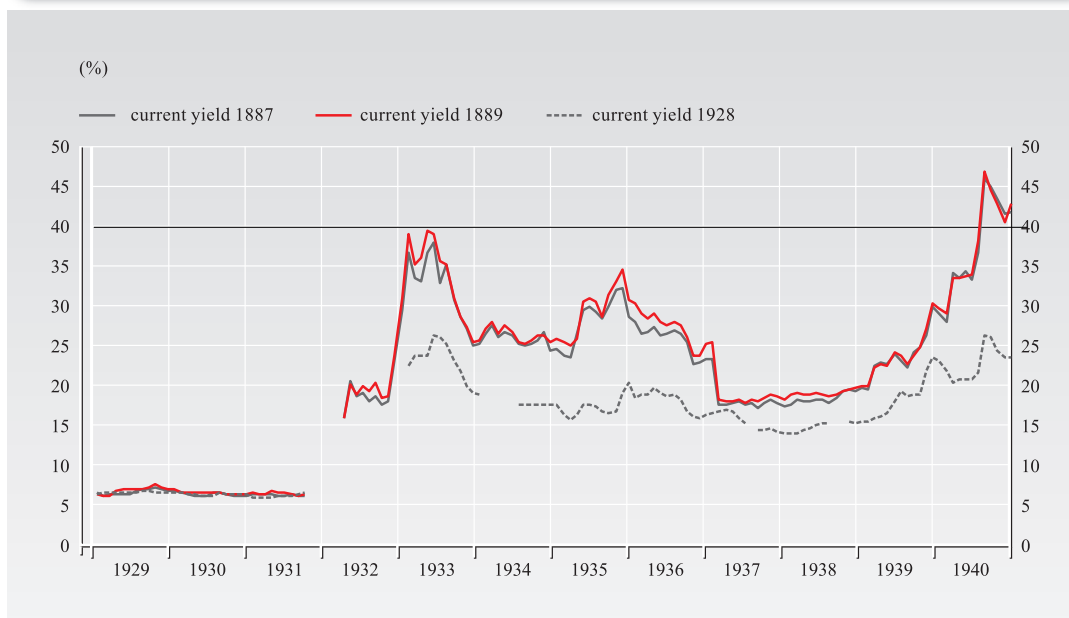
Until the end of the 1890s, the drachma came under strong depreciation pressures due to loose fiscal policy, accommodated by monetary policy. As a result, the drachma was heavily depreciated reaching an all-time peak of 1.875 drachmas per FRF in January 1895; it showed the highest ever depreciation rate (*επικαταλλαγή*) of 87.5% against the parity rate (*άρτιο*). Accordingly, the bilateral rate of the pound sterling also doubled, rising to 47.203 drachmas. However, from the turn of the century onwards, depreciation pressures were reversed by a strong appreciation thanks to restrictive fiscal and monetary policies pursued in the context of the 1898 international agreement on foreign public debt compromise. Appreciation pressures revived markedly post-1905. In order to prevent deflationary pressures while at the same time ensuring the maintenance of the fixed drachma/FRF parity, the NBG was given by law the right to buy gold at the official parity of 1:1 and foreign exchange (FRF) at the price of 1.0050 drachmas and sell gold at 1.001 drachmas and FRF at 1.0055 drachmas (gold points:  $\pm 0.005$  drachmas).<sup>76</sup> Through this measure, the NBG was able to create gold reserves so as to curb any appreciation pressures on the domestic economy.

From mid-1909 onwards, the drachma exhibited greater stability against the FRF and the pound sterling and continued to stay close to the mint parity (1 drachma per 1 FRF; 25.25 drachmas per

<sup>75</sup> In early 1870s, the large silver discoveries along with the massive silver sales by Germany caused an increasing depreciation of silver against gold. In Greece, the falling price of silver was reflected in the rise of the cost-of-living by 25%, while the purchasing power of wages was reduced by more than 50% (see Kordatos 1957, vol. 4, p. 459). In the country's regions where money transactions were made in silver Russian coins (e.g. the port of Syros island), silver depreciation effects were heavier and a civil unrest broke out, provoked by popular anger and discontent. It culminated in the first general strike in 1879, with several people dead.

<sup>76</sup> See Law 3642 of 19 March 1910.

**FIGURE 6** Current yields of 1887 (4%), 1889 (4%) and 1928 (6%) foreign government bond loans, 1929–1940



Source: Own calculations.

1 pound sterling). Ultimately, by Law 3642 (*Nóμος ΓΧΜΒ*) the drachma entered the classical gold standard, establishing within the country a form of a gold-exchange based regime with the French franc as the monetary anchor. Figure 7 plots the exchange rate developments. However, the drachma's 'golden era' lasted four years only, from 1910 to 1914, even though Greece kept *de jure* fixed rates until August 1919.<sup>77</sup> On 16 June 1915 the drachma adopted a peg to the pound sterling before switching to a peg to the US dollar a year later, in June 1916, thus keeping fixed exchange rates in wartime.

The interwar free float (1919–1927) was a period of sharp inflation and wide fluctuations of the drachma exchange rates. From 1927, the government implemented successfully a two-year stabilisation programme. On 14 May 1928, the country joined the interwar gold-exchange standard. Contrary to what had happened in 1910, that time the resumption was not made at the original parity. The drachma was first devalued and then pegged to the pound sterling (375,  $\pm 2.5$  drachmas). According to the Decree of 12 May 1928, the new gold content of the devalued drachma was explicitly defined: one 1929 new drachma contained 0.01952634 grams of pure gold, namely 51212.87 drachmas per 1,000 grams of pure gold. Compared with the pre-war parity, the 1929 devalued drachma was equal to 1/15 of the pre-war drachma.

In the wake of the 1929 Great Crash and the subsequent collapse of the gold-exchange standard on 21 September 1931, Greece did not follow Britain off gold. The government immediately switched from pegging against the pound sterling to pegging against the US dollar. The new exchange rate was set to 77.05 drachmas per dollar (gold points:  $\pm 0.95$  drachmas). However, a

<sup>77</sup> However, the drachma's convertibility was *de facto* suspended by the imposition of controls on specie flows in July 1914 and on foreign exchange in November 1917. See the Decree of 21 July 1914 and the Law of 20 November 1917.



few days later, on 28 September 1931, the imposition of strict exchange controls marked the beginning of a *de facto* suspension of foreign exchange convertibility. Ultimately, *de jure* convertibility ended on 26 April 1932, when the drachma was devalued and reverted to flexible rates (Law 5422). After an experiment with the Gold Bloc (June 1933–September 1936)<sup>78</sup>, the country eventually returned to a managed float when it joined the Sterling Area (September 1936–April 1941). The drachma exchange rate against the pound sterling was managed by the central bank. It was allowed to fluctuate within a currency band of 545 (buying) – 550 (selling) drachmas per sterling.<sup>79</sup> The drachma was allowed to float against gold and all other currencies that were not tied with the pound sterling.

Table GR3\_A displays the year averages of the nominal (spot) exchange rate of the drachma against the pound sterling (1877–1941; GR3A\_A), the FRF (1877–1941; GR3B\_A) and the US dollar (1914–1941; GR3C\_A). The yearly data points are based on the monthly averages data entries (see the volume's CD Table GR3\_M; GR3A\_M, GR3B\_M, GR3C\_M).<sup>80</sup> The monthly averages entries were based on the daily (end-of-day) or weekly (end-of-week) fixing rates of the NBG (until 1927) and the BoG (1928–1939). The fixing value is the average of the 'buying' and the 'selling' prices.<sup>81,82</sup> For the year 1940 the data refer only to the 'selling' price by the BoG; the December figure is missing. However, the year average is the average of all months, January–December. For 1941, May, June and December figures are missing and the annual figure is the 9-month average.

Series GR3D\_A of Table GR3\_A also presents the parity between gold and the paper drachma. The data figures concern the year averages covering the period from 1885 to 1903 and from 1920 to 1940. From 1904 to 1919 data are not available; however, after the establishment of a fixed-rate gold-based regime in 1910 the parity between gold and the paper drachma was equal to one or just above one.

<sup>78</sup> Commonwealth members and the Scandinavian countries followed Britain off gold in September 1931. Few countries remained on gold until 1935–1936, rallying around France. These countries were the Netherlands, Belgium, Switzerland, Poland and Greece. Pre-existing trade networks determined a country's choice for joining the Gold Bloc. In the case of Greece, however, key factors that prevailed in the country's selection into this bloc was the strong desire of the government to remain on gold considering it a vehicle to stabilise inflation expectations, as well as the traditional coupling with the French franc. With the franc's devaluation on 26 September 1936 and the Gold Bloc dissolution, Greece reverted to managed floats and joined the Sterling Area.

<sup>79</sup> See the statement of the BoG's Governor on 27 September 1936.

<sup>80</sup> The slight discrepancy observed in some yearly rates published in OeNB (2008) is attributed to the fact that for those years – chiefly concerning the start of the period – the reported annual rate was based on averaging end-of-month entries and not on the monthly averages. From 1877 to 1884 the year average of the drachma/pound exchange rate was based on a limited number of available monthly observations. Explicitly, the annual 1877 figure is the 3-month average; the 1878 figure is the 4-month average; the 1879 figure is the 2-month average; the 1880 figure is the 6-month average; the 1881 figure is the 10-month average; the 1882 figure is 11-month average; the 1883 is the 8-month average; and the 1884 annual figure is the 10-month average.

<sup>81</sup> The real exchange rate has also been constructed. It has been calculated as the ratio of British wholesale prices (Sauerbeck index) to prices for basic foodstuffs in Greece, using the bilateral nominal exchange rate as the conversion rate. A food price index (1866–77=100) has been constructed as a simple geometric average of the relative prices of five traded food products. Since data on quantities consumed are not available, a Laspeyres index cannot be calculated. The simple geometric average has the advantage of smoothing the time series of prices with regard to extreme values. This is very important in the case of food products, because their prices exhibit high volatility. For the period 1915–1931 the same definition has been used. The only difference is that the wholesale price index has been used instead of food prices. The data (monthly averages, spot rates) are available upon request.

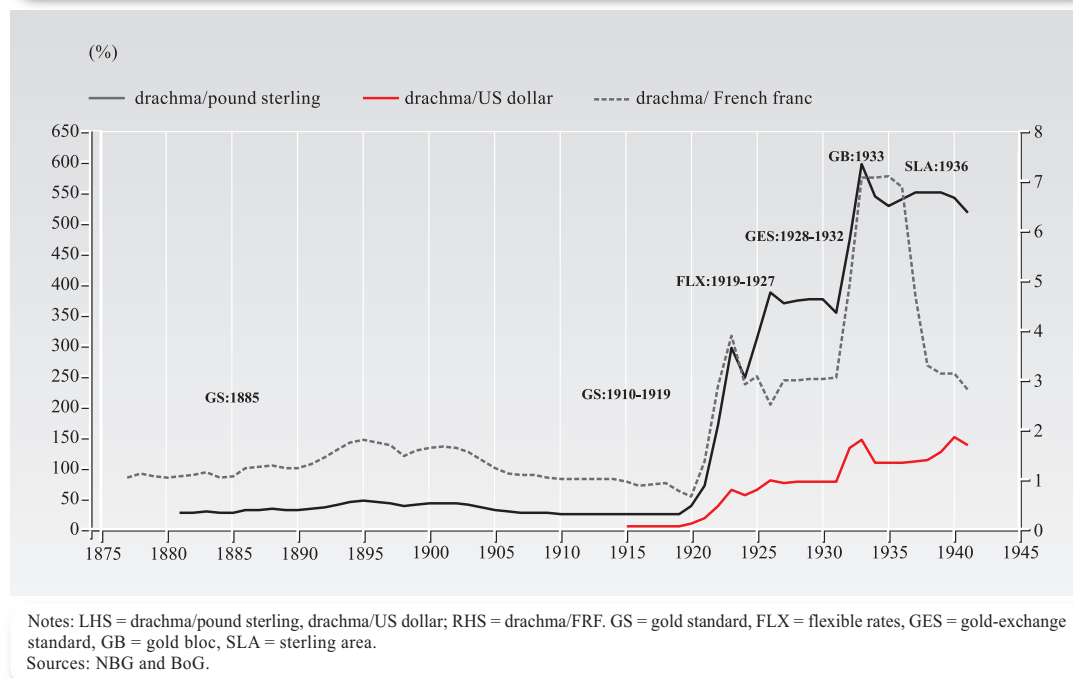
<sup>82</sup> The data series refer to the official (legal or free) market exchange rates. However, in May 1921 the government, in an attempt to control the heavy depreciation pressures on the drachma, established by law a syndicate of 25 commercial banks and gave it the monopoly power to buy and sell foreign exchange. The four-member committee of the syndicate met every afternoon and set the exchange rate for the next day's transactions at a devaluation rate lower by 30–35% compared to the true (black) market rates (Zolotas 1928, p. 192). In September 1922 the syndicate was abolished. Therefore, the official data figures from June 1921 to September 1922 were underestimated by that rate. The 'black' free market exchange rates are missing.

## 2.4 GOVERNMENT FINANCES

### 2.4.1 Flows: revenue and expenditure

Greece was in financial difficulties throughout the period under study, marked by weak government finances, namely persistent budgetary deficits and a high debt-to-GDP ratio. More importantly, substantial domestic fiscal disturbances, often due to military conflicts, led to monetary destabilisation, which in turn caused economic instability.<sup>83</sup> Public expenditures (overwhelmingly government consumption and military spending) were financed by excess domestic and foreign borrowing contracted on poor terms, resulting in an excessive burdening of the budget. No government dared to undertake a budget reform, namely to improve the tax collection system and raise revenue from income taxes. Well until 1919<sup>84</sup>, taxation was not imposed on personal income; instead, citizens were taxed according to objective criteria set by the government, and not according to their taxpaying capacity. The principle of progressive taxation was not applied, and the tax system was characterised by a lack of uniformity and generality (Andreades 1916, Angelopoulos 1933). The resulting great inequalities in income taxation often caused social unrest. Furthermore, the lack of tax harmonisation across Greek regions and the low tax rates caused collection costs and revenue losses. The tax collection inefficiency necessitated reliance primarily on indirect taxation. In particular, indirect taxes amounted to more than 60% of the total tax revenues.

**FIGURE 7 The Drachma Exchange Rates, 1877–1941 (in LMU drachmas)**



<sup>83</sup> It has been shown empirically (see Lazaretou 1996) that in the case of Greece the effect of wartime emergencies does not differ across monetary regimes. This simply means that under fixed rates excess government spending and its financing through money creation perturbed the currency's convertibility.

<sup>84</sup> In 1919 a systematic attempt to reform the tax system was made when, for the first time, personal income taxation was introduced. Until then, taxes were imposed on income from agriculture, building, property and business profits. Labour incomes were not taxed.

Table GR4\_A presents six key fiscal variables series covering the period 1833–1939 and referring to realised values. For the first four fiscal variables, the data series are from Prontzas et al. (2012), which is the only existing and well-compiled data base on Greek public revenue. Important details on the series' definition, the data sources and the methods of construction followed are reported therein (see, in particular, chapters 6–10). Specifically, series GR4A\_A of the table displays total public revenue, i.e. central government total (tax and non-tax, regular and extraordinary, debt issue is also included) realised revenues in nominal terms. Series GR4B\_A refers to the tax burden, i.e. realised total tax revenues in nominal terms. According to Prontzas et al. (2012, Table 6.1, pp. 110–113), the tax burden series is derived from the public revenue series excluding revenues coming from concession fees (mint, post and telegraph offices); renting of state entitlements and state-owned land; selling of state-owned land; church-related revenue, and other non-regular revenue (loans and charges) coming from domestic and foreign public borrowing and money credits from the Great Powers.

Figure 8a plots the evolution of the tax burden-to-GDP ratio over time together with the gross public revenue-to-GDP ratio. As seen, the tax burden was relatively stable and low throughout the period under study: from 10% of GDP at the beginning of the period it moderately increased to less than 20% by the end of the period. Public revenue was also low, albeit excessively volatile; the peaks are associated with the years of major increases in revenue due to foreign borrowing. The mean rate was around 20% for the whole sample period.

Series GR4C\_A and GR4D\_A display data entries for direct and indirect tax revenues respectively (realised values, in nominal terms). Direct taxes entail taxes on the agricultural and livestock production, buildings and property and business profits. Indirect taxes entail taxes on consumption, custom tariffs and duties, consular dues, stamp duties, and taxes on the consumption of the goods of the state monopoly such as tobacco, matches, playing cards and lamp oil. See Prontzas et al. (2012, Tables 6.3, 6.4, 7.3, 7.4, 8.3, 8.4, 9.5, 9.6, 10.5 and 10.6). Figure 8b highlights a striking feature of Greek tax policies. There was an inverse relation between direct (i.e. income tax) and indirect taxes. Income taxes were falling, while indirect taxes were rising in a symmetric manner during and after periods of excess spending.<sup>85</sup>

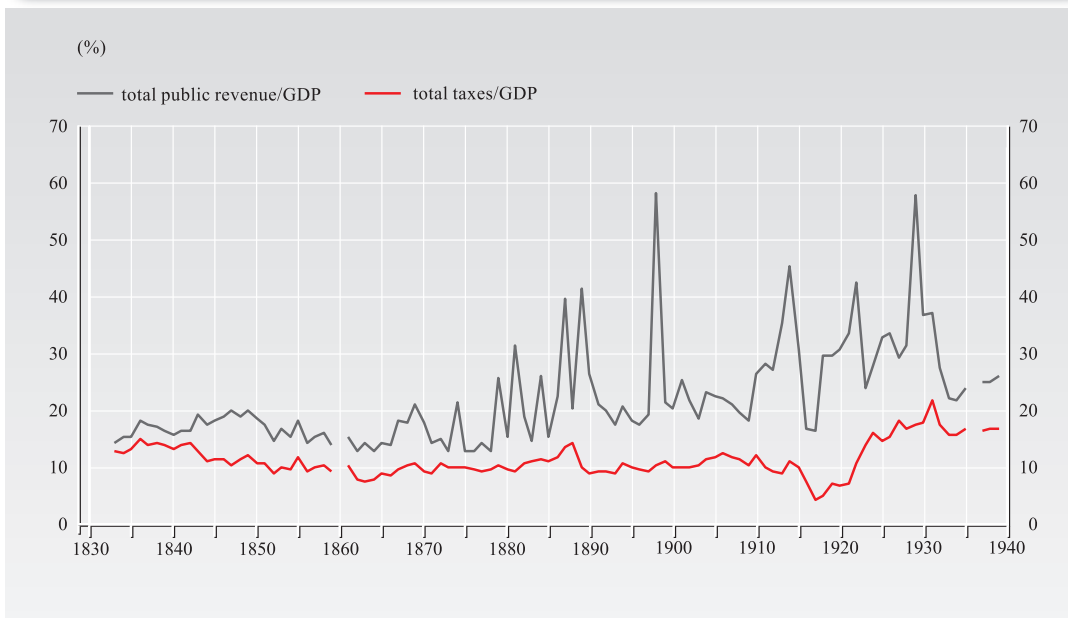
Well until the interwar period, the fiscal year was longer than the calendar year of 12 months. The use of the extended fiscal year was first introduced by law in 1918 and covered a 12-month period plus 4 months for the government to submit the budget to the Parliament for voting, starting on 1 April and ending on 31 March (12 months) or on 31 July (12 plus 4 months). In 1934, a 12-month duration of the fiscal year was defined by law, i.e. 1 April–31 March. (For details, see Prontzas et al. 2012, Table 2.2) Further, until 1929, public revenue reports were not submitted to Parliament for discussion and approval. Instead, they used to be subject to administrative and judicial review by the Greek Court of Auditors. The review procedure usually took one or two and in some cases even 10 years.<sup>86</sup>

Prontzas et al. (2012, p. 202) allocated public revenue to six distinct periods as follows: (i) 1828–1832, public revenue depended on donations and contributions; (ii) 1833–1897, the public revenue management framework developed along with a formal structural basis for the *Budget* and

<sup>85</sup> It has been found empirically that the Greek governments engaged in tax smoothing but not in seigniorage smoothing. This might mean that the 'pure' theory of optimal seigniorage (Barro 1979, 1987) cannot be validated by the Greek data. For details, see Lazaretou (1995).

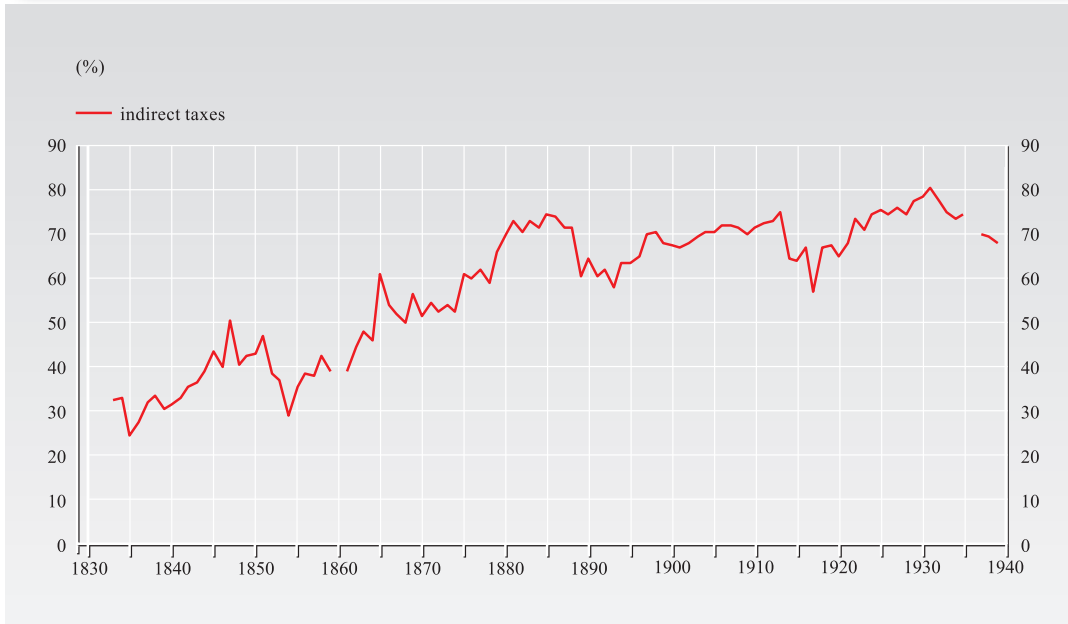
<sup>86</sup> The values for 1860 and 1936 are still missing, since for those two fiscal years the Public Revenue Reports were not approved by the Parliament. They were not reviewed by the Court of Auditors either. Thus, they were never published.

**FIGURE 8a Public Revenue and Taxes, 1833–1939**



Source: Own calculations based on data provided by Prontzas et al. (2012) and Kostelenos et al. (2007).

**FIGURE 8b Indirect Taxes, 1833–1939**



Note: Indirect taxes as a percentage of total tax revenue.  
 Source: Own calculations based on data provided by Prontzas et al. (2012).

the Report; (iii) 1898–1900, fiscal policy underwent rapid changes and restructuring mainly after the 1898 compromise on foreign debt following the 1893 default; (iv) 1901–1913, a formal struc-

ture was adopted for the *Budget* and the *Report*; (v) 1914–1932, there was a need for geographic adjustments to the structural framework of public revenue, reflecting the new territories' integration process and cost; and (vi) 1933–1939, the *Budget* and the *Report* were largely restructured after the debt default in 1932, according to the recommendations of the League of Nations' Financial Committee on Greek Public Finances.

GR4E\_A reports realised figures on central government expenditure inclusive of interest payments on domestic and foreign debt (in nominal terms). Amortisation is excluded. GR4F\_A shows interest payments on total debt. A peak is recorded in 1834 (interest and fees for the 1832 foreign loan were paid in advance); in 1864 (debt compromise on the 1832 loan); in 1879 (debt compromise on the loans of independence); in 1898 (debt compromise on all past loans and interest and fees on the loan for the 1898 huge war indemnity were paid in advance); and again in 1914–15 and in 1918 (interest and fees on high foreign and domestic loans). A trough is recorded in 1843 (unilateral debt default on the 1832 loan); in 1893 (unilateral debt default on domestic and foreign loans); and again in 1932 (unilateral debt default on foreign loans) and in 1933 (one-year moratorium on interest payments). Finally, GR4G\_A reports realised figures on defence spending. Defence spending data as retrieved by the *Government Annual Reports* include expenses on equipment, on civilian and military personnel, such as wages, salaries, pensions and veteran benefits, education projects and camps maintenance.

#### 2.4.2 Stocks: nominal domestic public debt

GR4H\_A contains the claims on the government; it can be considered a proxy for domestic public debt stock. Specifically, it refers to total liabilities of the Greek State (i.e. central government) including interest payments and amortisation to the NBG until 1927 (in gold, foreign exchange and banknotes, end-of-year data).<sup>87</sup> Before 1848, the State owed nothing to the NBG, as was also the case in 1849, 1853–55 and 1857–60. When the Bank of Greece was established in 1928, government debt securities were transferred to the new central bank and thus the State's debt to the NBG was reduced to less than half the original figure. The respective figures are shown in parentheses. From 1928 to 1939, the series refers to the net claims of the BoG on central government (stock, inclusive of amortisation and interest payments, end-of-year data). From 1928 to 1935, claims consist of loans to the government in banknotes and gold. From 1936 to 1939, government debt as it is retrieved from the BoG's balance sheet includes only the loans in banknotes, since according to the League of Nations 1932 decision the loans in gold should appear in a separate item in the bank's balance sheet along with government bonds covered by gold. The latter was a part of the 'cover'.

In other words, following Reinhart and Rogoff's (2010) debt glossary, the respective series covers all debt liabilities of the central government to the NBG and the BoG that were issued under national jurisdiction, regardless of the nationality of the creditor and/or currency of denomination of the debt.

GR4I\_A presents debt liabilities as a percentage of the NBG's total assets until 1927 and the BoG's assets from 1928 onwards. It is worth noting that at the beginning of the 1880s, the claims on the government started to dominate the asset side of the NBG's balance sheet. The same was also true

<sup>87</sup> Loans with concession of state monopoly rights, government bonds, temporary bond loans, Treasury bills, compulsory loans in fiat money, payment orders, national road construction loans, loans in notes of low denomination (one and two paper drachmas) and national defence bonds.

of the BoG at least for the first years of its inception.<sup>88</sup> This might reveal strong dependence of the NBG and the BoG on the government.<sup>89</sup>

## 2.5 PRICES, PRODUCTION AND LABOUR

This group contains data on consumer and wholesale prices, import and export prices, industrial production and economic activity, employment and wages.

### 2.5.1 Prices

#### Consumer prices

In Greece, a version of the Consumer Price Index (CPI) was first compiled by the General Statistical Service of Greece (GSSG) in 1923.<sup>90</sup> It was a cost-of-living index that captured price changes in terms of a basket of 24 basic (tradable and non-tradable) items<sup>91</sup> across seven big cities including Athens. The yearly data based on monthly averages covered the period beginning in 1914 (1914=100). In 1929, the BoG started to measure inflation using an index of the cost-of-living in Athens (1928=100). The series was regularly released at yearly and monthly frequencies from 1929 to 1958. It captured the changes in the cost of a more comprehensive basket of both tradable and non-tradable goods and services<sup>92</sup> that the average consumer of that time used to purchase in the extended region of the country's capital, Athens.

GR5A\_A of Table GR5.1\_A displays the data entries for that composite index (2009=100). The entries are shown at yearly intervals from 1914 to 1941 (monthly averages). The monthly data points (1923–1941, not seasonally adjusted) are shown in the volume's CD Table GR5.1\_M (GR5A\_M). For the years 1914–1928, the series refers to the cost-of-living index (1914=100) compiled by the GSSG; from 1929 to 1941<sup>93</sup> refers to the index of the cost-of-living in Athens compiled by the BoG. Figure 9 depicts the development over time of the inflation process. As shown, the domestic economy suffered from strong inflationary pressures in the early 1920s. In 1915 inflation was 25%; it climbed to 45.4% in 1918 reaching a peak of 94.2% in 1922, and 57.3% in 1923. High inflation was the immediate result of the excess war spending (WWI and the Greco-Turkish War of 1919–1923) that was entirely covered by money creation. Inflation fell to moderate levels in 1924–1927 and eventually stabilised in 1928 at a level close to 1% on the eve of the coun-

<sup>88</sup> The NBG's dependence was widely discussed in the 1927 League of Nations' report on the necessity to establish a politically independent pure central bank. The BoG's dependence on the government explains why the central bank was not effective in preserving financial stability during the years of the interwar crisis since by the time of its inception more than 40% of its assets were immobilised in the form of government debt.

<sup>89</sup> This feature, however, was incompatible with the viability of a fixed-rate regime. Specifically, the classical gold standard period was characterised by a high degree of economic globalisation. Adherence to gold was sufficient to enhance market credibility. By contrast, in the interwar gold-exchange standard, economic globalisation was terminated after the Great Crash, and public debt levels were now a crucial determinant of the country's creditworthiness. To ensure, therefore, fiscal consolidation and debt repayment, foreign creditors (i.e. the League of Nations) now wanted to see the 'books'. They thus set a clear-cut rule: spending should not exceed a statutory limit of 9 billion drachmas in 1929 and 1930, and the budget should be in balance thereafter.

<sup>90</sup> The GSSG of the Ministry of the National Economy was the predecessor of the post-war National Statistical Service of Greece (NSSG, now re-organised and renamed Hellenic Statistical Authority – ELSTAT). In 1959 the NSSG started to compile the national consumer price index, which up to 2000 covered urban areas only. For details on inflation measurements in Greece, see Karabalis and Kondelis (2007).

<sup>91</sup> I.e., foodstuff (19 items); cleaning, heating and electricity (5 items).

<sup>92</sup> That basket included foodstuff (52 items); clothing (16 items); rent (then subject to rent controls); heating, electricity and another 5 variable items.

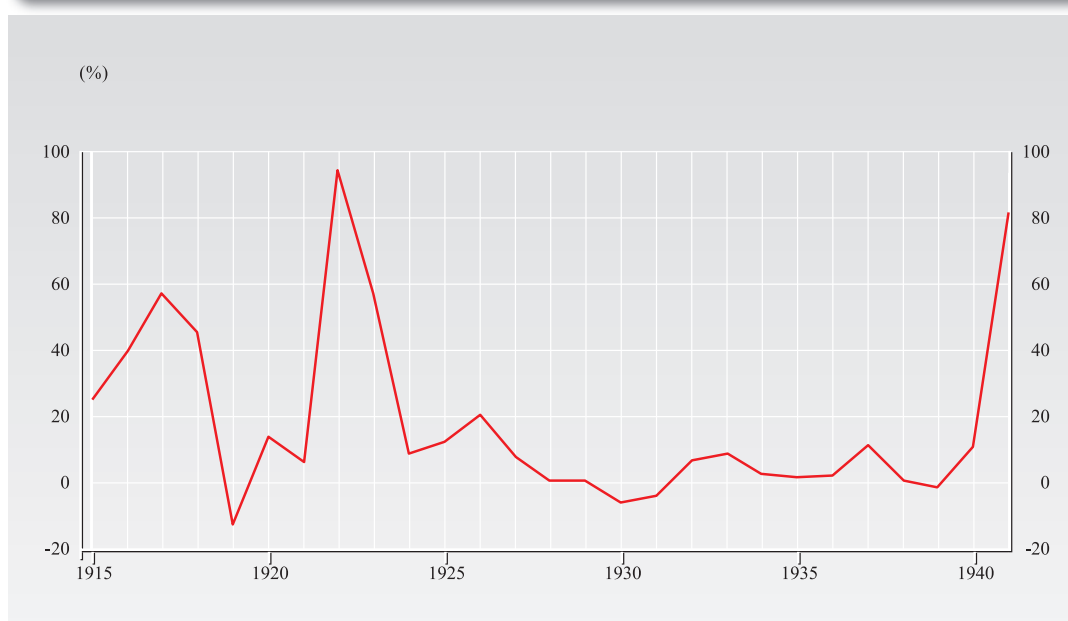
<sup>93</sup> The 1941 value is the average of the monthly observations from January to November. The BoG stopped reporting data in December 1941 and resumed its official data reporting in January 1945.

try's entry into the interwar gold-exchange standard. The severe deflation waves of the 1929 Great Crash reached Greece in 1930 and 1931. However, from 1932, prices began to rise again. From the mid-1930s, when the drachma returned to a managed float, until the eve of WWII inflation was kept at bay.

### Wholesale prices

A wholesale price index (1913–1914=100) was constructed for the first time in 1933 and was published in 1934 in the GSSG's *Statistical Yearbook of Greece*. Since then, it was reported regularly until 1940. It was constructed as a simple geometric average of the wholesale prices in Athens and Piraeus and captured the changes in the prices of six product categories, i.e., domestically produced goods (25 items); imported goods (35); agricultural products (50); livestock (8); industrial goods (27); and fuels (5 items). It was based on information released by the *Supreme Economic Council* (AOS). The time span of the annual data series is from 1929 to 1941.<sup>94</sup> The yearly entries are the averages of the monthly figures (Table GR5.1\_A; GR5B\_A). The monthly data points were released in 1931 (1913–1914=100) and covered the period from January 1931 to March 1941 (see the volume's CD Table GR5.1\_M; GR5B\_M). The monthly (not seasonally adjusted) prices were computed as the monthly simple average of the daily prices.<sup>95</sup>

**FIGURE 9** The Inflation Rate, 1914–1941 (annual percentage changes)



Source: BoG.

<sup>94</sup> The 1941 value is the average value of the first three months of the year, January to March, i.e. the period preceding the Axis occupation. From April onwards, the GSSG stopped reporting data.

<sup>95</sup> For the period prior to 1929, a proxy for the wholesale price index has been constructed by the author as the weighted geometric average of the import and export price indices. As weights, we use the year-average share of imports to total trade for the period 1914–1932. The time series data on imports and exports (in value terms) are taken from the *Monthly Statistical Bulletin* of the GSSG. The data on import and export price indices (1914=100) (monthly averages) are also from GSSG. Missing values for the monthly data for the period 1915 to 1922 are computed as the product of the seasonality factor and the year average. The data are available upon request.

## Export and import prices

Export and import price indices (1914=100) were first compiled and reported by the GSSG in 1930. The yearly data figures are monthly averages and cover the period from 1914 to 1932 (Table GR5.1\_A; GR5C\_A, GR5D\_A). They captured the price changes of 80 tradable goods (59 imported goods and 21 exported goods). The monthly price indices (not seasonally adjusted) are available only from January 1923 to April 1932 (see the volume's CD Table GR5.1\_M; GR5C\_M, GR5D\_M). In 1933, the GSSG stopped reporting those indices.

### 2.5.2 Production

Annual data on the unweighted sum of the value of the industrial production at current prices (12 sectors) are available from 1921 to 1938 (Table GR5.2\_A; GR5E\_A). Monthly data do not exist. A weighted index of the volume of the industrial production (1928=100), covering the same 12 sectors (77% of the total production) was compiled in 1930. It was regularly reported until 1940. The yearly data entries (monthly averages) are shown in Table GR5.2\_A (GR5F\_A) and cover the period from 1929 to 1939. The monthly figures (not seasonally adjusted) were first reported in 1934 and cover the period from January 1933 to December 1939 (see the volume's CD Table GR5.2\_M; GR5F\_M).<sup>96</sup> In 1934, a composite index of economic activity was compiled by the BoG. It was a seasonally adjusted weighted arithmetic index (1928=100) aggregating six component indices. It reflects the fluctuations in the volume of the domestic economic activity thus isolating the price effects.<sup>97</sup> The data are shown both at annual (Table GR5.2\_A; GR5G\_A) and at monthly frequency (see the volume's CD Table GR5.2\_M; GR5G\_M) covering the period from January 1928 to December 1939. After the Axis occupation in April 1941, the BoG stopped to compile and report that index.

### 2.5.3 Employment and wages

A complete data series on employment is available only from 1928 to 1939 on an annual basis. It refers to a weighted index of the number of workers (male and female) in manufacture. The index was constructed by the AOS (see Table GR5.2\_A; GR5H\_A). The evolution of wages over time can be shown by a wage index, which was also constructed by the AOS and refers to the wages paid to the blue collar workers in five sectors (machinery, food, textiles, paper and chemicals). The yearly data figures cover the period from 1928 to 1939 (series GR5I\_A). Monthly data do not exist.

## 2.6 NATIONAL ACCOUNTS AND POPULATION

This group contains data on Gross Domestic Product at current and constant prices, GDP deflator, real GDP per capita, imports and exports, and population.

### Gross domestic product

Table GR6\_A reports the data series on the aggregate level of the value of Gross Domestic Product (GDP) both at current prices and at constant 1914 prices (series GR6A\_A and series GR6B\_A).

<sup>96</sup> The GSSG *Statistical Yearbook* for 1937 reference year mistakenly reported the data figures on the index of the production of electricity as the data figures on the general index of industrial production. Here, we reported the true 1937 data entry on the general index of industrial production, which has been taken from the AOS publications.

<sup>97</sup> Exports of agricultural products, industrial production, imports of iron and machinery, freight moved (railway and water), bank clearings.



The sample period is 1833–1939 and the data are shown at annual frequency only. The time series on GDP was constructed and reported by Kostelenos et al. (2007, Table 6–III, columns 8 and 9, pp. 137–141). To quote the authors, GDP was computed ‘based on estimates made directly using the production (value added) method, the most notable exception being the analysis of the tertiary sector, where a combination of the income method and of an indirect approach has been used’ (p. 251). GDP at constant 1914 prices was assessed using the GDP deflator (1914=100) (GR6C\_A). The latter is a Paasche type index of the prices of 10 products from the primary and the secondary sector and covers over 23% of the total value of the GDP. The data on the GDP deflator are also taken from Kostelenos et al. (2007, Diagram 7A1, p. 167). GR6D\_A depicts the real GDP per capita entries, which are also retrieved by Kostelenos et al. (2007, Table 9–I, pp. 217–219).

Figures 10a and 10b show the evolution of the real per capita output over time and its main components. Despite the significant increase in the population owing to the gradual territorial enlargement of the country, real per capita output exhibits a strong upward long-run trend, mainly as the result of the output increase.<sup>98</sup>

During the gold standard period 1870–1913, Greece enjoyed an annual average per capita GDP growth rate of 0.66% based on a 5-year rolling time span, which was 0.85 percentage points less the combined average (1.5%) of the most advanced countries (namely, the US, the UK, France and Germany).<sup>99</sup> In the interwar years (1918–1938) the difference was reversed; 2.6% for Greece compared with 1.2% for the advanced countries (see Morys 2006).<sup>100</sup> However, throughout the sample period, Greek real per capita output levels were less than half the combined average of the most advanced economies.

### Imports and exports

Table GR6\_A (GR6E\_A, GR6F\_A) depicts the data series on the value of the imported (c.i.f) and the exported (f.o.b) commodities (services are not included).<sup>101</sup> The sample period is from 1851 to 1944 for the annual data entries and from January 1928 to December 1944 for the monthly (not seasonally adjusted) figures (see the volume’s CD Table GR6\_M; GR6E\_M, GR6F\_M).<sup>102</sup> The data entries are at current 1929 paper drachmas. Explicitly, until 1919 when the country reverted to a free float, trade was denominated in gold drachmas.<sup>103</sup> Even though gold convertibility was in effect only for a very short-time period, the conversion rate of a gold drachma to a paper drachma was roughly 1:1. From 1920 onwards, the officially reported figures on trade were reported in 1929 paper drachmas. After the 1928 drachma devaluation and

<sup>98</sup> See Lazaretou (2004, 2006).

<sup>99</sup> This positive performance of the country is easily explained by the ‘convergence hypothesis’: a poor country, *ceteris paribus*, tends to grow faster than a rich country, and hence the per capita income level of the former will catch up with the latter (see Barro and Sala-i-Martin 1992, 2003).

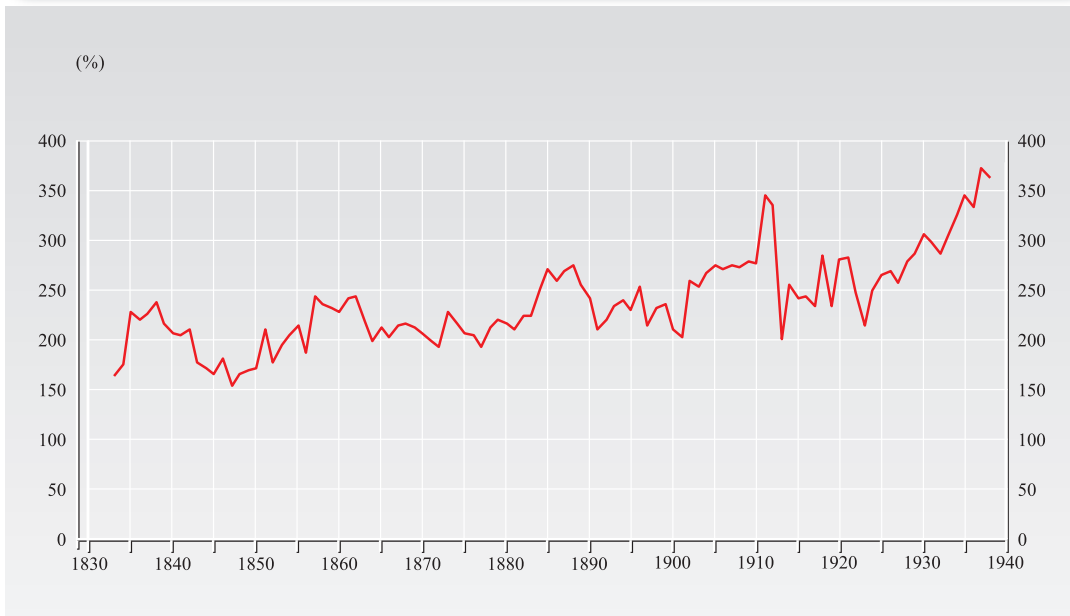
<sup>100</sup> Morys (2006, Table 2) based on Maddison’s (2004) estimates calculated the interwar years by taking the 1913 value for 1918 ‘...to avoid artificially high growth rates for the interwar period’ (p. 34). Based on Kostelenos et al. (2007) estimates and taking the 1910 value for 1918, we found that the difference for Greece was much lower, 0.35 of a percentage point (1.55% versus 1.2%). Taking the 1910 value seems more reasonable for the Greek case since in 1912–13 the country was in war (i.e., the First and the Second Balkan War) and the 1911 value was excessively high.

<sup>101</sup> Trade included all imported commodities on which a tariff was imposed and paid, and all exported products that were either domestically produced or were first imported as intermediate products and then exported as final products. Until 1920, the value, i.e. the product of the quantity *times* the price, was mandated by a government special committee. From 1921 onwards, exports were defined in f.o.b and imports in c.i.f prices.

<sup>102</sup> For the period 1928 onwards for which a complete monthly data series is available, the annual figures are the unweighted sum of monthly figures. In the annual series reported by the GSSG, several mistakes were made in the summation of the monthly figures which we corrected here. The post-war data start in 1951.

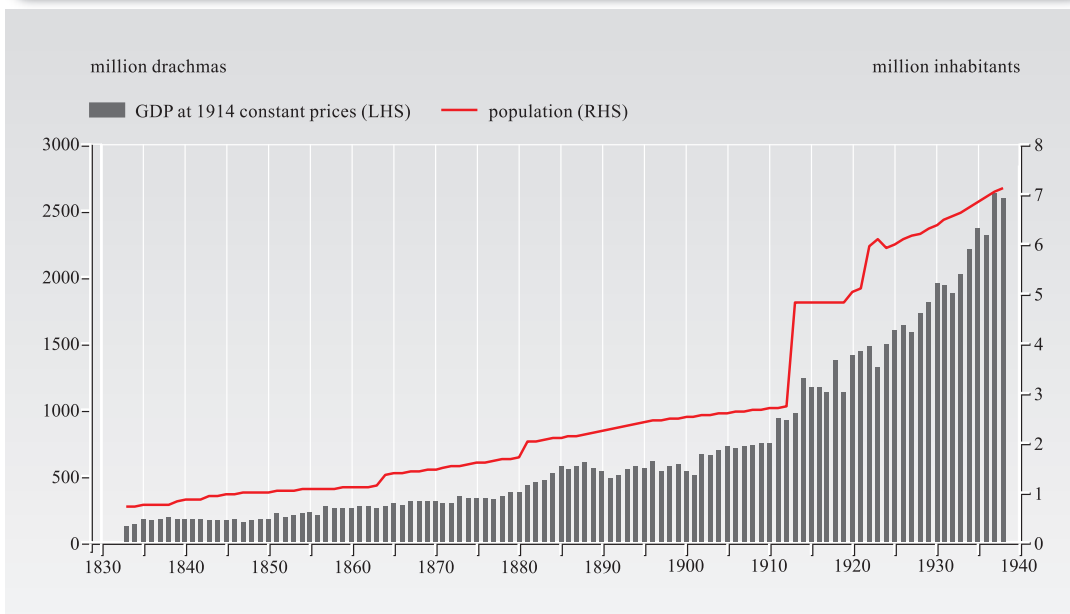
<sup>103</sup> The data in gold drachmas are available upon request.

**FIGURE 10a Real Per Capita GDP, 1833–1938 (in LMU drachmas at 1914 constant prices)**



Source: Kostelenos et al. (2007).

**FIGURE 10b GDP and Population, 1833–1938**



Sources: Kostelenos et al. (2007) and ELSTAT.

stabilisation, one gold drachma was equal to 14.87 paper drachmas. Using this rate, we expressed the data entries for the years prior to 1920, which were denominated in gold drachmas, in 1929 paper drachmas.

We should mention that interested researchers should use these data series with caution. First, the only available data series refer to trade values and not to trade volumes;<sup>104</sup> thus price fluctuations strongly affect the time series properties of the variables. Second, the official data on imports underestimate the country's foreign trade, given the high rates of smuggling (almost 30% of total imports<sup>105</sup>) associated with the high tariffs applying at the time. Third, since exports chiefly included agricultural products (around 70% of total exports), strong seasonal factors played a role in determining not only trade flows but also the drachma's exchange rate. Consequently, the BoG in order to keep the rate of the drachma fixed, had to intervene very frequently in the open market offsetting the seasonal factor. Fourth, imports did not include public sector procurement and defence equipment, which accounted for a large proportion of the country's total imports.<sup>106</sup>

### Population

Population shown at annual intervals (1833–1939) is measured in million of inhabitants (Table GR6\_A; GR6G\_A). The yearly entries (mid-year estimates, *de facto* population) were based upon the census of the years 1821, 1828, 1839, 1840, 1841, 1842, 1843, 1844, 1845, 1848, 1853, 1856, 1861, 1870, 1879, 1881, 1889, 1896, 1907, 1913, 1920, 1923 and 1928. 1928 was the last census year during the pre-WWII period.

### 2.7 WARTIME: 1940 TO 1949

The 10-year period from 1940 to 1949 can be separated into three different sub-periods: wartime from October 1940 to April 1941; the Axis occupation from May 1941 to October 1944; and the stabilisation period from November 1944 until the end of the decade. Greece was caught in WWII at a time when it had consolidated fiscal and monetary stability. Due to strict exchange and capital controls, the exchange rate of the drachma was kept fixed. Further, wartime spending during the Greco-Italian War was fully covered thanks to direct financial support from the UK in the form of money credits, which were held in a special account from which the Greek government drew on demand. As seen in Table 3, which shows the developments in the inflation rate, money stock and the exchange rate, inflationary pressures in wartime were moderate and the situation remained under control. The observed sharp increase in the growth rate of money stock was temporary and attributed to the two short-lived banking panics and mass bank deposit withdrawals that took place first in August–September 1939<sup>107</sup> and again in April–May 1940, coming to a peak in October 1940.<sup>108</sup> Soon, money balances returned to banks. However, the situation got out of hand during the Axis occupation and most importantly in its second phase, from November 1943 to October 1944, when the phenomenon of hyperinflation was in full swing.

During the Axis occupation, the monetary and real sectors of the domestic economy collapsed and the drachma, even though it remained legal tender, lost all its functions as money. The budgetary deficits and the Axis military expenditures were exclusively financed by massive domestic paper money creation. The Greek goods market experienced a stifling shortage of products, which contributed to an explosion of inflationary expectations and eventually to the emergence of hyper-

<sup>104</sup> Data on a weighted volume index of imported final industrial products (10 sectors) and of exported final industrial products (6 sectors) are available only from 1929 to 1939 on an annual basis, and on a monthly basis from 1933 to 1939 (1928=100). The data are available upon request.

<sup>105</sup> See Zolotas (1928, p. 151).

<sup>106</sup> Also, they did not include gold bullion and gold coins. They did, however, include silver bullion and coins, ships and stores and bunkers for foreign ships.

<sup>107</sup> The BoG responded effectively and averted a generalised bank panic by increasing credit to commercial banks.

<sup>108</sup> The BoG responded this time by imposing a moratorium on banking transactions.

inflation towards the end of the occupation period. According to the *ad hoc* definition by Cagan (1956), hyperinflation starts the month when the rate of prices increase on a monthly basis is over 50% against the previous month, and ends the month before it falls below 50% and remains at this lower level at least for a year. Following Cagan's definition, Greek hyperinflation started in November 1943 and ended in November 1944 (see Table 3 and Figure 11).<sup>109</sup> It triggered a run on the drachma and a switch to gold, establishing a *sui generis* gold standard. As the public had no confidence in the future purchasing power of the paper drachma, it turned on a mass scale to hoarding of the British gold sovereign ('gold pull'), substituting all drachma banknotes.

Figure 12 plots seigniorage revenues (index, 1938.09–1939.08=1). These are measured as the product of the rate of change of the monetary base in period  $t$  and real money balances in period  $t-1$ . As seen, seigniorage started to fall rapidly in the second Axis occupation phase. The circulation of British sovereigns decreased the demand for money balances in drachmas, thus reducing the inflation tax base. As Axis occupation powers began increasing enormously the monetary base, seigniorage fell rapidly.<sup>110</sup>

**TABLE 3 Prices, Money Stock and Exchange Rate Developments, 1939–1948**

(monthly rates of change)

Sample periods	Inflation (%)	Money balances (%)	Drachma/British gold sovereign (depreciation rate, %)
Pre-war period 1939.01–1940.09	0.59	2.13	0.48
War period 1940.10–1941.04	1.93	8.95	c
Axis Occupation 1941.05–1944.10a	59.84	47.27b	56.81
First Axis occupation phase 1941.05–1943.10	19.21	15.77	21.92
Second Axis occupation phase 1943.11–1944.10	153.61	116.17	137.32
Stabilisation period 1944.11–1948.12	8.69	18.71	12.15

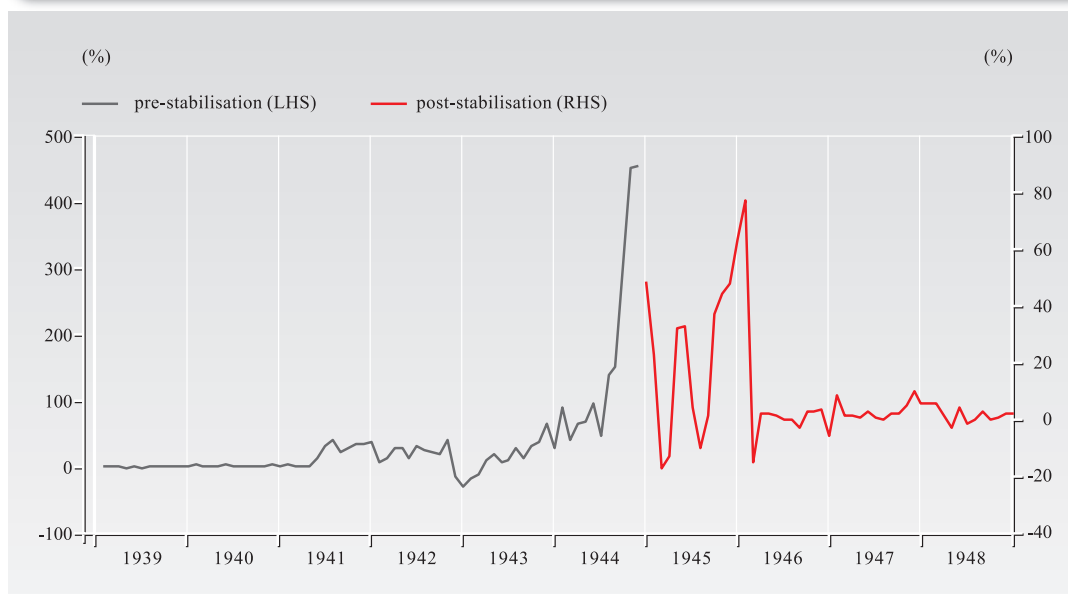
Notes: The table refers to the mean monthly rate of change (first differences of the natural logarithms) of the index of the cost-of-living in Athens, the money balances and the drachma/British gold sovereign (spot). Indices (1938.09–1939.08 = 1). a. until 10 November 1944. b. Data do not exist for the months April and May 1941. c. Throughout the war period, the exchange rate of the drachma remained fixed at 1,063 drachmas.

From the aftermath of WWII to January 1946, three schemes for monetary reform and economic stabilisation were implemented. Key features of all schemes were a currency reform plan based on devaluation, wage and price controls and the re-structuring of public finances by curbing spending and raising taxes.

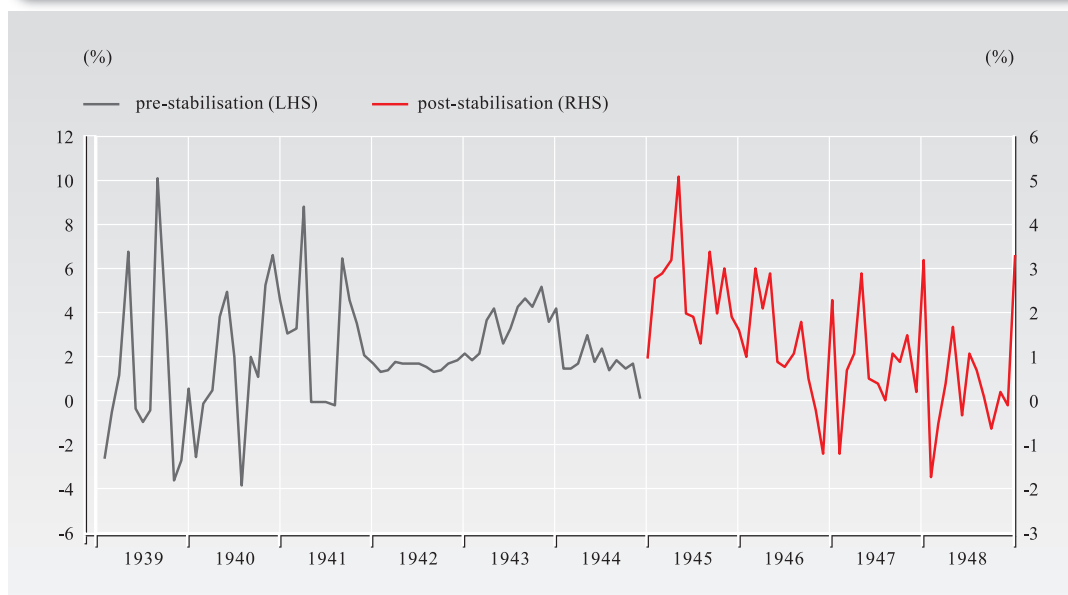
Table GR7\_A presents the available data series for the war period and its aftermath (1939–1949). GR7A\_A displays money stock, namely banknotes and coins in circulation in the hands of the non-bank public (end-of-month and end-of-year data points) plus commercial banks' vault cash. Com-

<sup>109</sup> See Lazaretou (2005b, 2009). Even though it is an *ad hoc* definition, it well captures all seven historical episodes of hyperinflation and the recent Serbian episode as well.

<sup>110</sup> This is the well-known effect of the Laffer curve: an increase in the tax rate above a crucial limit will eventually reduce revenue. See Blanchard and Fischer (1990, ch. 4).

**FIGURE II The Greek Inflation Rate, 1939–1948**

Note: monthly percentage changes (first differences of the natural logarithms). Post-stabilisation: new series.  
Sources: BoG and Delivanis and Cleveland (1949).

**FIGURE I2 Seigniorage Revenue, 1939–1948**

Note: Own calculations based on data provided by the BoG and Delivanis and Cleveland (1949). Monthly data, index (1938.09–1939.08) = 1. Data do not exist for April and May 1941.

mercial banks' reserves which were held with the BoG are not taken into account due to lack of data. Thus, the series coming directly from the balance sheet of the central bank can be considered a safe proxy for the monetary base (M0). Data do not exist for the first two months of the coun-

try's occupation, i.e. April and May 1941. The BoG resumed its official reporting as late as 1946, starting from 11 November, 1944. GR7B\_A\_I displays the index of the cost-of-living in Athens.<sup>111</sup> The yearly data points are monthly not seasonally adjusted averages. The December 1944 data value is missing. GR7C\_A and GR7C\_A\_I report the nominal exchange rate (spot, fixing price) of the drachma against the British gold sovereign traded on the Athens money market. Up to December 1944, the monthly data points refer to the last day of every month call dates, while the yearly figures refer to the mean average using the end-of-month figures. From January 1945 to December 1949, the monthly data points are the monthly averages of the daily observations (end-of-day) and the yearly data entries are year averages. The monthly data are presented in Table GR7\_M of the volume's CD (GR7A\_M; GR7A\_M\_I; GR7B\_M; GR7B\_M\_I; GR7C\_M; GR7C\_M\_I).

### 3 DATA SOURCES

As far as monetary variables are concerned, mainly banknotes in circulation for the period prior to 1928, the published primary sources are the NBG's *Balance Sheets* and *Annual Reports*. In its annual and semi-annual balance sheets, the stock of banknotes in circulation was reported for the end-June (as at the last working day) and the end-December (as at the last working day) call dates. In its annual report, observations appeared on a monthly and a yearly basis. Analytically, for 1842<sup>112</sup>, which was the first year of the NBG's operation, only the end-June and the end-December call dates are available. The figures are derived from its annual and semi-annual balance sheets for that year. Both the NBG's balance sheet and the profit-loss statement for that year were published in French language and were not typed but handwritten. From 1843 onwards, *Table 1* of the NBG's annual report is still the only well-defined information set for the 19th century Greek monetary data. It reports the stock of notes (of both high- and low-denomination values) in circulation on the last day of the NBG's monthly statement. The maximum and the minimum values<sup>113</sup> as well as the year averages based on the monthly (end-of-month) observations were also reported. Daily observations do not exist and thus a monetary aggregate relied on the averages of the daily data could not be built. Weekly entries (as at the last day of a six-day working week) are also available, albeit for very few years. Keeping the same publication practice throughout the period under study, data comparability is enhanced.

Fortunately, the other two provincial note-issuing banks, namely the Bank of Crete and the Bank of Epirus and Thessaly, followed the same publication practices as the NBG used to, i.e. they officially reported the stock of their banknotes in circulation on the last working day of every month or year. Primary data sources are their *Annual Reports* and *Balance Sheets*.

For the period 1928–1939, the primary data source is the *Monthly Statistical Bulletin* of the BoG. The first issue of the *Bulletin* appeared in January 1930. Again, monetary data did not refer to a consistent time series of narrow or broad money definitions but to reported data for money in circulation (commercial bank's vault cash is included) and private bank deposits at monthly and yearly frequencies. Specifically, *Table 3* of the *Bulletin* shows notes and coins in circulation, and demand deposits of the government and the commercial banks with the BoG, for every month call date

<sup>111</sup> It is a general weighted price index with 1938.09–1939.08 = 100 as the base year until November 10, 1944 and 1938=100, onwards. It captures the price developments in five main product categories: food, clothing, housing, electricity and heating, and miscellaneous.

<sup>112</sup> Prior to 1842, the Greek Ministry of Finance had the right of money issue. Coins of low denomination were chiefly used in money transactions; although data do not exist. The only available information concerns few yearly data entries widely dispersed across time on the amount of the coins issued (but not circulated).

<sup>113</sup> They refer to that monthly (as at the last day of month) observation with the maximum and minimum value.

(as at the last day of month) since the BoG's inception in May 1928. It describes monthly developments of its balance sheet items and the commercial banks' sheet as well; it reports monthly figures on all commercial bank private deposits and money balances held as vault cash by the banks. The modified *Table 1* of the post-war version of the BoG's *Monthly Statistical Bulletin* comes directly from *Table 3* of the pre-war version. In the modified *Table 1*, the staff of the BoG regularly reported data on M1 and its components.<sup>114</sup>

The data figures on the currency reserves are from *Table 2* and *Table 3* of the NBG's *Annual Reports*, the *Annual Reports* of the other provincial note-issuing banks and the BoG's *Monthly Statistical Bulletin*.

The data entries on the consumer prices are from the BoG (Prices Section) based on information released by the GSSG. The data on the wholesale price index are from the AOS and are reported in the GSSG's *Statistical Yearbook* and its *Monthly Statistical Bulletin*.<sup>115</sup> The data figures on the import and export prices are from the GSSG's *Yearbook* and its *Bulletin*. The data on the value of industrial production is taken from the GSSG's *Yearbook* based on information released by the *Industry Inspection*, while the data series on the index of the volume of the industrial production is from the AOS and the GSSG's *Yearbook*. The data on the economic activity index is from the BoG's *Monthly Statistical Bulletin*. The data on the employment index and the wage index are from the periodical edition of the AOS, *the Greek Economy during the years 1935, 1936, 1937, 1938 and 1939* (various issues).

The data on the NBG's discount rate, the short-term and long-term lending rates have been collected (date of change) from its *Annual Report* (various issues). Particularly, valuable information on lending rates or the date of their change is extracted from the part of the *Annual Report* detailing the progress of the bank's lending activity over the previous year. Unfortunately, regularly published reports on the lending rates or on the date of their change do not exist. The data on the BoG's discount rate and the short-term market lending rate have been collected (date of change) from the BoG's *Monthly Statistical Bulletin*. Bank deposit rates have been collected (date of change) from the NBG's *Annual Reports* and the BoG's *Monthly Statistical Bulletin*. An additional source for the period 1928–1939 is the NBG's reports on deposit rates (see NBG, *Historical Archive*, file 19). The data on the market bond prices are from the Athens Stock Exchange *Yearbook* (issues for the years 1911, 1915, 1918, 1926, 1929–1930, 1930–1931) and the BoG, *Monthly Statistical Bulletin* (various issues).

The data on GDP at current and constant 1914 prices are from Kostelenos et al. (2007). The data on population are derived from the GSSG's *Yearbook*. The data series on the value of the imports and exports in nominal terms, both at annual and monthly frequencies, are taken from the GSSG's *Yearbook* and its *Bulletin*.

The data on total public revenue, total tax revenue, direct taxes and indirect taxes are from Prontzas et al. (2012). Their primary source is the *Annual Government Reports* on public revenue. The data on government spending, defence spending and interest payments are from the *Annual Government Reports* on public spending and from Antoniou (2012). Total liabilities of the Greek State to the NBG and to the BoG are taken from the NBG's and the BoG's Balance Sheets.

<sup>114</sup> The post-war version of the BoG's *Monthly Statistical Bulletin* first appeared in January 1950. The publication was discontinued in 2004.

<sup>115</sup> The first issue of the GSSG *Bulletin* appeared in March 1929 (1929 was the reference year) and the first issue of its *Statistical Yearbook* appeared in May 1931 (1930 was the reference year).

The data on the drachma nominal exchange rates (spot rates, monthly and yearly averages, fixing) are from the NBG's *Annual Reports*, the GSSG's *Bulletin* and the BoG's *Bulletin*. Valaoritis (1902) and Zolotas (1928, 1929) are additional sources. The data on the gold/paper drachma parity are from Simantiras (1905, see the appendix), Valaoritis (1902–1903, see Tableau H), the BoG's *Monthly Statistical Bulletin* (various issues) and the GSSG's *Statistical Yearbook* (various issues).

For the period 1940 to 1949, the primary data source is the BoG's *Monthly Statistical Bulletin*. However, from December 1941 to December 1944, the BoG stopped reporting data. The BoG published its post-war *Monthly Statistical Bulletin* as late as 1946 without, however, reporting ex-post data series covering the years 1941–1944. The data appendices of Delivanis and Cleveland (1949) and Delivanis (1946) are the only available data source covering that period.

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*Note: In the following tables “..” indicates that the item did not exist; in case of reconstructed data, that the entry was not calculated for that point in time; “.” indicates a missing value. An absolute zero is coded as “-“, while “0.0” codes a rounded zero. For details on the unit of the series, see index table in section 2.*

Table GRI.I\_A Currency reserves, 1842–1927

continue

(NBG and other note-issuing banks; thousands of LMU drachmas)

Year	Total currency reserves	Metallic holdings	Foreign exchange
	GRIA_A	GRIB_A	GRIC_A
1842	397.5	397.5	..
1843	345.9	345.9	..
1844	535.9	535.9	..
1845	762.3	762.3	..
1846	771.8	771.8	..
1847	620.1	620.1	..
1848	964.0	964.0	..
1849	1205.8	1205.8	..
1850	1114.7	1114.7	..
1851	1218.2	1218.2	..
1852	1473.8	1473.8	..
1853	1822.7	1822.7	..
1854	3424.8	3424.8	..
1855	3835.3	3835.3	..
1856	5191.4	5191.4	..
1857	4656.9	4656.9	..
1858	4717.4	4717.4	..
1859	3625.1	3625.1	..
1860	4411.0	4411.0	..
1861	4749.6	4749.6	..
1862	6105.4	6105.4	..
1863	7232.7	7232.7	..
1864	6461.4	6461.4	..
1865	6437.3	6437.3	..
1866	6101.6	6101.6	..
1867	8487.2	8487.2	..
1868	7386.5	7386.5	..
1869	10955.3	8066.3	2889.0
1870	14342.7	11932.4	2410.3
1871	14207.1	11254.0	2953.1
1872	18259.9	11943.7	6316.2
1873	18359.5	14696.8	3662.7
1874	17042.6	14444.5	2598.1
1875	17959.8	16316.7	1643.1
1876	16318.3	12797.6	3520.7
1877	13270.8	9659.5	3611.3
1878	7342.5	6121.4	1221.0
1879	18591.8	17074.3	1517.6
1880	18706.6	12396.7	6309.9
1881	15041.3	5453.9	9587.4
1882	18033.5	8091.4	9942.1
1883	16274.6	8205.8	8068.8
1884	48629.7	34901.8	13727.9

Table GRI.I\_A Currency reserves, 1842–1927

(NBG and other note-issuing banks; thousands of LMU drachmas)

Year	Total currency reserves		Foreign exchange	
	GRIA_A	GRIB_A	GRIB_A	GRIC_A
1885	13887.6	7209.9		6677.7
1886	9015.2	4522.4		4492.7
1887	9646.9	3724.2		5922.7
1888	11620.4	3523.9		8096.5
1889	13234.2	3334.0		9900.2
1890	10096.5	3426.1		6670.5
1891	10720.4	3149.0		7571.4
1892	11672.3	2609.9		9062.4
1893	10422.0	2692.8		7729.2
1894	9478.1	2178.7		7299.3
1895	9695.5	2021.2		7674.3
1896	11017.1	1949.1		9068.1
1897	13075.1	1930.8		11144.9
1898	11852.2	2581.4		9270.8
1899	20787.1	4058.9		16728.3
1900	23249.7	4142.7		19107.0
1901	25789.7	6008.0		19781.6
1902	22627.1	4627.2		18000.0
1903	21935.7	4166.8		17768.9
1904	26491.1	4397.5		22093.6
1905	31832.0	5378.8		26453.3
1906	40141.5	4801.6		35339.8
1907	39870.6	5401.9		34468.7
1908	49064.2	5737.9		43326.3
1909	47428.3	5879.3		41548.9
1910	76682.3	8883.2		67799.1
1911	114411.1	15738.1		98673.0
1912	178087.8	19408.3		158679.5
1913	262608.6	28809.2		233799.4
1914	219256.5	41285.9		177970.6
1915	320611.5	60853.2		259758.3
1916	556566.2	63486.9		493079.8
1917	971886.1	66144.9		905741.2
1918	1720357.0	54307.3		1666049.7
1919	1562934.5	56993.9		1505940.6
1920	1439646.1	56642.0		1383004.1
1921	1373434.8	56406.7		1317028.1
1922	1398601.9	31386.7		1342215.1
1923	1384359.4	37876.3		1321483.1
1924	1309920.2	39792.9		1245127.3
1925	1344783.2	46324.1		1273459.1
1926	1449458.5	52118.8		1372249.7
1927	1457682.6	83936.6		1373746.0



**Table GRI.1\_A Currency reserves, 1928–1939***(BoG; thousands of LMU drachmas)*

Year	Total currency reserves	Metallic	Foreign exchange	Government bonds
	GR1D_A	GR1E_A	GR1F_A	GR1G_A
1928	4240600.0	553500.0	3687100.0	.
1929	3115900.0	640500.0	2475400.0	.
1930	3011400.0	510000.0	2501400.0	.
1931	1916000.0	869300.0	1046700.0	.
1932	3129100.0	.	1821500.0	653800.0
1933	4659000.0	.	4018500.0	640500.0
1934	4104900.0	.	4104900.0	638500.0
1935	3489600.0	.	3489600.0	567200.0
1936	3385000.0	.	3385000.0	557000.0
1937	3657900.0	.	3657900.0	514000.0
1938	3824500.0	.	3824500.0	112300.0
1939	4223200.0	.	4223200.0	122900.0

**Table GRI.2\_A Main monetary statistics, 1842–1939***(GR1H\_A and GR1I\_A: in thousands of LMU drachmas; GR1J\_A and GR1K\_A: ratio)*

Year	Broad money (M3)	Narrow money Monetary base (M0)	Money multiplier (M3)/(M0)	Reserve-banknote ratio
	GR1H_A	GR1E_A	GR1F_A	GR1G_A
1842	323.5	535.4	0.604	1.45*
1843	624.5	839.3	0.744	0.57
1844	1033.2	982.2	1.052	0.67
1845	1820.7	2252.8	0.808	0.50
1846	2692.7	3121.4	0.863	0.37
1847	2490.5	2299.0	1.083	0.36
1848	2002.8	2297.3	0.872	0.87
1849	2803.3	1797.5	1.560	0.86
1850	3471.4	2443.0	1.421	0.56
1851	3254.8	2618.5	1.243	0.78
1852	3529.8	2224.8	1.587	0.80
1853	4136.0	3286.3	1.259	0.94
1854	5409.4	4386.8	1.233	1.33
1855	7004.1	4863.1	1.440	1.14
1856	9752.0	6378.5	1.529	0.97
1857	12829.7	8822.5	1.454	0.65
1858	12312.8	9471.8	1.300	0.68
1859	13690.8	10828.5	1.264	0.52
1860	16967.0	9958.9	1.704	0.59
1861	19211.9	12671.2	1.516	0.50
1862	20836.6	12305.9	1.693	0.54
1863	23256.3	14962.5	1.554	0.50

Table GRI.2\_A Main monetary statistics, 1842–1939

continue

(GR1H\_A and GR1I\_A: in thousands of LMU drachmas; GR1J\_A and GR1K\_A: ratio)

Year	Broad money (M3)	Narrow money Monetary base (M0)	Money multiplier (M3)/(M0)	Reserve-banknote ratio
	GR1H_A	GR1E_A	GR1F_A	GR1G_A
1864	24853.2	16349.4	1.520	0.41
1865	26490.8	16684.8	1.588	0.40
1866	24231.9	16514.3	1.467	0.40
1867	28993.1	23376.4	1.240	0.47
1868	32609.5	31637.1	1.031	0.36
1869	37329.1	32348.9	1.154	0.46**
1870	39863.9	40341.8	0.988	0.61
1871	41209.2	46939.9	0.878	0.56
1872	48127.3	56263.7	0.855	0.64
1873	52776.7	44632.8	1.182	0.55
1874	57130.1	55349.8	1.032	0.48
1875	54427.0	56099.9	0.970	0.56
1876	55287.3	59504.8	0.929	0.51
1877	65226.1	70674.8	0.923	0.34
1878	83653.9	79016.9	1.059	0.14
1879	78386.4	77127.7	1.016	0.40
1880	105655.5	83134.3	1.271	0.32
1881	147200.9	118996.8	1.237	0.18
1882	167958.6	127320.3	1.319	0.17
1883	189208.1	139405.8	1.357	0.16
1884	178474.3	127741.3	1.397	0.69
1885	189299.5	124349.2	1.522	0.18
1886	224960.3	175422.3	1.282	0.09
1887	224073.3	168376.6	1.331	0.09
1888	216641.7	176768.0	1.226	0.13
1889	217774.4	168762.1	1.290	0.15
1890	236361.3	154826.9	1.527	0.10
1891	246425.2	159606.2	1.544	0.09
1892	241998.6	189887.0	1.274	0.10
1893	242841.7	169296.9	1.434	0.09
1894	220990.6	161096.0	1.372	0.09
1895	218368.7	159832.3	1.366	0.09
1896	222291.4	158975.5	1.398	0.10
1897	227191.8	161606.3	1.406	0.10
1898	240013.1	182828.8	1.313	0.10
1899	248776.5	211128.2	1.178	0.12
1900	242360.9	198798.2	1.219	0.14
1901	253506.6	223449.5	1.135	0.15
1902	258134.6	243416.9	1.060	0.13
1903	269524.1	257974.7	1.045	0.14

**Table GRI.2\_A Main monetary statistics, 1842–1939***(GRIH\_A and GR1I\_A: in thousands of LMU drachmas; GR1J\_A and GRIK\_A: ratio)*

Year	Broad money (M3)	Narrow money Monetary base (M0)	Money multiplier (M3)/(M0)	Reserve-banknote ratio
	GR1H_A	GR1E_A	GR1F_A	GR1G_A
1904	292906.9	245211.1	1.195	0.17
1905	289701.1	237093.6	1.222	0.22
1906	315082.8	236481.3	1.332	0.29
1907	329427.5	236406.4	1.393	0.27
1908	394388.3	237219.6	1.663	0.35
1909	408833.8	220521.0	1.854	0.33
1910	416411.8	219655.7	1.896	0.55
1911	454854.4	160812.8	2.828	0.81
1912	633191.4	230635.2	2.745	0.88
1913	730022.8	297748.5	2.452	1.08
1914	727807.5	294431.5	2.472	0.84
1915	930819.2	395345.2	2.354	0.82
1916	1249487.3	571723.5	2.185	0.99
1917	1812870.6	890493.6	2.036	1.13
1918	2542432.6	1402051.6	1.813	1.37
1919	2973115.9	1401744.0	2.121	1.14
1920	3798776.0	2019385.8	1.881	0.95
1921	5273189.0	2508553.8	2.102	0.64
1922	6830899.0	3698465.4	1.847	0.44
1923	9268719.0	5406933.9	1.714	0.30
1924	10014923.7	5292613.8	1.892	0.27
1925	10719249.0	5547900.5	1.932	0.25
1926	11262640.3	5716500.9	1.970	0.30
1927	10175903.3	5690844.5	1.788	0.29
1928	17053400.0	6346700.0	2.687	0.54***
1929	17499300.0	5741200.0	3.048	0.46
1930	22343600.0	5596500.0	3.992	0.46
1931	21775500.0	4743300.0	4.591	0.41
1932	20716800.0	5494100.0	3.771	0.30
1933	23296200.0	6904500.0	3.374	0.42
1934	24499400.0	7602400.0	3.223	0.41
1935	24685700.0	6813400.0	3.623	0.30
1936	25665400.0	7461500.0	3.440	0.27
1937	29167600.0	7657700.0	3.809	0.26
1938	31387500.0	8106800.0	3.872	0.21
1939	34066000.0	10060300.0	3.386	0.30

Notes: (\*) metallic holdings only; (\*\*) total reserves (metallic and foreign exchange holdings); (\*\*\*) ratio of total reserves and 'potential' circulation. 'Potential' money in circulation was defined as the sum of the banknotes in the hands of the public plus reserves and commercial balances with the central bank (see the statute of the BoG, Article 61). The data refer to the end of the year.

Table GRI.3\_A Total banknote circulation, 1842–1927

(thousands of LMU drachmas)

Total banknotes in circulation		Total banknotes in circulation		Total banknotes in circulation	
Year	GRIL_A	Year	GRIL_A	Year	GRIL_A
1842	274.6	1871	25180.0	1900	130001.3
1843	601.4	1872	28389.3	1901	131472.0
1844	799.0	1873	33380.9	1902	135624.8
1845	1511.3	1874	35472.4	1903	131356.0
1846	2079.7	1875	32278.7	1904	126666.2
1847	1699.5	1876	32173.4	1905	119804.5
1848	1101.9	1877	38985.5	1906	123050.2
1849	1397.7	1878	54023.4	1907	129321.9
1850	1978.6	1879	45196.5	1908	121718.2
1851	1561.1	1880	56962.0	1909	135151.8
1852	1839.1	1881	84763.2	1910	133587.7
1853	1949.3	1882	92506.9	1911	136960.3
1854	2575.4	1883	97489.9	1912	199254.4
1855	3373.1	1884	70333.0	1913	236008.8
1856	5333.4	1885	80305.2	1914	255089.5
1857	7190.9	1886	109164.3	1915	384765.2
1858	6983.3	1887	110142.9	1916	562083.3
1859	6932.9	1888	94001.1	1917	855154.6
1860	7487.6	1889	99228.2	1918	1256520.6
1861	9491.8	1890	112676.1	1919	1373513.9
1862	11355.2	1891	129767.9	1920	1508365.0
1863	14390.3	1892	127153.0	1921	2161182.0
1864	15633.8	1893	119559.6	1922	3149445.0
1865	15877.7	1894	114658.3	1923	4681200.0
1866	15206.2	1895	116681.9	1924	4865923.7
1867	17970.9	1896	118944.4	1925	5339249.0
1868	20408.9	1897	130231.7	1926	4864640.3
1869	23588.4	1898	130979.5	1927	4966258.3
1870	23613.5	1899	138959.5		

Table GRI.4\_A Money balances, 1928–1939

(thousands of LMU drachmas)

Year	Total currency in circulation	Vault cash	Deposits with the BoG
	GRIM1_A	GRIM2_A	GRIM3_A
1928	5219300.0	470200.0	657200.0
1929	4668100.0	525100.0	547900.0
1930	4226300.0	575700.0	793600.0
1931	3635700.0	367300.0	740300.0
1932	4281600.0	432600.0	779900.0
1933	4946700.0	502100.0	1455700.0
1934	5123200.0	563200.0	1916000.0
1935	5484100.0	503500.0	825800.0
1936	5666200.0	536300.0	1259000.0
1937	6201500.0	575000.0	881200.0
1938	6654500.0	584200.0	868100.0
1939	8877200.0	575600.0	607500.0

Table GRI.5\_A Bank deposits, 1842–1939

(thousands of LMU drachmas)

Private bank deposits		Private bank deposits	
Year	GRIN_A	Year	GRIN_A
1842	48.9	1891	116657.3
1843	23.1	1892	114845.6
1844	234.2	1893	123282.1
1845	309.4	1894	106332.3
1846	613.0	1895	101686.8
1847	791.0	1896	103347.0
1848	900.9	1897	96960.1
1849	1405.6	1898	109033.6
1850	1492.8	1899	109817.0
1851	1693.7	1900	112359.6
1852	1690.7	1901	122034.6
1853	2187.7	1902	122509.7
1854	2834.0	1903	138168.1
1855	3631.0	1904	166240.7
1856	4418.6	1905	169896.6
1857	5638.8	1906	192032.6
1858	5329.5	1907	200105.6
1859	6757.9	1908	272670.1
1860	9479.4	1909	273682.0
1861	9720.1	1910	282824.1
1862	9481.4	1911	317894.1
1863	8866.0	1912	433937.0
1864	9219.4	1913	494014.0
1865	10613.1	1914	472718.0
1866	9025.7	1915	546054.0
1867	11022.2	1916	687404.0
1868	12200.6	1917	957716.0
1869	13740.7	1918	1285912.0
1870	16250.4	1919	1599602.0
1871	16029.2	1920	2290411.0
1872	19738.0	1921	3112007.0
1873	19395.8	1922	3681454.0
1874	21657.7	1923	4587510.0
1875	22148.3	1924	5149000.0
1876	23113.9	1925	5380000.0
1877	26240.6	1926	6398000.0
1878	29630.5	1927	5209645.0
1879	33189.9	1928	11834100.0
1880	48693.5	1929	12831200.0
1881	62437.7	1930	18117300.0
1882	75451.7	1931	18139800.0
1883	91718.2	1932	16443700.0
1884	108141.3	1933	18349500.0
1885	108994.3	1934	19376200.0
1886	115796.0	1935	19201600.0
1887	113930.4	1936	19999200.0
1888	122640.6	1937	22966100.0
1889	118546.2	1938	24733000.0
1890	123685.2	1939	25188800.0

Table GR2.I\_D NBG's lending interest rates, 1842–1939

(in per cent per annum)

Date of change	Discount rate	Date of change	Collateralised	Date of change	Collateralised	Date of change	Mortgage-
	head offices/ branches		loans		credit line		backed loans
	GR2A_D <sup>1</sup>		GR2C_D <sup>2</sup>		GR2D_D		GR2I_D <sup>3</sup>
30 March 1841	8	1843	6	1849	9	1849	10
April 1847	7.2	22 Aug. 1853	8	22 Aug. 1853	8	22 Aug. 1853	8
22 Aug. 1853	8	1872	12	1858	8	11 Apr. 1859	7
1 April 1869	7/ 8*	1889	6	1889	6	15 Aug. 1864	8
20 Oct. 1871	8	1898	5.5	1 Jan. 1892	6.5	1869	8
Nov. 1878	7	1902	6	1894	6	1871	8
24 Feb. 1888	7*	1914	6	1923	8	1 Oct. 1890	7
Dec. 1890	6.5/ 7*	1 July 1918	6.5	21 Sept. 1931	8	1911	9
28 Sept. 1898	6/ 6.5*	16 Sept. 1918	8			1914	6.5
1 July 1901	6	16 May 1920	8			1915	6
1 Jan. 1902	6.5/ 7*	2 Jan. 1923	8			1923	6
1 July 1908	5.5/ 6.5*	21 Sept. 1931	8–9			April 1925	8
1 Jan. 1909	5.5/ 7*						
1 Jan. 1910	6/ 6.5*						
19 July 1914	8						
11 Nov. 1914	6.5						
30 Sept. 1916	6						
6 Sept. 1917	5.5						
8 March 1918	6						
6 Sept. 1918	5.5						
1 Jan. 1920	6						
15 May 1920	6.5**						
1 Jan. 1923	7.5						
15 Feb. 1923	8.5						
1924	7.5						
23 Feb. 1925	8.5						
18 Aug. 1925	10						
9 Sept. 1925	10						
7 July 1926	11***						
6 June 1927	10						
Until May 1928	9						
1929	11–13						
1930	8–10						
1931	12–11						
1932	12–11						
14 Oct. 1933	7						
Jan. 1937	6						

## Notes:

1 lending rates on advances to traders with a maximum 3-month maturity (68 days on average).

2 the value of the collateral was set up to 75% of the amount of the loan. The loans had a maturity of 4 to 12 months.

3 in the first years of the NBG function, the non-bank rate was 12–20%. In 1871, a rate of 8% was set by law. In 1925, the non-bank rate was two or even three times higher 18–22%.

(\*) The first figure refers to the rate imposed on trade advances at the head offices of the NBG in Athens as well as at its branches in big commercial cities, such as Piraeus, Patras and Syros, while the second figure refers to the rate imposed on advances to traders at the branches located in the country's provinces. The latter rate was always much higher by 0.5, 1.0 or even 1.5 percentage points. (\*\*) in the non-bank market, the rate was 18–20%. (\*\*\*) the non-bank rate was even higher 18–30%.

**Table GR2.1\_D The BoG's discount rate and the short-term market lending rate, 1928–1941***(in per cent per annum)*

Discount rate (*)		Short-term market lending rate (**)	
Date of change	GR2B_D	Date of change	GR2E_D
14 May 1928	10	Dec.1928	9
30 Nov. 1928	9	Dec.1929	11–13
26 Sept. 1931	12	Jan.1931	8–9
29 Oct.1931	11	April 1931	7–8.5
12 Jan.1932	12	May 1931	7–8
20 Feb.1932	11	Aug.1931	7.5–8
8 Aug.1932	10	Sept.1931	12
3 Dec.1932	9	Nov.1931	11–12
6 June 1933	7.5	Jan. 1932	12
14 Oct.1933	7	June 1932	11
4 Jan. 1937	6	Jan.1933	9–12
15 July to Nov. 1941	5	June 1933	8–10.5
		Nov.1933	7.5–10.5
		Dec.1933	7–9
		June 1934	7.5–9.5
		Aug.1934	7–9.5
		Sept.1934	8–10
		Dec.1934	7.5–10
		Jan. 1935	7–10
		Feb. 1935	7.5–10
		March 1935	8–10
		April 1935	7.5–10
		May 1935	7–10
		July 1935	7.5–10
		Aug.1935	9–10
		Oct.1935	8.5–10
		Feb.1936	8–10
		March 1936	8.5–10
		Dec.1936	8–9
		July 1937	7.5–9
		Aug.1937	7–9
		Aug.1939	7.5–9
		Dec.1939	7–9
		Sept.1940	8–9
		July–Nov.1941	7

Notes: (\*) official rate; (\*\*) 4 biggest commercial banks (NBG, Emporiki Bank, Bank of Athens, and Bank of Anatolis), unweighted rates, minimum and maximum rates; it was 3 percentage points higher than the deposit rate.

Table GR2.I\_D Deposit rates

(in drachmas; in per cent per annum)

Sight deposits		Savings deposits		Time deposits	
Date of change	GR2F1_D	Date of change	GR2F2_D	Date of change	GR2F3_D
Until end-June 1909	no return	Until Nov.23, 1925	4	Nov. 1897	1.5-4 (*)
July 1909	1-1.5	24 Nov. 1925	5	Jan.1903	1.5-4
April 1918	1	1926-1929	5-7	April 1909	2-4
Jan.1920	2	Oct.1930	4.25	Jan.1920	2.25-4
Feb.1925	3	April 1931	4-4.25	Feb.1925	3.25-7
Nov.1925	4	May 1933	3-4	Nov.1925	4.25-7
1926-1929	3.5-5			1926-29	4.5-7
Oct.1930	3			Oct.1930	4-5.5
Jan. 1931	3-4.5			May 1933	3-6
April 1931	3				
May 1933	2.5-3.5				
June 1933	2.5				
Dec.1933	2				
June 1941	1				

Notes: From 1928, the series refer to all domestic banks; (\*) a lower limit was applied to deposits up to 3 months; an upper limit was applied to deposits with a longer maturity.

Table GR2.I\_D Deposit rates

(in foreign exchange; in per cent per annum)

Sight deposits in pound sterling		Sight deposits in US Dollar		Sight deposits in FRF	
Date of change	GR2F4_D	Date of change	GR2F5_D	Date of change	GR2F6_D
Until end-June 1913	no return	Until end-Feb. 1918	no return	Until end-Feb. 1918	no return
July 1913	1	March 1918	0.5	March 1918	1
Jan.1914	1.5	Jan.1920	2	Jan.1920	2
Feb.1916	3	Dec.1920	2	Dec.1920	3
July 1916	2-3.5	May 1921	3.5	Feb.1920	3.5
Jan.1917	3	Oct.1922	3	Oct.1930	2
Mach 1918	3.5	Feb.1925	3.5	June 1933	1.5
Jan.1919	1	Oct.1930	3	July 1933	no return
Jan.1920	3	June 1933	2.5		
April 1920	4.5	July 1933	1		
Dec.1920	5				
June 1921	4.5				
Oct.1922	3				
June 1923	2				
Jan.1925	3				
Feb.1925	3.5				
Oct.1930	3				
June 1933	2.5				
July 1933	1				



**Table GR2.2\_A Market bond prices, 1901–1940 (quoted on the Athens Stock Exchange)***(in FRF until 1921 and in 1929 paper drachmas onwards)*

	GR2G1_A	GR2G2_A	GR2G3_A	GR2G4_A	GR2G5_A	GR2G6_A	GR2G7_A	GR2G8_A	GR2G9_A	GR2G10_A
Year	1881*	1884*	1887*	1889*	1890*	1902*	1907*	1910*	1914*	1928*
1901	200.5	198.5	222.5	154.5	193.5	..	..	..	..	..
1902	212.5	211.0	228.0	156.5	206.0	..	..	..	..	..
1903	219.0	214.5	233.5	161.0	209.0	410.0	..	..	..	..
1904	221.5	221.0	229.5	172.0	218.0	421.5	..	..	..	..
1905	258.5	256.0	263.0	203.5	253.5	457.0	..	..	..	..
1906	264.5	263.0	270.5	208.0	260.5	468.0	..	..	..	..
1907	255.0	252.5	250.5	201.0	251.0	458.0	..	..	..	..
1908	251.0	252.0	258.5	198.0	247.0	462.5	98.2	..	..	..
1909	251.0	250.5	255.5	193.5	248.0	479.5	98.0	..	..	..
1910	258.5	258.5	243.5	196.0	247.0	462.5	96.7	..	..	..
1911	279.5	272.5	258.0	216.0	268.5	459.0	100.2	437.9	..	..
1912	301.0	285.0	272.5	234.0	293.5	451.5	101.7	422.9	..	..
1913	300.0	295.0	276.5	236.5	297.0	421.5	101.1	402.5	..	..
1914	288.0	285.5	260.0	226.0	286.5	395.0	97.5	379.3	462.6	..
1915	262.5	255.5	248.0	205.0	252.5	391.0	93.7	371.8	387.0	..
1916	268.5	263.0	242.5	214.5	263.5	333.0	93.7	373.7	428.1	..
1917	292.0	254.0	257.5	215.7	272.5	333.0	92.2	345.6	431.7	..
1918	295.5	341.5	321.5	271.5	335.0	366.5	96.5	364.0	442.3	..
1919	350.0	348.5	313.0	264.7	346.0	354.5	92.5	407.1	520.0	..
1920	378.5	374.5	301.7	299.0	371.5	318.5	77.9	441.4	578.7	..
1921	576.0	572.5	488.0	475.5	571.5	517.0	138.5	323.2	428.1	..
1922	1320.6	1308.5	1190.0	1088.0	1292.5	1300.0	312.5	1038.0	1390.0	..
1923	2716.8	2775.0	2685.0	2480.0	2900.0	2525.0	650.0	2135.0	2450.0	..
1924	2478.5	2480.0	2057.5	1910.0	2500.0	2337.5	625.0	1972.5	2565.0	..
1925	2584.5	3585.0	2925.0	2925.0	3510.0	3155.0	837.5	2437.5	3114.0	..
1926	4394.1	4522.5	3700.0	3525.0	4507.5	3592.5	1175.0	3550.0	4670.0	..
1927	4113.3	4110.0	3365.0	3142.5	4050.0	3750.0	1170.0	3830.0	4880.0	..
1928	4887.3	4845.0	4050.0	3895.0	4820.0	4287.5	1257.5	4310.0	5600.0	..
1929	5369.9	5365.6	4365.3	4210.4	5318.1	4434.6	1281.5	4393.8	5606.1	6653.3
1930	5563.1	5560.3	4588.7	4445.8	5506.5	4454.9	1311.9	4502.8	5797.3	6822.7
1931	5688.8	5687.2	4674.4	4506.4	5634.6	4633.6	1353.7	4617.9	5899.1	6752.3
1932	3197.5	3247.2	2662.6	2684.1	..	..	775.0	2850.0	3179.1	..
1933	2739.8	2737.7	2216.8	2148.8	2689.1	2131.7	566.4	2109.2	2785.0	3144.2
1934	3395.3	3394.9	2695.3	2633.3	3367.4	2585.7	681.6	2576.5	3350.5	3653.3
1935	3096.0	3095.6	2462.7	2357.1	2976.3	2359.1	643.3	2354.3	3099.0	3631.3
1936	3128.9	3133.1	2644.7	2426.7	3061.4	2479.8	620.4	2541.2	3172.9	3683.7
1937	3521.1	3521.3	2867.1	2781.9	3404.8	2793.3	713.1	2898.5	3753.2	4300.1
1938	3434.1	3433.9	2736.1	2659.7	3348.9	2706.8	682.6	2717.1	3726.8	4337.9
1939	2827.6	2827.6	2258.8	2241.6	2814.6	2325.6	556.2	2275.7	2958.3	3422.5
1940	2243.2	2243.3	1807.9	1802.7	2213.8	1843.9	445.1	1847.7	2413.8	2859.0

Note: the 1901–1921 data values can be easily transformed into 1929 current paper drachmas by multiply with the conversion rate: 1 gold drachma = 14.87 new paper drachmas. Until 1919, one gold franc was equal to one gold drachma and the drachma was theoretically convertible; however, in practice it was a fiat money. \* year of loan issue.

Table GR2.3\_A Current yields, 1901–1940

(in per cent per annum)

	GR2H1_A	GR2H2_A	GR2H3_A	GR2H4_A	GR2H5_A	GR2H6_A	GR2H7_A	GR2H8_A	GR2H9_A	GR2H10_A
Year	1881*	1884*	1887*	1889*	1890*	1902*	1907*	1910*	1914*	1928*
1901	12.47	12.59	8.99	12.94	12.92	..	..	..	..	..
1902	11.76	11.85	8.77	12.78	12.14	..	..	..	..	..
1903	11.42	11.66	8.57	12.42	11.96	4.88	..	..	..	..
1904	11.29	11.31	8.71	11.63	11.47	4.74	..	..	..	..
1905	9.67	9.77	7.60	9.83	9.86	4.38	..	..	..	..
1906	9.45	9.51	7.39	9.62	9.60	4.27	..	..	..	..
1907	9.80	9.90	7.98	9.95	9.96	4.37	..	..	..	..
1908	9.96	9.92	7.74	10.10	10.12	4.32	5.09	..	..	..
1909	9.96	9.98	7.83	10.34	10.08	4.17	5.10	..	..	..
1910	9.67	9.67	8.21	10.20	10.12	4.32	5.17	..	..	..
1911	8.94	9.17	7.75	9.26	9.31	4.36	4.99	4.57	..	..
1912	8.31	8.77	7.34	8.55	8.52	4.43	4.91	4.73	..	..
1913	8.33	8.47	7.23	8.46	8.42	4.74	4.94	4.97	..	..
1914	8.68	8.76	7.69	8.85	8.73	5.06	5.13	5.27	5.40	..
1915	9.52	9.78	8.06	9.76	9.90	5.12	5.33	5.38	6.46	..
1916	9.31	9.51	8.25	9.32	9.49	6.01	5.33	5.35	5.84	..
1917	8.56	9.84	7.77	9.27	9.17	6.01	5.42	5.79	5.79	..
1918	8.46	7.32	6.22	7.37	7.46	5.46	5.18	5.50	5.65	..
1919	7.14	7.17	6.39	7.55	7.23	5.64	5.41	4.91	4.81	..
1920	6.61	6.68	6.63	6.69	6.73	6.28	6.42	4.53	4.32	..
1921	4.34	4.37	4.10	4.21	4.37	3.87	3.61	6.19	5.84	..
1922	28.15	28.41	24.99	27.33	28.76	22.88	23.79	28.65	26.74	..
1923	13.68	13.40	11.08	11.99	12.82	11.78	11.44	13.93	15.17	..
1924	15.00	14.99	14.45	15.57	14.87	12.72	11.90	15.08	14.49	..
1925	10.37	10.37	10.17	10.17	10.59	9.43	8.88	12.20	11.94	..
1926	8.46	8.22	8.04	8.44	8.25	8.28	6.33	8.38	7.96	..
1927	9.04	9.05	8.84	9.46	9.18	7.93	6.35	7.77	7.62	..
1928	7.61	7.67	7.34	7.64	7.71	6.94	5.91	6.90	6.64	..
1929	6.92	6.93	6.81	7.06	6.99	6.71	5.80	6.77	6.63	6.76
1930	6.72	6.73	6.52	6.73	6.79	6.72	5.70	6.64	6.45	6.60
1931	6.62	6.62	6.44	6.68	6.68	6.50	5.56	6.52	6.38	6.27
1932	20.38	20.07	19.58	19.45	..	..	16.82	18.32	20.52	..
1933	31.85	31.88	39.50	32.49	32.45	32.75	30.75	33.10	31.34	22.74
1934	25.70	25.71	25.90	26.51	25.92	27.00	25.61	27.10	26.05	17.87
1935	28.25	28.26	28.42	29.69	29.39	29.66	27.20	29.72	28.23	17.49
1936	26.06	26.03	24.67	26.88	26.64	26.31	26.29	25.67	25.70	17.54
1937	18.23	18.23	17.91	18.46	18.86	18.39	18.01	17.72	17.10	15.35
1938	18.77	18.78	18.85	19.39	19.25	19.06	18.89	18.98	17.30	15.21
1939	24.91	24.91	24.94	25.13	25.02	24.23	25.32	24.76	23.81	19.28
1940	38.38	38.38	38.11	38.21	38.89	37.36	38.69	37.28	35.67	22.75

Notes: Current yield has been calculated as the ratio of the annual interest paid to the bond's market price, i.e. current yield = ((face value × coupon interest rate) / market price) × 100. The face value and the market price are in French francs till 1921; from 1922 onwards are both in 1929 paper drachmas. The coupon rate is in decimal form. The multiplication by 100 converts the decimal into percentage return. \* year of loan issue.

Table GR3\_A Exchange rates, 1877–1941

continue

(in LMU paper drachmas)

Year	drachma/ pound sterling	drachma/ French franc	drachma/US dollar	gold/paper drachma
	GR3A_A	GR3B_A	GR3C_A	GR3D_A
1877	26.332	1.034	.	.
1878	28.197	1.113	.	.
1879	25.786	1.050	.	.
1880	25.807	1.028	.	.
1881	26.616	1.050	.	.
1882	27.586	1.085	.	.
1883	28.458	1.143	.	.
1884	26.415	1.047	.	.
1885	26.719	1.059	.	1.058
1886	31.070	1.232	.	1.233
1887	31.881	1.263	.	1.263
1888	32.145	1.274	.	1.274
1889	31.006	1.230	.	1.230
1890	31.074	1.233	.	1.236
1891	32.838	1.298	.	1.290
1892	36.123	1.436	.	1.437
1893	40.441	1.608	.	1.600
1894	43.921	1.749	.	1.745
1895	45.469	1.803	.	1.802
1896	43.907	1.739	.	1.736
1897	42.102	1.676	.	1.686
1898	38.208	1.474	.	1.471
1899	39.501	1.565	.	1.567
1900	41.467	1.644	.	1.645
1901	41.761	1.658	.	1.658
1902	40.932	1.620	.	1.623
1903	39.133	1.564	.	1.565
1904	34.744	1.389	.	.
1905	31.024	1.232	.	.
1906	27.751	1.104	.	.
1907	27.411	1.088	.	.
1908	27.183	1.081	.	.
1909	26.038	1.029	.	.
1910	25.109	0.999	.	1.000*
1911	25.241	0.999	.	1.000
1912	25.235	0.999	.	1.000
1913	25.225	1.000	.	1.000
1914	25.160	1.002	5.165	1.000
1915	25.035	0.944	5.271	1.000
1916	24.632	0.879	5.188	1.000
1917	24.604	0.900	5.172	1.000
1918	24.823	0.926	5.168	1.000
1919	24.325	0.775	5.510	1.000
1920	37.079	0.648	9.444	1.370
1921	70.459	1.374	18.174	2.800
1922	170.459	2.884	36.862	6.650
1923	296.097	3.895	64.009	12.040
1924	247.348	2.921	56.083	9.900
1925	312.712	3.065	64.764	12.510

Table GR3\_A Exchange rates, 1877–1941

(in LMU paper drachmas)

Year	drachma/ pound sterling	drachma/ French franc	drachma/US dollar	gold/paper drachma
	GR3A_A	GR3B_A	GR3C_A	GR3D_A
1926	386.516	2.496	79.563	15.470
1927	368.548	2.981	75.821	14.740
1928	372.872	3.004	76.628	14.900
1929	375.000	3.025	77.133	14.868
1930	375.000	3.028	77.080	14.960
1931	352.803	3.036	77.376	15.062
1932	472.966	4.934	133.738	26.065
1933	595.961	7.069	145.001	34.830
1934	543.942	7.077	108.363	34.910
1935	529.153	7.115	108.425	34.990
1936	538.414	6.893	108.707	32.620
1937	550.000	4.682	111.393	25.680
1938	550.000	3.304	112.617	25.790
1939	550.000	3.131	125.090	28.170
1940	542.060	3.120	151.340	34.440
1941	518.200	2.791	137.917	.

Note: (\*) 1910–1919: estimates.

Table GR4\_A Government finances, 1833–1939, nominal terms

continue

(thousands of LMU drachmas)

Year	Total public revenue	Total taxes	Direct taxes	Indirect taxes	Government expenditure	Interest payments	Defence spending
	GR4A_A	GR4B_A	GR4C_A	GR4D_A	GR4E_A	GR4F_A	GR4G_A
1833	7118.6	6320.0	4262.5	2057.5	13395.1	1673.6	7630.7
1834	9306.7	7564.8	5079.2	2485.6	28931.2	14272.7	21255.1
1835	11595.7	9912.5	7485.4	2427.1	16130.8	3229.7	7739.5
1836	11911.4	9621.0	6967.8	2653.3	15603.9	2499.5	7761.0
1837	12392.0	9979.8	6793.3	3186.5	17864.8	3109.8	8213.1
1838	13049.3	10939.2	7284.4	3654.7	15333.9	3398.8	6562.9
1839	13584.5	11382.3	7900.1	3482.1	15468.0	3322.0	6662.8
1840	14300.0	12031.0	8255.8	3775.2	15972.4	4123.8	6419.4
1841	13281.1	11349.8	7621.4	3728.4	16017.3	4299.8	6055.3
1842	11812.5	10188.0	6566.2	3621.7	15916.4	3694.6	6268.0
1843	13478.4	9136.7	5787.2	3349.5	14397.1	3472.0	5498.0
1844	12753.7	8049.7	4924.3	3125.4	13755.8	3469.9	5190.4
1845	13170.6	8335.7	4710.6	3625.1	14101.0	3475.5	4884.7
1846	14649.8	8780.8	5275.3	3505.5	14426.3	3475.3	4966.3
1847	13928.5	7279.4	3587.6	3691.8	15320.8	4074.6	5209.4
1848	14985.0	8876.2	5298.3	3578.0	15771.7	3861.1	5635.7
1849	16273.0	9749.8	5625.1	4124.6	15682.3	3652.6	5691.0
1850	16587.1	9536.4	5424.4	4112.0	16657.4	3650.3	6076.9
1851	16235.0	9889.2	5225.4	4663.8	15933.1	3486.7	5668.1
1852	16446.7	9935.7	6133.3	3802.5	16313.5	3479.6	5707.4

Table GR4\_A Government finances, 1833–1939, nominal terms

continue

Year	Total public revenue	Total taxes	Direct taxes	Indirect taxes	Government expenditure	Interest payments	Defence spending
	GR4A_A	GR4B_A	GR4C_A	GR4D_A	GR4E_A	GR4F_A	GR4G_A
1853	17116.7	10351.2	6496.0	3855.2	16228.8	3476.1	5719.0
1854	18143.0	11669.6	8304.9	3364.8	17544.2	3490.4	6958.1
1855	19834.8	13056.0	8404.6	4651.4	19258.9	3473.7	7587.2
1856	21490.2	14244.0	8774.2	5469.8	19346.8	3473.6	7412.2
1857	22433.4	14780.2	9193.1	5587.1	19722.8	3475.5	6570.3
1858	21848.2	13959.3	8003.9	5955.5	22834.0	3477.4	8219.4
1859	23219.6	15385.2	9415.6	5969.6	23231.3	3481.4	7821.8
1860	.	.	.	.	23347.1	3793.7	7769.6
1861	22836.1	15424.5	9370.6	6053.9	25172.4	4383.8	8286.3
1862	19645.2	12183.4	6740.4	5443.0	25485.9	3610.6	8361.1
1863	22637.3	11790.1	6119.7	5670.4	23463.6	4071.6	8965.8
1864	24142.4	14496.5	7820.2	6676.3	24495.8	5240.3	7773.6
1865	26040.4	16307.7	6328.1	9979.6	28336.8	5647.1	9186.3
1866	27070.5	16909.4	7814.8	9094.6	27946.3	6016.4	9773.7
1867	41073.6	21732.8	10428.1	11304.8	38030.7	6182.2	18455.2
1868	38816.9	22560.3	11312.1	11248.3	44460.9	7154.2	22129.7
1869	41010.8	20777.6	9070.9	11706.8	37241.3	8732.2	12316.0
1870	41017.5	21753.6	10502.6	11250.9	35833.8	9099.7	11862.0
1871	37232.9	23832.2	10824.7	13007.5	36848.7	8812.7	9641.8
1872	33014.7	24106.0	11484.7	12621.3	32943.5	7057.9	9857.8
1873	31211.7	23849.1	10935.5	12913.6	32286.9	7078.5	9269.0
1874	54611.9	25436.5	12104.2	13332.3	45318.1	14122.6	11509.9
1875	32554.5	25357.7	9917.5	15440.3	34961.3	6844.6	10167.6
1876	31799.5	23677.3	9456.9	14220.4	34907.3	6724.7	11043.8
1877	40021.9	25776.3	9758.9	16017.4	35171.5	7011.8	10118.1
1878	37521.2	27848.6	11381.2	16467.4	36580.4	7719.6	11214.2
1879	72679.9	29370.6	9942.1	19428.5	95583.8	12029.1	63187.5
1880	45171.4	28723.3	8599.4	20123.9	88701.1	15223.0	53746.8
1881	106588.3	31447.9	8566.5	22881.3	101945.0	16511.4	62725.0
1882	71507.9	41026.7	12117.8	28908.9	64260.2	20126.9	20071.9
1883	58537.6	44154.0	12002.9	32151.1	67795.9	20411.3	20653.3
1884	107419.6	47027.7	13308.7	33719.0	91346.8	24982.1	32307.2
1885	61427.0	44321.0	11283.0	33037.9	122797.8	30507.5	57045.3
1886	95568.0	49886.6	13066.7	36819.8	129717.5	35299.4	59560.2
1887	176210.2	60714.0	17177.8	43536.2	107128.3	46078.2	27251.2
1888	93671.2	65708.3	18859.8	46848.5	108050.9	36005.8	31683.1
1889	183032.0	44211.6	17414.9	26796.7	168739.3	98256.1	26419.4
1890	123155.3	41666.4	14762.7	26903.6	141465.4	53916.6	31874.2
1891	106396.1	46174.9	18347.1	27827.7	122836.4	41713.8	30717.1
1892	106465.5	48738.8	18579.8	30159.0	117664.7	42254.7	25067.7
1893	96723.4	49430.5	20718.1	28712.3	97016.2	25973.7	24441.2
1894	102885.6	52786.3	19144.9	33641.4	85135.7	22210.8	25908.0
1895	94657.1	52026.9	19106.9	32920.0	91642.0	23222.3	27846.3
1896	96931.7	52973.4	18546.1	34427.2	90890.6	23618.3	30237.4

Table GR4\_A Government finances, 1833–1939, nominal terms

Year	Total public revenue	Total taxes	Direct taxes	Indirect taxes	Government expenditure	Interest payments	Defence spending
	GR4A_A	GR4B_A	GR4C_A	GR4D_A	GR4E_A	GR4F_A	GR4G_A
1897	98485.8	47457.3	14145.3	33312.0	137043.9	20030.8	79685.6
1898	330918.8	59109.5	17415.7	41693.8	312056.6	135452.2	140831.6
1899	115392.6	60651.8	19418.0	41233.8	104608.5	29744.7	36467.4
1900	119199.3	58964.6	19209.4	39755.3	109318.4	33554.7	32923.2
1901	167652.1	65236.0	21589.2	43646.7	114130.7	36321.9	33302.0
1902	138279.0	64836.1	20674.5	44161.6	124504.3	35191.6	34928.4
1903	116154.2	64877.7	19670.8	45206.9	116259.6	36387.9	37367.4
1904	133570.8	64890.8	19080.3	45810.6	116150.5	37060.5	36554.0
1905	129716.0	68131.1	19949.1	48182.0	116321.3	35330.4	37132.5
1906	133074.4	75080.3	20885.1	54195.2	121599.9	34006.5	40046.6
1907	136532.0	76953.6	21714.7	55238.9	119319.1	34170.6	40602.5
1908	126385.2	73677.6	20979.4	52698.2	133651.8	36659.2	49848.8
1909	125046.1	71860.1	21505.6	50354.5	136789.9	32458.0	55713.6
1910	175440.8	81213.2	23019.9	58193.3	140440.3	35148.5	59120.7
1911	240193.7	85611.5	23554.1	62057.4	181368.6	78784.7	53648.1
1912	224919.5	76586.9	20606.9	55980.0	207984.0	38815.5	116160.0
1913	303119.0	77502.0	19338.0	58164.1	261973.3	46257.0	160797.6
1914	559377.7	135317.5	48342.4	86975.1	485671.4	229544.0	175289.9
1915	438004.4	139719.3	50286.9	89432.4	385900.1	143212.2	142246.1
1916	312845.1	138413.1	45910.3	92502.7	237804.6	65911.0	90167.7
1917	443420.3	111357.0	47642.3	63714.7	317024.3	67112.7	145231.6
1918	1250505.3	204484.5	67891.4	136593.0	1446062.8	151695.6	1095227.3
1919	1128729.0	276315.0	89314.2	187000.8	1353603.6	96397.5	994010.5
1920	1653582.5	365351.9	127787.4	237564.5	1682637.7	138942.0	1158953.8
1921	2278723.3	495243.2	159537.3	335705.9	2472776.6	288542.5	1767289.4
1922	4577184.7	1147303.5	304199.9	843103.5	3458422.4	464613.6	2348724.9
1923	3989809.7	2320598.6	667944.0	1652654.7	4978434.0	1044198.0	2878270.8
1924	5758377.5	3348230.4	855975.2	2492255.2	5497477.0	1329234.8	2753922.7
1925	7922178.0	3528361.7	855697.9	2672663.8	6840698.4	1428967.8	3149381.4
1926	9508112.1	4378727.0	1111280.8	3267446.1	8687190.1	2962618.8	3312458.2
1927	8996026.9	5571501.8	1347136.0	4224365.8	7769917.2	2320387.0	3344723.8
1928	10551516.6	5667122.8	1445811.0	4221311.8	9446396.6	3698774.8	3253122.3
1929	18729433.2	5626247.8	1255903.9	4370343.9	18354678.5	3482660.4	9928750.1
1930	11393607.3	5550409.7	1203216.8	4347192.9	11176466.0	3371930.8	4395622.7
1931	11076989.2	6451711.7	1266669.4	5185042.4	11098635.1	3123642.7	3488632.0
1932	9144413.0	5733350.7	1282469.1	4450881.6	9117017.1	1710843.9	2999377.8
1933	8476149.8	6037571.7	1512842.6	4524729.2	7705821.0	785386.9	3009677.6
1934	9237042.9	6662425.0	1776194.0	4886231.0	11151021.5	3602287.2	3320176.2
1935	10646907.9	7518474.1	1927843.2	5590630.9	10048246.0	1499014.7	3182460.2
1936	.	.	.	.	12683391.6	1460057.9	4346606.1
1937	14130251.2	9203091.8	2749882.3	6453209.5	13415652.7	1649706.9	5579005.1
1938	13846906.4	9414488.3	2892601.5	6521886.8	12634730.1	1780192.5	4271586.2
1939	14339608.3	9106827.0	2916986.2	6189840.8	14011200.7	1900756.0	5557494.6

Table GR4\_A Government finances, 1833–1939, nominal terms

continue

(thousands of LMU drachmas; GR4I\_A: percentage of total assets)

Year	Domestic public debt*		Year	Domestic public debt*	
	GR4H_A	GR4I_A		GR4H_A	GR4I_A
1833	..	..	1880	52868.3	37.7
1834	..	..	1881	90300.6	49.7
1835	..	..	1882	86169.3	42.8
1836	..	..	1883	96154.2	43.6
1837	..	..	1884	40058.9	18.8
1838	..	..	1885	89000.5	39.9
1839	..	..	1886	140551.5	53.8
1840	..	..	1887	142581.4	55.1
1841	..	..	1888	134052.6	53.1
1842	0.0	0.0	1889	133677.5	53.5
1843	0.0	0.0	1890	135920.7	51.2
1844	0.0	0.0	1891	150053.6	54.4
1845	0.0	0.0	1892	145994.2	54.1
1846	0.0	0.0	1893	146568.3	55.0
1847	0.0	0.0	1894	132617.7	53.8
1848	336.4	4.8	1895	128047.2	52.4
1849	0.0	0.0	1896	124833.8	50.3
1850	302.9	3.5	1897	149947.0	55.2
1851	205.3	2.4	1898	150880.4	52.9
1852	105.5	1.2	1899	144282.0	46.4
1853	0.0	0.0	1900	143364.8	45.5
1854	0.0	0.0	1901	142785.1	43.3
1855	0.0	0.0	1902	140875.2	40.3
1856	8.2	0.05	1903	134792.1	40.4
1857	0.0	0.0	1904	132922.6	36.6
1858	0.0	0.0	1905	131458.7	36.5
1859	0.0	0.0	1906	131579.7	34.1
1860	0.0	0.0	1907	131256.8	33.2
1861	842.8	3.2	1908	136908.7	33.5
1862	2210.1	7.2	1909	137862.0	33.9
1863	3775.0	11.4	1910	135042.9	31.9
1864	5553.5	13.5	1911	127869.9	25.9
1865	5807.3	13.5	1912	135581.9	21.6
1866	7162.8	16.2	1913	221805.3	26.6
1867	8555.3	16.8	1914	209108.3	28.1
1868	14088.7	26.1	1915	261781.9	27.5
1869	23882.5	29.7	1916	263058.8	22.1
1870	15842.7	24.2	1917	275828.7	16.2
1871	16887.4	24.9	1918	257906.9	10.4
1872	16120.2	21.7	1919	653036.2	24.3
1873	14594.1	18.3	1920	1321799.8	33.3
1874	16796.0	18.9	1921	2570302.9	50.3
1875	16082.2	18.6	1922	3598027.4	44.4
1876	16727.0	19.1	1923	5058637.4	50.1
1877	32177.9	32.7	1924	5805827.9	52.4
1878	51785.5	44.5	1925	5651032.8	48.6
1879	29543.8	25.5	1926	4014553.8	36.1

Table GR4\_A Government finances, 1833–1939, nominal terms

(thousands of LMU drachmas; GR4I\_A: percentage of total assets)

Year	Domestic public debt*	Domestic public debt*	Year	Domestic public debt*	Domestic public debt*
	GR4H_A	GR4I_A		GR4H_A	GR4I_A
1927	4141056.2	40.8			
1928	3789638.2 (1148953.0)	40.2 (15.6)	1934	3152905.6 (2011100.5)	27.0 (16.3)
1929	3596490.9 (1107240.5)	39.4 (13.5)	1935	3145039.3 (2077835.0)	27.7 (16.7)
1930	3388763.0 (1669325.1)	40.1 (18.6)	1936	3605111.2 (2092160.4)	25.8 (16.9)
1931	3125542.1 (1858820.6)	41.9 (19.6)	1937	3856056.2 (2074036.3)	24.6 (16.4)
1932	3168042.1 (1944002.9)	34.8 (20.7)	1938	4180142.9 (3136968.3)	22.4 (23.8)
1933	3154870.5 (1899338.2)	26.1 (17.1)	1939	4084144.7 (2879115.6)	17.5 (23.0)

Notes: \*claims on the government. From 1929 onwards, the State's debt to the NBG is shown in the parentheses.

Table GR5.I\_A Prices, 1914–1941

continue

(indices)

Year	CPI (2009=100)	Wholesale prices (1913–1914=100)	Export prices (1914=100)	Import prices (1914=100)
	GR5A_A	GR5B_A	GR5C_A	GR5D_A
1914	0.081	..	100.0	100.0
1915	0.102	..	142.0	135.0
1916	0.143	..	164.0	209.0
1917	0.224	..	186.0	237.0
1918	0.326	..	375.0	433.0
1919	0.285	..	373.0	430.0
1920	0.326	..	385.0	516.0
1921	0.346	..	622.0	475.0
1922	0.672	..	1454.0	982.0
1923	1.058	..	2478.0	1519.0
1924	1.151	..	2491.0	1924.0
1925	1.294	..	2794.0	1498.0
1926	1.562	..	2507.0	1845.0
1927	1.683	..	2649.0	1932.0
1928	1.700	..	2615.0	1866.0
1929	1.712	1811.0	3024.0	1759.0
1930	1.615	1646.0	2967.0	1526.0
1931	1.551	1471.0	2474.4	1136.5
1932	1.658	1766.0	2045.5	1183.4



Table GR5.1\_A Prices, 1914–1941

(indices)

Year	CPI (2009=100)	Wholesale prices (1913–1914=100)	Export prices (1914=100)	Import prices (1914=100)
	GR5A_A	GR5B_A	GR5C_A	GR5D_A
1933	1.811	1997.0	.	.
1934	1.864	1969.0	.	.
1935	1.902	2003.0	.	.
1936	1.950	2038.0	.	.
1937	2.170	2281.0	.	.
1938	2.186	2227.0	.	.
1939	2.165	2208.0	.	.
1940	2.402	2616.0	.	.
1941	4.360	2930.0	.	.

Table GR5.2\_A Production and labour, 1921–1939

(GR5E\_A: thousands of LMU drachmas)

Year	Industrial production value	Industrial production index volume (1928=100)	Economic activity index, prices adjusted (1928=100)	Employment (1928=100)	Wages (1928=100)
	GR5E_A	GR5F_A	GR5G_A	GR5H_A	GR5I_A
1921	1077103	..	..	..	..
1922	1958417	..	..	..	..
1923	3189867	..	..	..	..
1924	3883162	..	..	..	..
1925	4977829	..	..	..	..
1926	5472686	..	..	..	..
1927	6655375	..	..	..	..
1928	7115149	100.0	100.0	100.0	100.0
1929	7153095	101.8	105.4	107.9	.
1930	6631363	105.3	105.3	104.6	100.2
1931	6082008	108.9	102.0	101.9	.
1932	6749598	102.7	86.9	86.7	96.8
1933	8548654	111.8	88.9	94.3	.
1934	9913281	127.5	97.9	94.9	102.3
1935	10177256	143.2	113.1	99.7	103.0
1936	11840829	141.7	108.3	102.3	107.6
1937	13829834	153.9	122.5	119.3	120.4
1938	13552083	168.1	131.0	123.7	124.5
1939	..	179.1	132.3	124.8	129.8

Table GR6\_A GDP, trade and population, 1833–1939

continue

(GR6A\_A, GR6B\_A: thousands of LMU drachmas; GR6D\_A: in LMU drachmas; GR6E\_A, GR6F\_A: thousands of 1929 paper drachmas)

Year	GDP at current prices	GDP at constant 1914 prices	GDP deflator (1914=100)	GDP per capita at constant 1914 prices	Imports	Exports	Population (millions)
	GR6A_A	GR6B_A	GR6C_A	GR6D_A	GR6E_A	GR6F_A	GR6G_A
1833	49327.6	118348.4	41.7	164.6	..	..	0.72
1834	60111.4	127112.2	47.3	175.2	..	..	0.73
1835	76038.4	167603.8	45.4	228.9	..	..	0.73
1836	64873.6	163590.4	39.7	221.5	..	..	0.74
1837	71130.9	169223.9	42.0	227.0	..	..	0.75
1838	76561.5	179679.7	42.6	238.9	..	..	0.75
1839	82158.9	178274.3	46.1	216.4	..	..	0.82
1840	90511.4	176015.8	51.4	207.0	..	..	0.85
1841	81524.3	176848.3	46.1	205.4	..	..	0.86
1842	72050.8	178997.0	40.3	209.8	..	..	0.85
1843	70304.7	161974.0	43.4	177.0	..	..	0.92
1844	72286.5	159620.9	45.3	171.6	..	..	0.93
1845	72555.3	158694.6	45.7	165.3	..	..	0.96
1846	77311.0	175555.1	44.0	181.2	..	..	0.97
1847	70202.2	150953.7	46.5	154.4	..	..	0.98
1848	78740.3	164202.3	48.0	166.4	..	..	0.99
1849	81072.2	169835.5	47.7	170.5	..	..	1.00
1850	89725.8	173222.8	51.8	172.2	..	..	1.01
1851	93491.6	214242.1	43.6	210.9	344455	183179	1.02
1852	111072.0	182647.6	60.8	178.1	330397	137574	1.03
1853	102915.9	202088.8	50.9	195.2	267287	118880	1.04
1854	118870.2	213562.1	55.7	204.5	281300	89918	1.04
1855	109909.1	226513.1	48.5	215.0	349864	143414	1.05
1856	151598.7	200050.6	75.8	188.3	396762	343860	1.06
1857	145800.0	260967.3	55.9	244.0	484525	322209	1.07
1858	136394.9	253204.7	53.9	235.3	534380	330947	1.08
1859	166176.3	250741.3	66.3	231.5	611608	323116	1.08
1860	152205.8	248017.0	61.4	227.6	713904	356179	1.09
1861	150281.2	265697.3	56.6	242.2	633690	371723	1.10
1862	154490.2	271558.3	56.9	244.5	583760	370683	1.11
1863	160133.8	245687.8	65.2	218.4	747191	304585	1.12
1864	187269.1	269801.2	69.4	198.5	727174	333354	1.36
1865	182285.0	291844.4	62.5	212.2	998562	548364	1.38
1866	194257.9	281820.3	68.9	202.6	1019307	549998	1.39
1867	227097.9	301132.0	75.4	213.9	993629	644146	1.41
1868	217616.3	308206.0	70.6	216.4	980755	536624	1.42
1869	193019.2	307551.0	62.8	213.4	1112068	617210	1.44
1870	230486.4	302649.5	76.2	207.6	1130608	501971	1.46
1871	263454.3	294960.3	89.3	199.2	1290338	839441	1.48
1872	221459.6	291045.6	76.1	193.5	1310221	743282	1.50
1873	239559.8	348434.5	68.8	228.0	1219218	852815	1.53
1874	256489.1	334920.7	76.6	215.7	1306640	861598	1.55
1875	256007.2	325877.0	78.6	206.6	1514115	1002010	1.58
1876	246853.1	329567.9	74.9	205.7	1291081	794698	1.60
1877	280196.1	314550.0	89.1	193.3	1428150	779466	1.63
1878	287893.8	351606.9	81.9	212.7	1345454	848907	1.65
1879	284472.5	371041.8	76.7	220.9	1509330	826766	1.68

Table GR6\_A GDP, trade and population, 1833–1939

continue

(GR6A\_A, GR6B\_A: thousands of LMU drachmas; GR6D\_A: in LMU drachmas; GR6E\_A, GR6F\_A: thousands of 1929 paper drachmas)

Year	GDP at current prices	GDP at constant 1914 prices	GDP deflator (1914=100)	GDP per capita at constant 1914 prices	Imports	Exports	Population (millions)
	GR6A_A	GR6B_A	GR6C_A	GR4D_A	GR6E_A	GR6F_A	GR6G_A
1880	294015.3	368270.7	79.8	217.2	1450603	895493	1.70
1881	340537.2	423267.5	80.5	211.1	1728129	1038521	2.00
1882	378493.2	455587.8	83.1	224.8	2118352	1134472	2.03
1883	402037.4	458988.2	87.6	224.0	1803112	1228075	2.05
1884	409597.8	521668.6	78.5	251.9	1723062	1094008	2.07
1885	404370.4	569014.7	71.1	271.8	1687724	1134368	2.09
1886	427885.0	550073.1	77.8	259.9	1735054	1165367	2.12
1887	445552.6	575373.0	77.4	268.9	1957790	1525483	2.14
1888	457843.9	594950.2	77.0	275.0	1621954	1421418	2.16
1889	441011.8	560106.6	78.7	256.1	1971224	1601581	2.19
1890	463711.5	536998.3	86.4	241.8	1794880	1423469	2.22
1891	506074.8	475333.1	106.5	210.8	2085750	1597301	2.25
1892	530183.0	503475.8	105.3	219.9	1772887	1222398	2.29
1893	550345.2	544083.5	101.2	234.0	1359467	1308185	2.32
1894	497796.0	564934.4	88.1	239.3	1633991	1103964	2.36
1895	519172.2	551800.8	94.1	230.2	1603498	1087306	2.40
1896	551490.1	615251.5	89.6	252.8	1727861	1077008	2.43
1897	512247.6	526250.9	97.3	214.7	1729154	1214196	2.45
1898	568609.0	572303.8	99.4	231.8	2054648	1310979	2.47
1899	542817.1	588433.3	92.2	236.7	1950509	1393913	2.49
1900	585318.9	529113.7	110.6	211.3	1952396	1526702	2.50
1901	663880.0	510806.7	130.0	202.5	2087919	1396751	2.52
1902	638047.4	659238.2	96.8	259.5	2039223	1183792	2.54
1903	623984.5	648889.9	96.2	253.7	2043161	1276831	2.56
1904	572452.5	689235.3	83.1	267.5	2036058	1345870	2.58
1905	579591.9	711668.7	81.4	274.3	2106494	1243648	2.59
1906	604517.0	708073.6	85.4	271.0	2149291	1835596	2.61
1907	646723.4	723079.1	89.4	274.7	2215150	1747833	2.63
1908	638396.8	723944.8	88.2	273.3	2297846	1645195	2.65
1909	689464.6	743041.0	92.8	278.6	2043978	1511069	2.67
1910	660869.1	745026.7	88.7	277.6	2385565	2148325	2.68
1911	847536.7	935285.7	90.6	346.2	2578359	2093819	2.70
1912	823862.6	913394.0	90.2	335.9	2342783	2171982	2.72
1913	856722.1	968758.0	88.4	201.0	2644084	1768355	4.82
1914	1235786.6	1235786.6	100.0	256.5	4738052	2653461	4.82
1915	1420876.6	1168280.5	121.6	242.5	4300335	3244770	4.82
1916	1882928.7	1174429.9	160.3	243.9	5935664	2300952	4.82
1917	2689025.1	1130057.4	238.0	234.7	3314894	1673637	4.82
1918	4196152.0	1373319.8	305.5	285.2	10905858	4411339	4.82
1919	3789750.0	1129857.9	335.4	234.7	23065880	11356309	4.81
1920	5361536.9	1410411.7	380.1	281.1	23843953	7515105	5.02
1921	6821748.1	1439035.7	474.0	282.7	9334041	4994871	5.09
1922	10780134.5	1471597.5	732.5	247.6	7131964	5600518	5.94
1923	16558597.5	1309372.9	1264.6	215.5	7655284	3205840	6.08
1924	20718344.4	1484058.3	1396.1	250.6	12219224	4964601	5.92
1925	23992285.3	1590990.1	1508.0	265.5	12212186	5489119	5.99
1926	28217011.6	1634905.3	1725.9	268.4	9668232	5276441	6.09

Table GR6\_A GDP, trade and population, 1833–1939

(GR6A\_A, GR6B\_A: thousands of LMU drachmas; GR6D\_A: in LMU drachmas; GR6E\_A, GR6F\_A: thousands of 1929 paper drachmas)

Year	GDP at current prices	GDP at constant 1914 prices	GDP deflator (1914=100)	GDP per capita at constant 1914 prices	Imports	Exports	Population (millions)
	GR6A_A	GR6B_A	GR6C_A	GR4D_A	GR6E_A	GR6F_A	GR6G_A
1927	30874784.6	1586247.0	1946.4	257.2	12852219	6161000	6.17
1928	33618998.2	1729994.1	1943.3	278.8	12416936	6330861	6.20
1929	32387828.5	1811652.4	1787.8	286.9	13276097	6960424	6.32
1930	31089932.9	1950230.3	1594.2	306.3	10524285	5985677	6.37
1931	29751944.8	1933182.1	1539.0	299.1	8763320	4203591	6.46
1932	33071900.1	1876030.8	1762.9	286.7	7869989	4757385	6.54
1933	38349976.1	2018529.5	1899.9	304.7	8431531	5141066	6.62
1934	42085624.6	2197799.7	1914.9	326.7	8792417	5474229	6.73
1935	44494188.1	2362801.1	1883.1	345.6	10681388	7101289	6.84
1936	46725383.8	2311371.2	2021.5	333.2	11962420	7378877	6.94
1937	56570810.2	2621762.8	2157.7	373.0	15204363	9555893	7.03
1938	55688778.5	2588572.4	2151.3	363.5	14761395	10149180	7.12
1939	54836336.5	..	..	..	12276182	9202519	7.32
1940	..	..	..	..	12214853	9079380	..
1941	..	..	..	..	4838264	3904166	..
1942	..	..	..	..	12704996	5390043	..
1943	..	..	..	..	28634196	10213211	..
1944	..	..	..	..	3311515183	11328437	..

Table GR7\_A WWII, 1939–1949

(money balances: end-of-year value, in thousands of drachmas; index: 1938.09–1939.08=100; cost-of-living index: general weighted index 1938.09–1939.08=100 until November, 10; afterwards 1938=100; drachma/British gold sovereign: value in drachmas; index: 1938.09–1939.08=100)

Year	Money balances		Cost-of-living index	Drachma/British gold sovereign	
	value	index		value	index
	GR7A_A	GR7A_A_I	GR7B_A_I	GR7C_A	GR7C_A_I
1939	9452791.6	123.8	100.2 (2.2)	929.9	97.9
1940	15369024.8	201.2	111.2 (2.4)	1072.0	112.8
1941	48794900.6	638.9	309.3 [201.9] (4.4)	9876.0	1039.6
1942	335081365.6	4387.6	6787.6	130870.0	13775.8
1943	3199235134.3	41891.3	28613.4	486053.3	51163.5
1944 (10 Nov.)	6279943102000000.0	82230766789.2	18850000000000.0	43166600000000.0	4543852631578.9
1944	1665000.0	21.8	1731907751492.3*	3814273529486.7*	401502476788.1
1944 (11 Nov.)	156000.0	2.0		2100.0	221.0
1944 (30 Nov.)	1362000.0	17.8		3100.0	326.3
1944 (Nov.)			394.6** (8.6)	2661.0***	280.1
1945	104083000.0	1362.9	1895.7 (41.4)	25348.0	2668.2
1946	537463000.0	7037.6	14522.5 (317.5)	137247.0	14447.0
1947	973608800.0	12748.6	17462.7 (381.8)	148732.0	15656.0
1948	1202166000.0	15741.4	24734.7 (540.8)	227087.0	23903.9
1949	1858613000.0	24337.0	28375.0 (620.4)	226908.0	23885.0

Notes: \*mean average January–November, 10; \*\*monthly observation starting November, 11; \*\*\*monthly average starting November, 11. The December 1944 value is missing. For 1941 the BoG yearly data point of the index with base year 1938.09–1939.08=100 (January–November) is presented into the bracket. The December 1941 value is from Delivanis and Cleveland (1949). The BoG data points with base year 2009=100 are presented in the parentheses.

# IV

## Ottoman Empire: from 1830 to 1914

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### I MAJOR MONETARY EVENTS

The 19th century was characterised by the efforts of the Ottoman government to bring the monetary system in line with the global trends towards bimetallism and the gold standard. A chronology of the major monetary events and reforms since 1834 is provided in Table 1. In a nutshell, in 1834 the Ottoman government took its first step towards *de facto* bimetallism by accepting gold and silver as legal tender. In 1844, the new bimetallic system was officially introduced together with a monetary reform, which brought an end to the long history of debasements.

**TABLE 1** Chronology of monetary standards and the type of currency in circulation, 1844–1914

Year	Monetary event	Monetary standard	Currency in circulation
1834	Gold and silver declared to be legal tender	Silver standard/ Bimetallism	Gold coins Silver coins
1840	Issue of interest-bearing state notes (kaime)	Silver standard/ Bimetallism/ Silver convertible paper money	Gold coins Silver coins State notes
1844	Coinage reform (tashih-i sikke) and the end of debasements	Bimetallism/ Silver convertible paper money	Gold coins Silver coins State notes
1852	Issue of non-interest bearing kaime notes	Bimetallism/ Non-convertible paper money	Gold coins Silver coins State notes
1863	Withdrawal of kaime notes and the foundation of the IOB	Bimetallism/ Gold convertible paper money	Gold coins Silver coins IOB notes
1876	Default on foreign debt and the issue of silver convertible kaime notes	Bimetallism/ Gold convertible paper money/ Silver convertible paper money	Gold coins Silver coins IOB notes State notes
1880	Monetary reform, withdrawal of kaime and the end of free-minting of silver	Limping standard	Gold coins Silver coins IOB notes
1914	World War I and issue of state notes	Fiat money standard	Gold coins Silver coins IOB notes State notes

Source: Authors' compilation.

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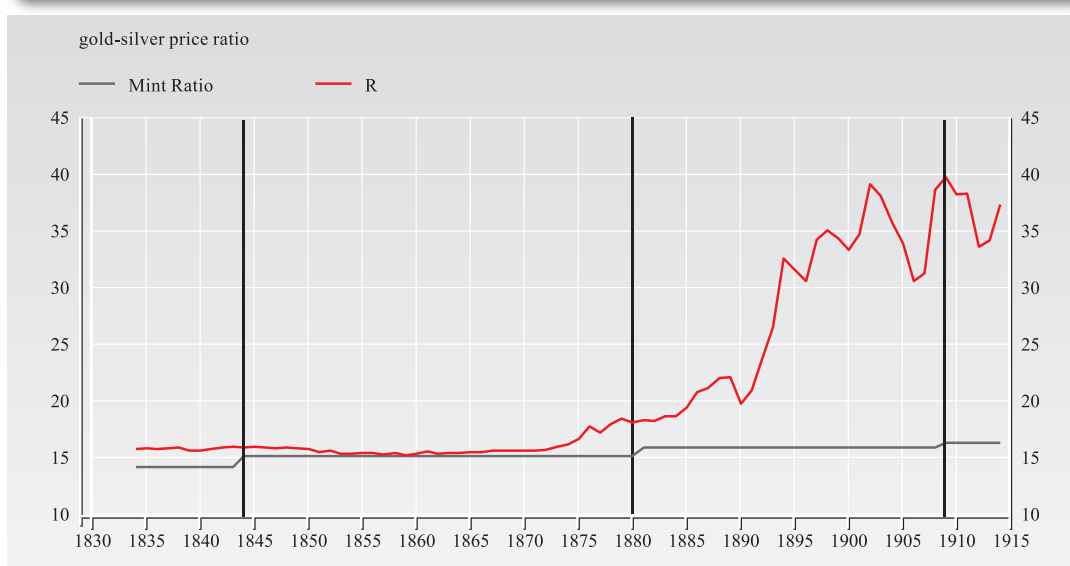
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Moreover, during the 1840s, in the absence of any private banks of issue, the government started experimenting with paper money in the form of state notes (*kaime*). A turning point in the history of the paper currency was the foundation of the Imperial Ottoman Bank (IOB) in 1863. The IOB was a private bank, funded by British and French capital and was granted the exclusive privilege of issuing gold convertible banknotes in the Ottoman lands. During the Russo-Turkish War of 1877–78, the government suspended this privilege by issuing its own state notes in order to finance its budget deficits. In 1880, the privilege of the IOB was restored, and state notes were withdrawn from circulation with the help of foreign loans. Moreover, the government declared the gold *lira* to be the legal tender and closed down the minting of silver coinage, thus adopting a ‘limping standard’.

### 1.1 EPISODES OF COMMODITY MONEY

Most of the contributions to the 19th century monetary history of the Ottoman Empire commonly highlight the ‘coinage adjustment’ reform (*tashih-i sikke*) of 1844 as the main turning point in modernisation of the monetary system.<sup>3</sup> In that year, the Ottoman government *formally* announced the introduction of bimetallism with a fixed gold-silver ratio, and the long history of raising revenues through debasements came to an end. The gold *lira*, the silver *kuruş* and the copper *para* were declared to be legal tender, freely convertible to each other at the fixed rate of 40 para for one *kuruş* and 100 *kuruş* for one gold *lira*.<sup>4</sup> This corresponded to a mint ratio between gold and silver of 15.09, which was slightly lower than the international gold-silver ratio at the time (see Figure 1).

FIGURE 1 International Gold-Silver Ratio and Mint Ratio



Sources and notes: Vertical lines refer to changes in the monetary regulation. Mint ratio is based on Table 2, whereas R is elaborated from Officer (2008).

<sup>3</sup> See, for example, Ferid (1914), Belin (1931, pp. 284–285), Kuyucak (1947, pp. 196–197), Kolerkılıç (1958, p. 129), Eldem (1970, p. 225) and Pamuk (2000, p. 205). More recent contributions point out a preceding arrangement in 1834, when the Mint issued a new series of gold and silver coins corresponding to an implicit bimetallic ratio. According to this regulation, the value of the gold *lira* was linked to the silver *kuruş* at a rate of 1:20 with a gold/silver ratio of 14.133. For details, see Eldem (2011). Therefore, 1834 can be interpreted as a transition to a *de facto* bimetallic standard.

<sup>4</sup> It would be wrong to consider this monetary standard as ‘trimetallism’, given that copper served only as a fiduciary currency, it was not freely minted and its circulation was limited to only small denominations.

TABLE 2 Coins of the Ottoman Empire: 1834–1914

Regulation Year	Weight (gr.)	Fineness (%)	Metallic Content (gr.)	Legal Value (kuruş)	Mint Equivalent	R	Mint Ratio
<b>1834</b>						15.73	14.13
<i>Silver kuruş</i>	2.138	44	0.940	1	1.063		
<i>Gold lira</i>	1.604	83	1.331	20	15.020		
<b>1844</b>						15.85	15.09
<i>Silver kuruş</i>	1.203	83	0.998	1	1.002		
<i>Gold lira</i>	7.216	91.67	6.614	100	15.117		
<b>1880</b>						18.05	15.88
<i>Silver kuruş</i>	1.203	83	0.998	1	1.002		
<i>Gold lira</i>	7.216	91.67	6.614	105.25	15.913		
<b>1909</b>						39.74	16.30
<i>Silver kuruş</i>	1.203	83	0.998	1	1.002		
<i>Gold lira</i>	7.216	91.67	6.614	108	16.329		

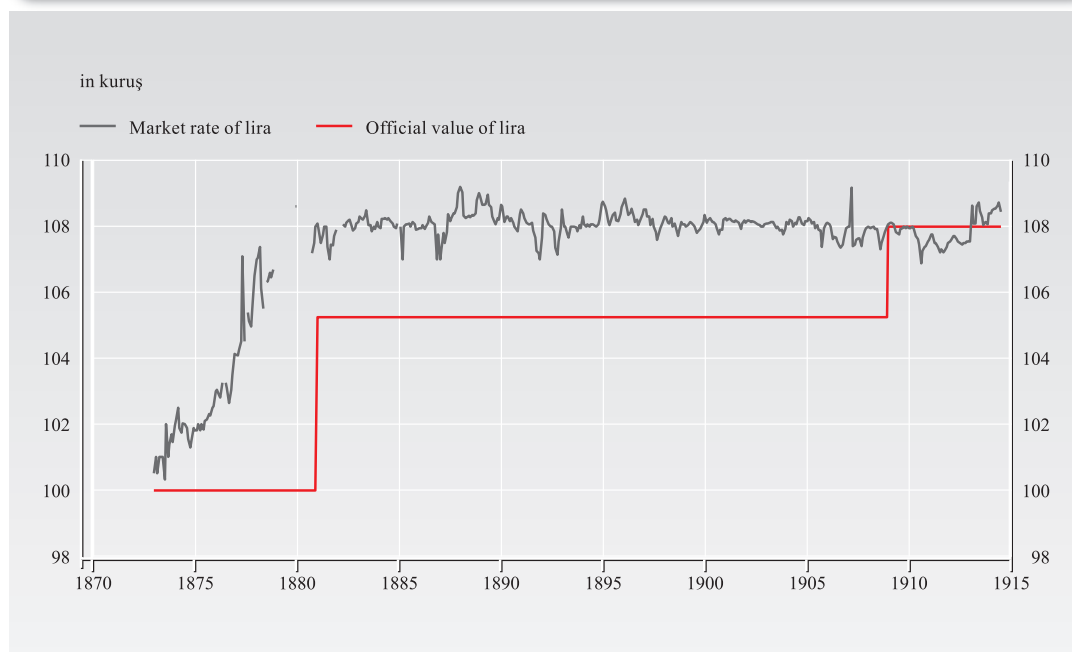
Sources and notes: Elaborated from Kuyucak (1948), Schneider et al. (1994) and Young (1906). In line with the terminology of Redish (2006), metallic content of a coin refers to its net gold and silver content, which is the product of the weight of a coin and its fineness. Legal value is the nominal value of the coin, which is shown in denominations of the kuruş. The intrinsic value of a coin is expressed by its mint equivalent, which is by definition the value of a coin divided by the product of its fineness and its weight. The mint ratio is simply the ratio of the mint equivalent of gold to silver, showing the official relationship between 1 gram of gold and 1 gram of silver. R is the international gold and silver ratio calculated in a similar way.

New gold coins began to be produced in 1843 and new silver coins were issued the following year along with an official declaration. Silver *kuruş* was issued with denominations of 20 (*mecidiye*), 10, 5, 2, 1. The other legal tender was the gold lira with denominations of 5, 2½, 1, ½. A problem with the 1844 reform was the existing overvalued coinage, which had been introduced in 1834. Although old gold coins were redeemed, overvalued silver currency (*beşlik and altılık* – “fivers” and “sixers”) was still in circulation. As the government did not possess sufficient resources to withdraw all previous coinage from circulation, it was forced to recognise them as legal tender. These two different types of silver coins circulated together in the market until 1888, when finally the government found resources to redeem all overvalued silver coins (see Table 2).<sup>5</sup>

From 1844 to 1880, the Ottoman Empire sustained the mint ratio of 1:15.88 (see Figure 1). However, in 1876, as the Latin Monetary Union came to an end, depreciation of silver had already gained pace in the world markets. In a parallel way, the market value of one gold lira in terms of silver kuruş started increasing from that date onwards (see Figure 2). From 1876 to 1879, the Ottoman Mint continued to accept unlimited amounts of silver. Finally at the end of 1879, because of further depreciation of the silver kuruş, the Ottoman government moved away from bimetallism, and gold was accepted as the new standard for the Ottoman currency. According to the new decree, which was issued on 13 December 1879, the monetary standard of the Empire would be the gold lira of 100 kuruş, and this standard would be applied in all revenues of the state, starting from 13 March 1880. Moreover, in article 4 of the decree it was specified ‘in order to bring the value of silver to a level equal to the value of gold, the value of *mecidiye* (20 kuruş

<sup>5</sup> For details, see Pamuk (2000, pp. 206–208).

FIGURE 2 Official and Market Rates of one Gold Lira (in silver kuruş)



Sources: LHEE (1881–1913), Schneider et al. (1994), Biliotti (1909).

silver coin) is reduced to 19 kuruş'.<sup>6</sup> Although it was not stated directly, in practical terms, this last point meant that the state was fixing the effective rate of the gold lira at 105.26 silver kuruş (see Figure 2).<sup>7</sup>

Thus, with the reform of 1880, the Ottoman Empire was adopting the 'gold standard' by closing down minting of silver coinage, *but* at the same time accepting the silver with a reduced rate of 105.26 instead of 100 kuruş. The mint ratio, with a 5 per cent increase over the previous bimetallic ratio of 15.09 now stood at 15.88 (see Table 2). In other words, the state was moving towards a 'limping standard' by preserving a fixed ratio between gold and silver. The Ottoman economy continued to rely heavily on silver for most daily transactions. Gold was at the centre especially in relations with the world economy, while silver fluctuated according to supply and demand in internal commerce.<sup>8</sup> From 1880 to 1914, although the intrinsic value of the gold lira in terms of the silver kuruş depreciated heavily due to an increase of the gold-silver price ratio in international markets, the exchange rate of the kuruş in Istanbul was stable, and fluctuating within a range of 107 to 109 kuruş. In other words, the government effectively eliminated the *agio* on silver in Istanbul. The *agio* reached a maximum value of 8 per cent in 1879, just on the eve of the monetary reform. Following the reform and the increase in the official value of the silver kuruş, it fluctuated around an average value of 2.5 per cent until 1909, when finally it disappeared completely with another monetary regulation which brought the official value of the gold lira to 102.6 kuruş.<sup>9</sup>

<sup>6</sup> The decree also reduced the value of debased coins by 50 per cent and the value of *altınk* (6 kuruş silver coin) to 5 kuruş. See Kuyucak (1947, pp. 212–213).

<sup>7</sup> Calculated as  $[100 * (20/19)]$ .

<sup>8</sup> See Pamuk (2008 and 2000, p. 217).

<sup>9</sup> Kuyucak (1947, p. 199), Toprak (1985, p. 765) and Tuncer (2013).



## 1.2 EPISODES OF PAPER MONEY

Greater stability of coinage did not however mean the end of fiscal difficulties or of the need to raise additional revenue. Throughout the 19th century, Ottoman administrations faced difficulties in bringing the budget under control and resorted to a variety of methods to deal with the fiscal problems. One method of raising fiscal revenue which began to be used in 1840 was the printing and circulation in the Istanbul area of interest-bearing paper money called *kaime-i muteber-i nakdiyye*, or *kaime* for short. In the second half of the 1830s, with pressing military needs and the financial requirements of reform, many government departments had been allowed to issue notes of indebtedness (*sergi*) to suppliers when their assigned funds were exhausted. Thus large amounts of short-term debt had been accumulated, owed mostly to the Galata bankers. The government also made inquiries to some London bankers regarding the possibility of a loan to see it through the crisis. When an agreement could not be reached, however, it turned to the printing of interest-bearing paper bills.<sup>10</sup>

The earliest *kaime* was issued in denominations of 500 kuruş (approximately 4.5 pounds sterling). It carried an annual interest rate of one eighth or 12.5% and had a term of eight years. The government declared repeatedly that *kaime* notes were issued solely for the purpose of facilitating commerce and that it was to be accepted as legal tender just like gold and silver coins. It also announced that these bills would be accepted by tax collectors in the provinces and by the Treasury at Istanbul. Subsequently, smaller denominations were also issued in order to facilitate daily transactions. The total volume of the first and second rounds of *kaime* issue in 1840 equalled 40 million kuruş (about 360 thousand pounds sterling).

In time, the government began to refer to these issues also as *sehim kaimesi* apparently because it wanted to build on the earlier *esham* system which linked government payments to specific revenue sources of the state. In the years between 1840 and 1844 the merchants of Istanbul gradually accepted these issues and *kaime* notes circulated at par against the coins.<sup>11</sup> Another round of *kaime* was issued in 1844, with the interest rate reduced to 6% per annum. In the second half of the 1840s, new series of *kaime* continued to be issued with denominations ranging from 50 to 10,000 kuruş. The higher denominations were used mostly by merchants. The amount of *kaime* notes in circulation is not known for this early period, but judging from the stability of prices, their supply was not excessive.

From the very beginning, however, the circulation of the *kaime* was plagued by counterfeiting. The first round of notes were written by hand on large sheets of paper. For the second issue, indelible ink was used for the figures but the counterfeiters proved equal to the challenge. Eventually in 1842 the *kaime* began to be printed with an embossed seal of the sultan (*tuğra*) and other protections against forgery, and the earlier issues were exchanged for the printed *kaime*. The government also decided to terminate the circulation of *kaime* notes in the provinces in 1841 not only because of counterfeiting but also because of the difficulties in having it accepted.

Since their volume remained limited, the *kaime* performed reasonably well until 1852. A new phase in the history of the *kaime* began that year, when paper money that did not bear any interest was put into circulation for the first time ever. The denominations were lower than before, 10 and 20 kuruş. While the official explanation emphasised that these low denominations facilitated small

<sup>10</sup> Akyıldız (1996, pp. 25–49) and Davison (1980, pp. 243–244).

<sup>11</sup> Akyıldız (1996, pp. 41–49).

daily transactions, it is clear that they also helped the Treasury raise a considerable amount of new revenue. In 1853, the volume of kaime notes in circulation reached 175 million kuruş, or about 1.6 million pounds sterling, still not a very large sum. During the Crimean War, however, large amounts of kaime were printed and the market price expressed in gold liras declined to less than half the nominal value. One gold lira began to exchange for 200–220 kuruş in kaime. In 1861, a record volume of kaime worth 1,250 million kuruş flooded the markets, and the exchange rate against the gold lira plummeted to 400 paper kuruş. The first experiment in paper money thus resulted, more than a decade after its initiation, in a major wave of inflation. With popular protests and general discontent, the government finally agreed to retire the kaime in 1862 with the help of short-term loans obtained from the Imperial Ottoman Bank.<sup>12</sup>

There was one other occasion until World War I on which the government resorted to non-convertible paper money. After the Ottoman government declared a moratorium on external debt payments in 1876, it became impossible to borrow from the European financial markets or the Imperial Ottoman Bank. With the Serbian uprising and the outbreak of the War of 1877–78 with Russia, the need to raise fiscal revenue became even more urgent. Kaime notes were issued in both low and high denominations ranging from 1 kuruş to 500 kuruş and was proclaimed legal tender in all parts of the Empire. Very quickly their volume reached 16 million liras (14.4 million pounds sterling). The government paid its employees with the new issues. The peasants, in turn, sold their crops and paid taxes in kaime. Because of the large volume, however, the exchange rate of the kaime declined within two years, to 450 kuruş for one gold lira. They remained in circulation for close to three years and were retired at the end of the decade.<sup>13</sup>

The withdrawal of kaime notes coincided with the monetary reform of 1880. As mentioned above, the reform not only marked the beginning of the ‘limping standard’, but also restored the monopoly of the IOB in issuing gold-backed banknotes. From that year onwards until 1914, the quantity of the IOB notes in circulation increased steadily, and they remained the only legal tender paper money circulating in parallel with the gold and silver coins. The beginning of World War I marked the end of the gold standard for most core and peripheral countries across the world, and the Ottoman Empire was no exception. During the first couple of months of the Great War, in order to finance the extraordinary military expenditures, the government increased the upper limit of issue of the IOB to 4 million current liras. Later, in April 1915, the Ottoman government suspended the IOB’s exclusive privilege to issue notes and authorised the Ministry of Finance to issue 6.5 million current liras of paper money, under the name of *evrak-ı nakdiye*.<sup>14</sup>

Finally, it is important to note that the presentation of the evolution of the monetary standards of the Ottoman Empire reflects mostly the developments in the financial and economic centre of the Empire, namely Istanbul, but not the provinces. In the rest of the Empire, including the European provinces under the Ottoman rule, gold coins were rarely seen in circulation apart from major trade centres and port cities, and hoarding of gold was a common phenomenon. As the monetary base continued to rely on silver rather than gold or gold-convertible banknotes, the silver currency served as fiduciary money, with only a limited connection to its intrinsic value. The widespread use of silver coins coincided with lack of paper currency in the Ottoman provinces. By 1913, the IOB had more than 80 branches across the Empire. However, despite this extensive branch network, its notes never became widespread in the provinces, but circulated only within a small segment

<sup>12</sup> Akyıldız (1996, pp. 50–90), Davison (1980, p. 245) and Erol (1970, pp. 5–7).

<sup>13</sup> Akyıldız (1996, pp. 91–174), Erol (1970, pp. 15–27).

<sup>14</sup> Eldem (1999, pp. 257–308).

of the Istanbul economy. This was not only because the banknotes could never become a widely used means of exchange but also because the IOB, primarily a foreign commercial bank, did not act as central bank of issue on behalf of the state, as in other parts of Southeast Europe.<sup>15</sup>

## 2 DEFINITION AND DESCRIPTION OF VARIABLES

We present a comprehensive long-term historical database on key macroeconomic time series classified in six groups of variables, namely monetary variables; interest rates; exchange rates; government finances; prices, production and labour; national accounts and population. The accompanying index table provides important information on the list of variables, the series' codes and the list of tables, the unit of account, the time span and the data frequency.

**INDEX TABLE - Country: OTTOMAN EMPIRE**

*continue*

List of Variables	Time Span	Data Frequency	Unit of Account	Series Code
<b>1. MONETARY VARIABLES</b>				
<i>Total reserves (of IOB)</i>	1863–1913	annual	in pound sterling (thous.), end-of-period	OE1A_A
<i>Banknotes in circulation (IOB)</i>	1863–1913	annual	in pound sterling (thous.), end-of-period	OE1B_A
<i>Gold coinage</i>	1875–1913	annual	in local currency (thous.), end-of-period	OE1C_A
<i>Silver coinage</i>	1875–1913	annual	in local currency (thous.), end-of-period	OE1D_A
<i>Bronze and nickel coinage</i>	1875–1913	annual	in local currency (thous.), end-of-period	OE1E_A
<b>2. INTEREST RATES</b>				
N/A	N/A	N/A	N/A	N/A
<b>3. EXCHANGE RATES</b>				
<b>Table OE2</b>				
<b>3. EXCHANGE RATES</b>				
<b>Table OE3</b>				
<i>Pound sterling (sovereign)</i>	1880–1913	annual	in local currency, annual averages	OE3A_A
<i>Pound sterling (3-month bills of exchange)</i>	1880–1913	annual	in local currency, annual averages	OE3B_A
<i>Pound sterling (mint parity)</i>	1880–1913	annual	in local currency, annual averages	OE3C_A
<i>French franc (gold Napoleon)</i>	1880–1913	annual	in local currency, annual averages	OE3D_A
<i>French franc (3-month bills of exchange)</i>	1880–1913	annual	in local currency, annual averages	OE3E_A
<i>French franc (mint parity)</i>	1880–1913	annual	in local currency, annual averages	OE3F_A
<b>4. GOVERNMENT FINANCES</b>				
<b>Table OE4</b>				
<i>Total government revenue</i>	1846–1918	annual	in local currency (thous.)	OE4A_A
<i>Total government expenditure</i>	1846–1918	annual	in local currency (thous.)	OE4B_A
<i>Foreign government debt</i>	1854–1914	annual	in pound sterling (thous.), end-of-period	OE4C_A
<i>Interest service on foreign government debt</i>	1854–1914	annual	in pound sterling (thous.), end-of-period	OE4D_A

<sup>15</sup> Tuncer (2013).

## INDEX TABLE - Country: OTTOMAN EMPIRE

List of Variables	Time Span	Data Frequency	Unit of Account	Series Code
<b>5. PRICES, PRODUCTION AND LABOUR</b>				
<b>Table OE5</b>				
<i>Consumer price index (in local currency, 1913=100)</i>	1840–1913	annual	index number	OE5A_A
<b>6. NATIONAL ACCOUNTS AND POPULATION</b>				
<b>Table OE6</b>				
<i>Commodity exports (FOB)</i>	1830–1913	annual	in pound sterling (millions)	OE6A_A
<i>Commodity imports (CIF)</i>	1830–1913	annual	in pound sterling (millions)	OE6B_A
<i>GDP, nominal terms</i>	1840–1914	benchmark years	in local currency (millions), at current prices	OE6C_A
<i>Population</i>	1840–1914	benchmark years	in million inhabitants	OE6D_A

Notes: The code of each variable is generated by the country prefix (OE), the number of the variable group (1, 2, 3, 4, 5 and 6) and a letter identifying the respective time series within the group (A, B, C...); at the end, A stands for annual data.

## 2.1 MONETARY VARIABLES

## 2.1.1 Reserves and banknotes

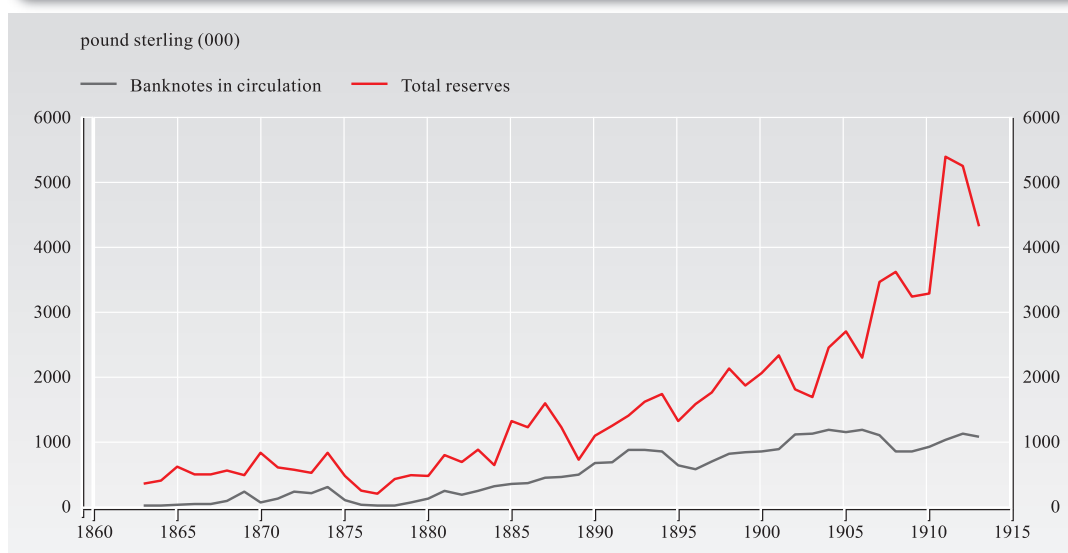
Figure 3 shows the total reserves of the IOB together with banknotes in circulation at the end of each calendar year based on Table OE1\_A. Series OE1B\_A, reported in pound sterling, include data on gold, silver and foreign exchange reserves in Istanbul, London, Paris and other branches of the IOB, at annual time intervals. Unfortunately, at our current level of knowledge, it is not possible to acquire branch-specific information or to have detailed time series for different components of the reserves.

As briefly outlined above, from 1863 onwards the IOB was granted with the exclusive privilege of issuing gold convertible banknotes. Series OE1A\_A displays the data figures. The payment of these banknotes would only be demandable at the place of issue, i.e. Istanbul. The only limitation on the banknote issue was the requirement for the IOB ‘for a period of two years from the date of its opening shall keep a reserve in hand equal in amount to at least half its notes in circulation and, after that two-year period has elapsed, to the amount at least of one third’.<sup>16</sup> This one-third cover ratio requirement was in line with the statutes of most of the European banks of issue. However, throughout the period under study the total reserves of the IOB remained well above the required amount. From 1863 to 1876, the IOB notes in circulation showed a steady increase, which came to a halt with the global financial crisis of 1873 and the ensuing suspension of convertibility. This resulted in a decline in banknote circulation; concerns about the convertibility of the state notes (kaime) also had an impact on the holders of IOB notes.

Starting with the reform of 1880 and the redemption of kaime notes, the IOB gradually increased the amount of banknotes in circulation. Because of the rapid increase of banknotes in circulation, on 20 January 1893 the government imposed a limit on the bank’s right of issue with a decree, restricting the banknote issue to a maximum of 1.5 million liras. Following this decision, in 1894, the bank brought its total issue to 1.4 million gold liras and put these banknotes into circulation gradually until 1905.<sup>17</sup> This picture of a steady increase, however, can be deceiving. Throughout

<sup>16</sup> IOB (1875), Pamuk (2000, p. 212), Eldem (1999, pp. 463–466).

<sup>17</sup> Pamuk (2000, p. 212), Eldem (1999, p. 161 and pp. 463–466).

**FIGURE 3 Banknotes in Circulation and Total Reserves, 1863–1914**

Sources: IOB (1863–1914) and Eldem (1999).

the period, the banknotes in circulation remained relatively low compared with the total reserves of the bank and consisted only of a very small part of total money supply. Due to the restriction of convertibility only in Istanbul and the relatively high denominations of the issued notes, banknote circulation remained limited within a small segment of the Istanbul economy.<sup>18</sup>

### 2.1.2 Gold, silver and bronze coinage

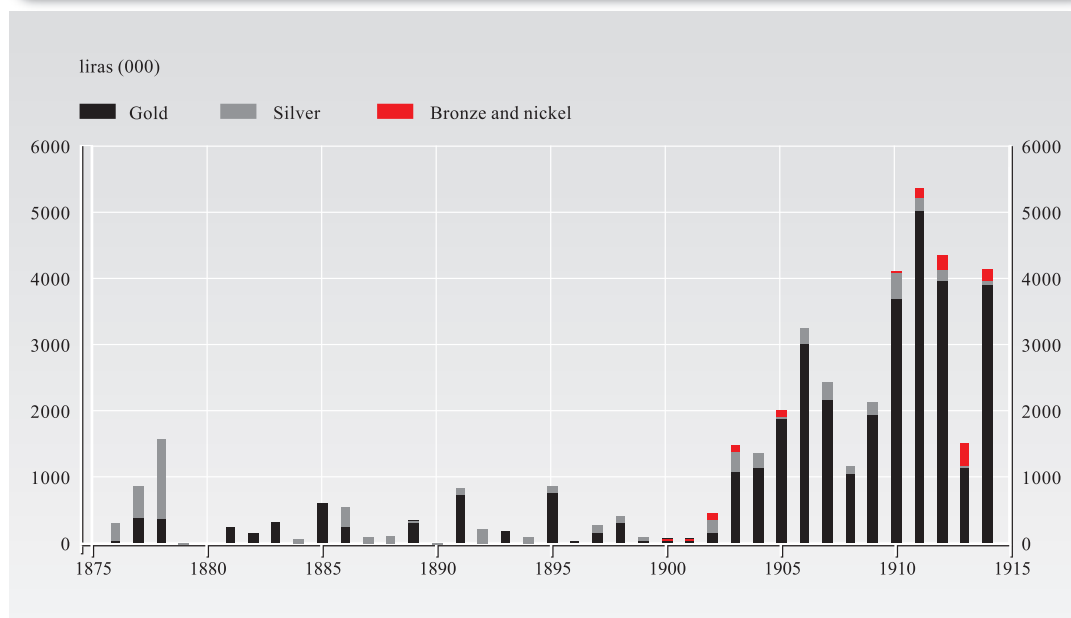
Considering the variety of monetary zones, the different types of coins in circulation and the extensive private minting and counterfeiting activity in the Ottoman lands, obtaining reliable estimates for the volume of the coins in circulation in the Ottoman Empire is a task beyond the scope of the chapter. Nevertheless, it may be useful to bring a number of different assessments together to get a broad picture of the volume of coins in circulation. Earlier estimates mostly rely on the mint output of gold and silver as a proxy for the coins in circulation. According to Ferid (1914), the mint output for gold and silver minted under the rule of each Ottoman Sultan is summarised as follows:

**TABLE 4: Mint output of gold and silver by dynasty in millions of liras, 1844–1913**

Dynasty	Period	Total gold minted	Total silver minted
<i>Abdulmecid</i>	1844–1860	14.49	3.86
<i>Abdulaziz</i>	1861–1875	14.98	3.21
<i>Murad V</i>	1876	0.02	0.03
<i>Abdulhamid</i>	1876–1908	16.45	4.74
<i>Mehmed V</i>	1909–1913	20.27	1.08
<b>TOTAL</b>	1844–1913	66.18	12.91

Source: Ferid (1914).

<sup>18</sup> Tuncer (2013).

**FIGURE 4 Mint Output of Gold, Silver, Bronze and Nickel, 1876–1913**

Sources: Ferid (1914) and Tunçer (2013).

Similarly, it is possible to reconstruct the annual mint output by using the same source. These figures represent the net increase in coinage, therefore the minting from worn coins are not included into the calculations (see Figure 4).

Evidently, the mint output does not necessarily correspond to actual gold and silver coins in circulation. According to the estimates provided by Eldem (1970), in 1913 total gold coins in circulation were around 32 million liras, silver coins in circulation were around 11.6 million and nickel and bronze coins in circulation were around 1.1 million liras, whereas foreign coins in circulation were estimated at 5 million liras. According to Eldem (1970), around 30 million gold liras, almost half of the amount minted from 1844 to 1914, were being hoarded. Similarly, the extensive qualitative evidence of private minting and counterfeiting activity suggests that the foreign coins in circulation could be well above 5 million gold liras. Despite these broad estimates, building reliable data series on the monetary aggregates for the Ottoman Empire needs further research.

## 2.2 INTEREST RATES

The discounting and re-discounting of bills of exchange, which is one of the primary activities of any commercial bank, was only a minor activity of the IOB. The bank did not ever set an official interest rate. Narrative accounts suggest that loan terms were dependent upon the creditworthiness of the customer. Moreover, the discount rate varied substantially across different types of operations with respect to the guarantees pledged. In 1909, according to Adrien Biliotti, an employee of the IOB in Istanbul, the bank could apply interest rates from 7 to 9% to bills of exchange operations; in provinces this rate was even higher.<sup>19</sup> In the absence of any official discount rate, however, it is not possible to construct time series data on interest rates.

<sup>19</sup> Biliotti (1907, p. 209).

### 2.3 EXCHANGE RATES

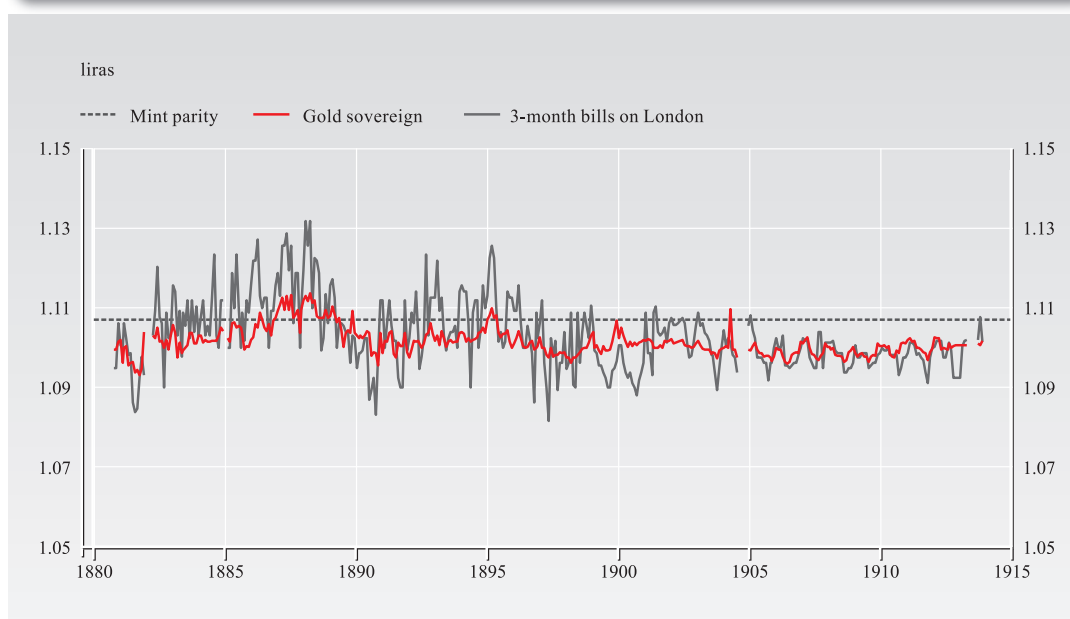
The exchange rate of the Ottoman lira against major European currencies remained relatively stable from 1840s to 1914. In order to clarify the terminology, however, we should first point out the difference between the ‘mint parity’ and ‘exchange rate’ as referred in the contemporary literature. The mint parity can be considered as a *hypothetical* exchange rate, which is the relative pure-specie content of the two countries’ currencies, or in other terms the ratio of countries’ mint prices expressed in common fineness.<sup>20</sup> To calculate the mint parity in terms of liras, the fine-metal value of a foreign gold coin can simply be divided into fine-metal value Ottoman gold lira. As shown in Table 5, from 1880 to 1914 the mint parity between the Ottoman gold lira and two leading European currencies remained constant.

**TABLE 5: Mint parity of the Ottoman gold lira per pound sterling and the French franc, 1880–1914**

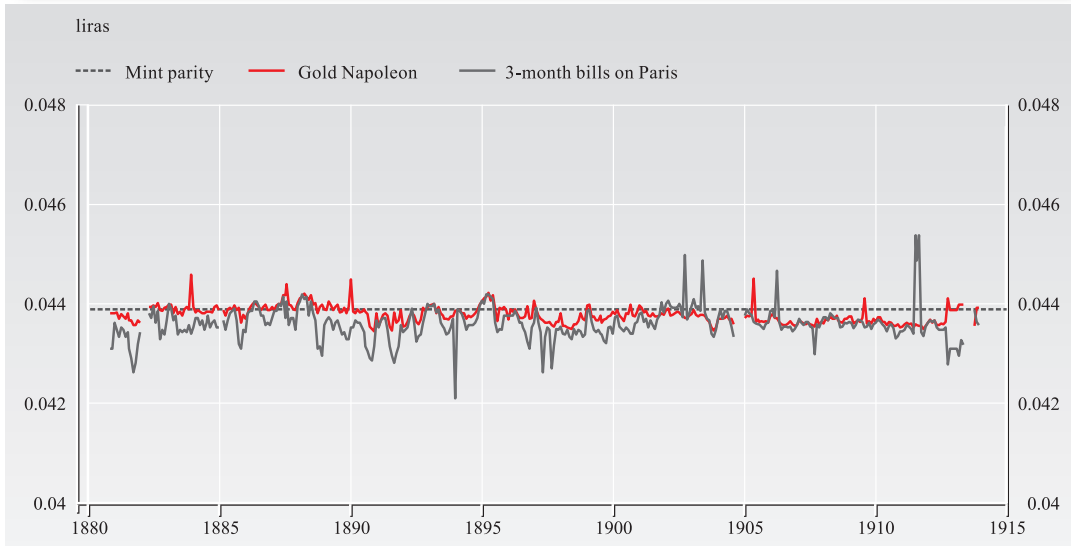
Currency	Fine-metal value (gr.)	Mint Parity (lira equivalent)
Pound sterling	7.322	1.107
French franc	0.290	0.044
Ottoman lira	6.614	1

Source: The metallic content of the pound sterling and the French franc is elaborated from Kelly (1832) and BA (1876–1915). For the Ottoman lira, see Table 2.

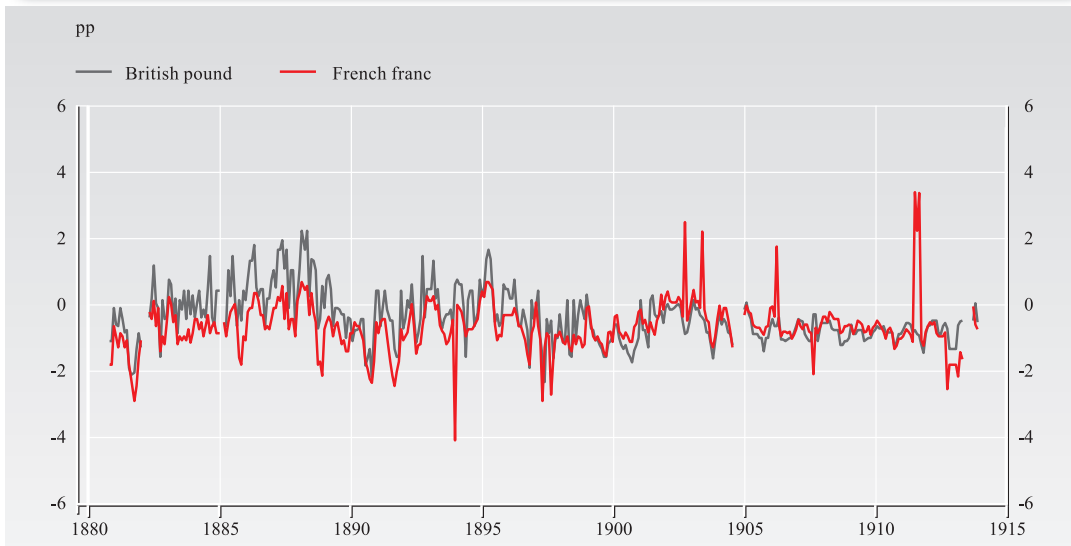
**FIGURE 5 The Ottoman Lira/Pound Sterling Exchange Rate in Istanbul, 1880–1914**



<sup>20</sup> Officer (1996, p. 49).

**FIGURE 6 The Ottoman Lira/French Franc Exchange Rate in Istanbul, 1880–1914**

Source: LHEE (1880–1914).

**FIGURE 7 Deviations of the Exchange Rate from the Mint Parity, 1880–1914**

Source: LHEE (1880–1914).

However, mint-parity was not the ‘rate of exchange’ in the contemporary terminology. The exchange rate, in a broad sense, would also include the fluctuations caused by the gold points. Moreover, during the period under study, exchange-market transactions mostly relied on bills of exchange rather than on specie. A bill of exchange was an order to pay a specified amount of money (on a specified future date) in cash in the city/country on which was drawn. Since these were the most common exchange-market instruments, they might be considered representative measures of the exchange rate between two countries. The exchange rate of the French gold coin against



kuruş has been calculated by using the data for 20 francs valued gold *Napoleon*. The bills of exchange for 3 months drawn on London were quoted in terms of the gold lira, which were converted into kuruş at the rate of 1 gold lira = 100 kuruş.

As shown in Figures 5 and 6, from 1880 to 1914, the value of the pound sterling mostly fluctuated within a range of 109 to 113 kuruş, whereas the bills of exchange drawn on Paris fluctuated within a range of 420 to 450 kuruş. Throughout the period, the deviations from the mint parity for both currencies did not exceed 4 percentage points (see Figure 7).<sup>21</sup>

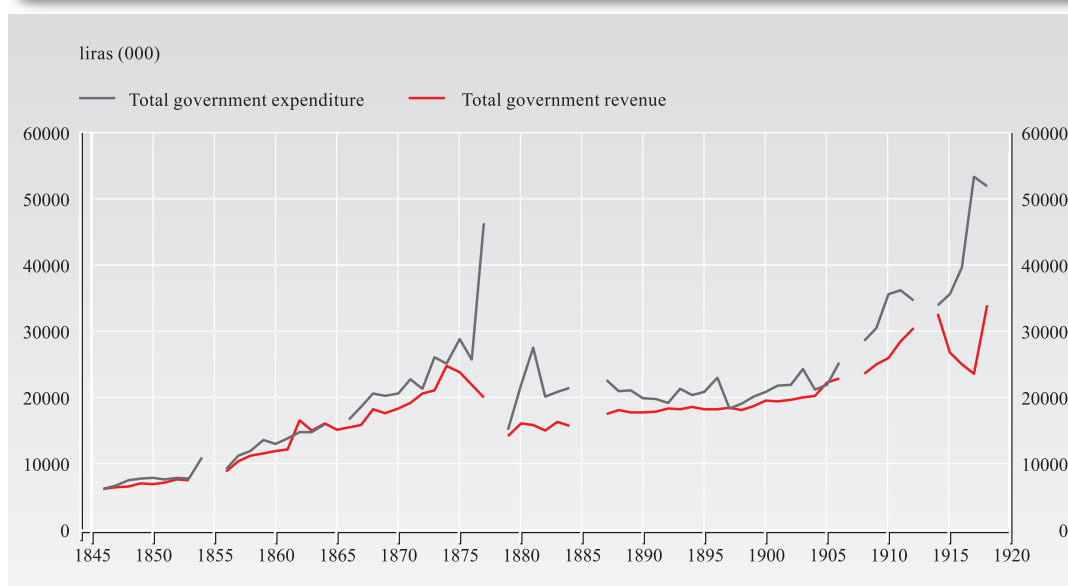
As mentioned previously, this picture of stability was, however, an exception. Although during this period the exchange rates were kept stable in Istanbul, the widespread circulation of foreign silver coins and provincial currency zones remained major problems, despite the attempts of the government to ban the import of silver coins to the Empire.<sup>22</sup>

## 2.4 GOVERNMENT FINANCES

### 2.4.1 Revenue and expenditure

The detailed budget figures of the Ottoman central government have recently been brought together by Güran (2003) to enable us interpret the long-term evolution of the central government expenditures and revenues. These figures are reported in Ottoman fiscal year, which, based on the *Rumi* calendar, started on 1 March. Government spending comprises ordinary and extraordinary expenditures including military spending and interest service on government debt (Table OE4\_A; Series OE4B\_A).

**FIGURE 8 Total Government Revenue and Expenditure, 1844–1918**



Source: Güran (2003).

<sup>21</sup> Deviations from the mint parity are calculated by  $[100 * (\text{exchange rate} / \text{mint parity}) - 1]$ . A negative value denotes a discount. See Tuncer (2011).

<sup>22</sup> See Eldem (1999, p. 207) and Young (1906, p.14).

Until the 1840s, the Ottoman Empire experienced large budget deficits which were financed either by various means of domestic borrowing (such as granting life-long tax-farming rights) or by debasement. However, debasements had serious political costs; therefore, as outlined above, the 1844 monetary reform (*tashih-i sikke*) brought the era of debasements to an end. In order to finance the costly reforms and the centralisation of the state, beginning with Mahmud II the government repeatedly but unsuccessfully attempted to replace tax farming with centralised tax collection. The first official attempt to abolish tax farming was after the *Tanzimat Decree* in 1839, but the government took a back step in 1842 because of the financial losses. The 1856 decree ordered the ‘final’ abolition of tax farming but with no better results than in 1838. In the early 1880s, the state again abolished tax farming, but reassessed its position in 1886, since the reformed system was too costly. Tax farming remained the norm throughout the Empire until 1914.<sup>23</sup> Long-run changes in total government revenue were mostly determined by the fiscal reform efforts of the government to increase the state’s capacity to collect further revenue. State expenditure, on the other hand, was mostly driven by the costly military campaigns, as well as by interest payments on foreign debt.

#### 2.4.2 Foreign government debt and interest service

In 1854, for the first time, the Ottoman government began to sell long-term bonds in the international financial markets in order to finance the Crimean War. In the absence of seigniorage revenue given debasements or the issuance of paper currency, foreign capital became the most important way of dealing with budgetary difficulties. By 1863 the government had already contracted six loans with a total face value of 39 million pounds sterling. These loans were secured by several direct and indirect tax revenues, custom duties and the Egyptian tribute. Apart from the IOB, the intermediary institutions located in London and Paris, such as Dent Palmer, the Rothschilds, Crédit Mobilier, Comptoir d’Escompte were acting as underwriters. By the second half of the 1860s, due to continuous budget deficits, the government needed to issue new bonds. Therefore, from 1863 onwards, a phase of increasing borrowing began, which was facilitated by the establishment of the IOB and eventually led to further accumulated debts.

The global economic crisis of 1873 led to a decline in supply of foreign capital, and in 1875–76, the Ottoman government declared a moratorium on its outstanding debt, which then stood at almost £200 million pounds sterling. From 1876 to 1881, the international financial markets were closed to the Ottoman Empire. Therefore, the government turned to domestic means of finance, namely issuing state notes, in order to finance its extraordinary expenses, such as the cost of the Russo-Turkish War of 1877–78. The post-war years were marked by efforts to regain solvency. The Congress of Berlin in June 1878 brought an end to the Ottoman conflict with Russia. It was in fact during the Berlin Congress that the claims of the bondholders first received official acknowledgement by the Powers. However, formal negotiations between the representatives of the foreign creditors and the Ottoman government did not start until September 1881. In that year, the first meeting between parties took place in Istanbul, and after lengthy negotiations the decree of Muharrem was signed on 20 December 1881. Representatives of the British, French, Dutch, German, Italian and Austro-Hungarian bondholders and the Ottoman government agreed that the outstanding debt of the Empire would be reduced from about 191 million pounds sterling to 96 million. Outstanding interest payments, which were around 62 million, were reduced to approximately 10 million. Finally, the interest service on the debt was also reduced from approximately 13.6 million to 2.7 million pounds sterling.<sup>24</sup>

<sup>23</sup> Pamuk (2012), Karaman and Pamuk (2010) and Quataert (1994, p. 855).

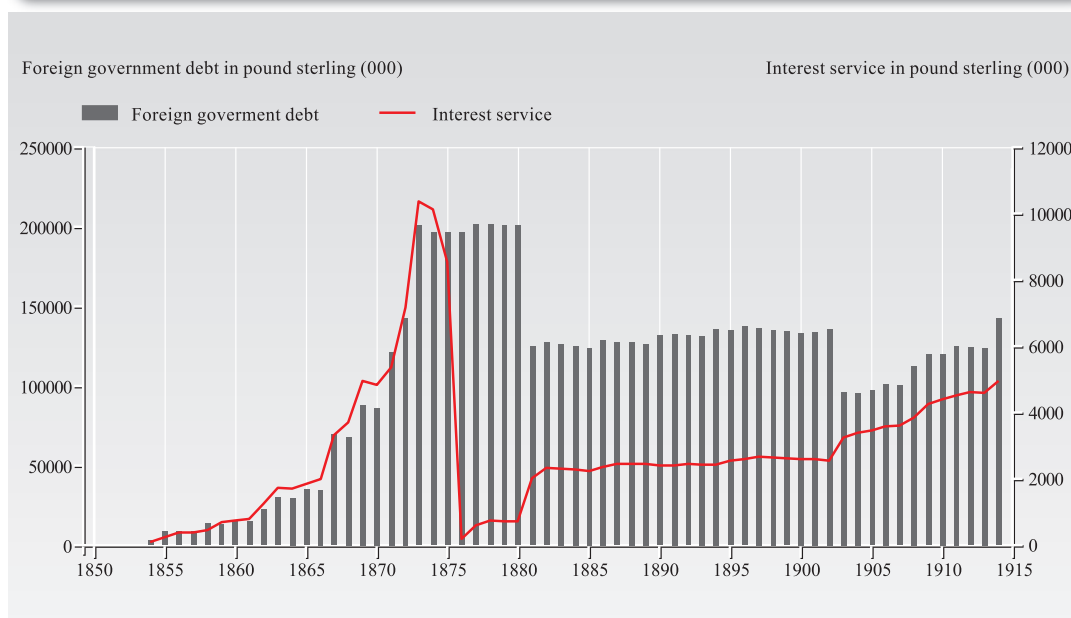
<sup>24</sup> Blaisdell (1966) and Kiray (1988).

From 1886 to 1914, the Ottoman state managed to contract another 23 loans, totalling just over 150 million pounds sterling at an average issue rate of over 85% and an average nominal interest rate of barely more than 4%. In contrast, the effective rates of interest paid by the government before 1875 had fluctuated between 10% and 12% despite stable international prices. As regards the outstanding amount of debt, the debt stock was reduced to a more manageable level. Although in 1903 the Ottoman Empire benefited from another debt consolidation, on the eve of World War 1, the total debt stock remained around 140 million pounds sterling.<sup>25</sup> OE4C\_A and OE4D\_A show the data series.

## 2.5 PRICES, PRODUCTION AND LABOUR

The time series for the consumer prices in Istanbul from 1489 to 1914 have been published in Pamuk (2001). The prices from 1844 to 1914 are reproduced below using 1913 as a base year.<sup>26</sup> A detailed discussion of the methodology and the sources used for calculating the consumer price index can be found in Pamuk (2001). The trends in consumer prices in Istanbul are consistent with the above presentation of monetary events. As outlined above, from 1844 to 1914 the Ottoman silver coins maintained their metallic content; therefore the Ottoman economy was not subject to domestic inflationary pressures due to debasements. Although during this period the silver lost its value in international markets, the Ottoman silver coins did not have much connection with their intrinsic value and retained a stable level due to scarcity of means of exchange and high money demand. The price index also reflects the inflationary impact of the kaime (state notes) experiment, which took place between 1852 and 1863. After the foundation of the IOB and the withdrawal of kaime notes, there were no further money supply shocks that could lead to a price surge, therefore price levels fol-

**FIGURE 9 Foreign Government Debt and Interest Service, 1854–1914**

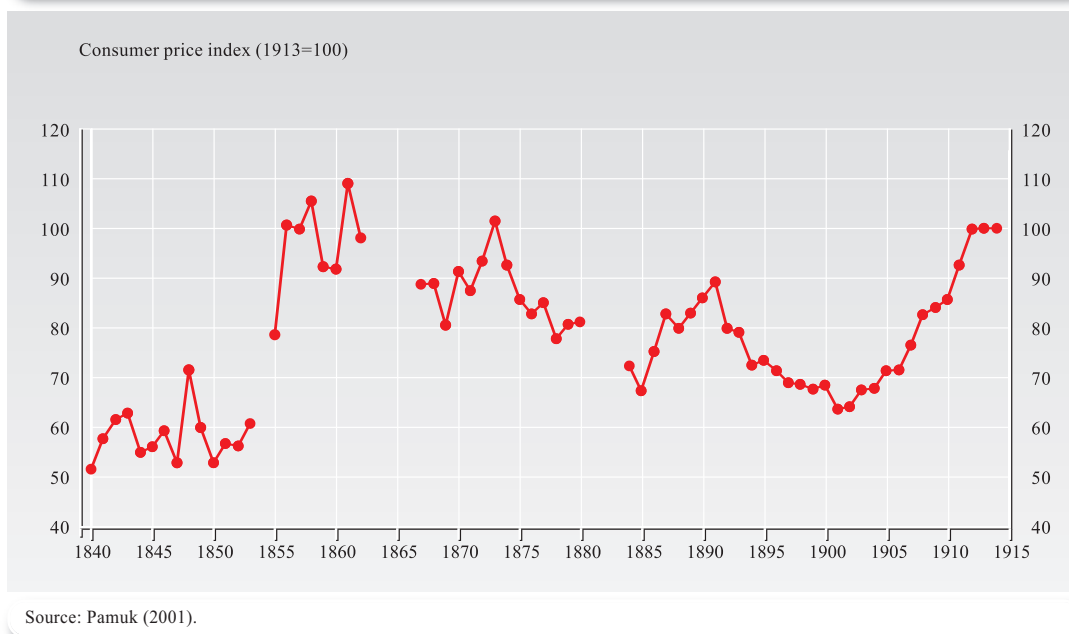


Source: Tuncer (2011).

<sup>25</sup> Tuncer (2011, pp. 175–182).

<sup>26</sup> Pamuk (2001).

FIGURE 10 Consumer Prices in Istanbul, 1844–1914



lowed mostly international trends. Following the global financial crisis of 1873, in line with global deflationary trends experienced by the gold standard countries, consumer prices in Istanbul also went through a declining trend, which only started reversing after 1900.

## 2.6 NATIONAL ACCOUNTS AND POPULATION

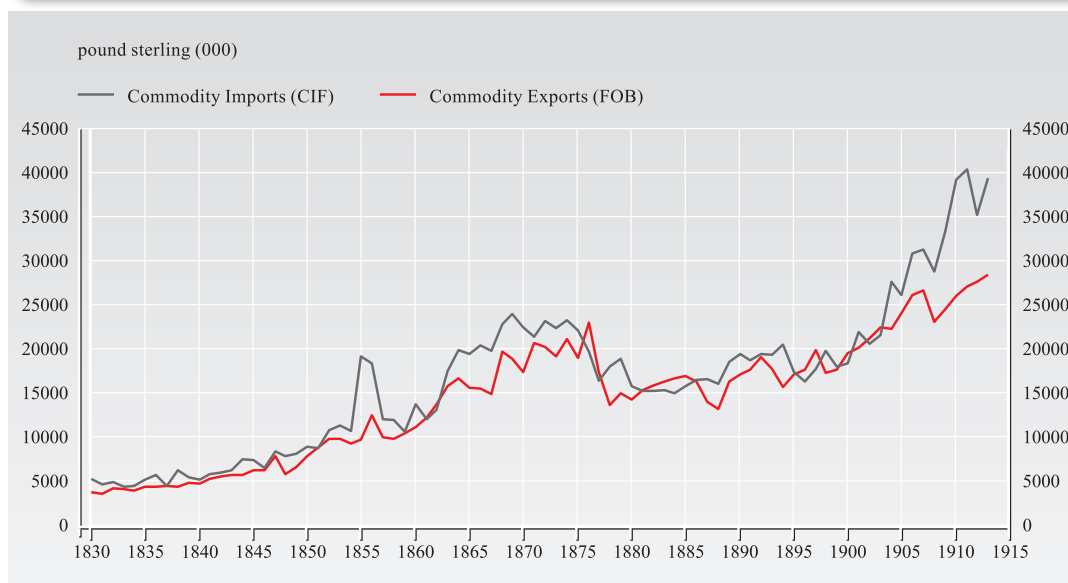
### 2.6.1 Foreign trade

Similar to the rest of Southeast Europe and the peripheries, the 19th and early 20th centuries were characterised by the commercialisation of Ottoman agriculture and a rapid expansion of foreign trade. Figure 11 shows commodity exports and imports of the Ottoman Empire for the period 1830–1913, expressed in millions of pounds sterling (see Table OE6\_A; Series OE6A\_A and OE6B\_A). The Ottoman Empire excludes Egypt and Libya for the whole period under study. However, in line with the territorial changes of the 19th century, the coverage is adjusted accordingly.<sup>27</sup> Therefore, Romanian principalities until 1856, Bosnia, Montenegro, and Bulgaria until 1877, Cyprus and Crete until 1907, and Macedonia until 1912 are included in the estimates. Moreover, Syria and Palestine are included in the calculations for the whole period. A detailed discussion of the methodology and sources can be found in Pamuk (1987 and 2003).

Overall, growth in Ottoman international trade followed similar patterns as in other European countries during the 19th century. The rapid increase in the volume of foreign trade from 1840 to 1879 slowed down with the depression in the international markets. From 1898 onwards another phase of rapid expansion in foreign trade started, which was fuelled by the demand from Europe for the Ottoman raw materials and the expansion of the railway network connecting domestic markets to foreign ports.<sup>28</sup>

<sup>27</sup> Pamuk (2003, p. 23).

<sup>28</sup> Pamuk (1987).

**FIGURE II Commodity Exports and Imports, 1830–1913**

Sources: Pamuk (1987, 2003).

### 2.6.2 GDP and population

The first available GDP estimates for the Ottoman Empire go back to Eldem (1970), where fiscal, agricultural, industrial and foreign trade series were utilised to reach GDP and GDP per capita estimates for the whole Ottoman Empire. These numbers have recently been revised by Pamuk (2006), who provides a detailed discussion of the methodology and sources used in calculations. The results, summarised in Table 6, exclude Romania, Egypt, and the Arabian Peninsula but include areas in the Balkans as well as Anatolia, Syria, and Iraq. From 1840 to 1914 the decline in total population was due to the loss of territory in the Balkans. Moreover, the results suggest a significant increase in GDP per capita in nominal terms from 1840s to 1914.<sup>29</sup> Despite these positive growth rates of GDP per capita, the income gap between the Western European countries and the Ottoman Empire steadily increased from the 1840s to 1914.

**TABLE 6: Population and GDP of the Ottoman Empire, 1840–1914**

Years	Population Million inhabitants	GDP at current prices millions of current Ottoman liras
1840–1842	26.0	130.0
1880–1882	20.0	160.0
1913–1914	22.0	260.0

Source: Ferid (1914).

<sup>29</sup> Pamuk (2006).

### 3 DATA SOURCES

The dualistic character of the Ottoman monetary system is also reflected in the nature and availability of the data sources. The IOB, as a foreign bank, has a considerable range of primary data sources located in the main archives of the bank in Istanbul, Paris and London. Similarly, there is extensive secondary literature on the history of the bank, which allows us to reconstruct and interpret some of the fundamental monetary time series of the bank.<sup>30</sup> In this study, we mostly relied on the annual reports and the balance sheets of the bank located in the London archives of the bank and on the extensive data appendix provided by Eldem (1999).<sup>31</sup> As for the second dimension of the Ottoman monetary system, we relied on coinage information provided in Ferid (1914). This source, published by the director of the Ottoman Mint, relies on official reports of the mint and so far it has been the most prominent reference point for major contributions in Ottoman monetary history. The end-of-month data for exchange rates have been published in Tuncer (2011), and the numbers are based on the daily edition of *The Levant Herald and Eastern Express* (1880–1914). Annual averages of the end-of-month data points have been reproduced in the data tables in section 2.

The time series data on foreign government debt and interest service were published for the first time by Pamuk (1987) as part of the balance of payments estimates. More recently, these figures have been revised by Tuncer (2011) by using individual bond information. These new estimates take into account the nominal face value, interest, the amortisation rate and the maturity period of each loan from 1854 to 1914. These figures are then aggregated in order to reach the total outstanding foreign debt and interest service. Bonds issued in different currencies are converted into pounds sterling at the prevailing exchange rate.<sup>32</sup> Government revenue and expenditure data figures are reported as at the end of Ottoman fiscal year and are taken from Güran (2003), who provides detailed budgets of the Ottoman government based on official figures.

The Ottoman foreign trade statistics published in Pamuk (1987) provide the most comprehensive estimates on the long-run evolution of Ottoman commodity exports and imports from 1830 to 1913. These figures address some of the major problems of the official Ottoman trade statistics and utilise foreign trade statistics of all the countries with which the Ottoman Empire maintained commercial relations. Further methodological discussion regarding the estimates can be found in Pamuk (1987). For the period under study, there are no official estimates of GDP or the consumer price index. For these two series we preferred to reproduce the most reliable estimates available in the literature without going into the details of the methodology and sources used.<sup>33</sup>

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<sup>30</sup> See, for example, Biliotti (1909), Autheman (2002), Eldem (1999), Clay (1990, 1994) and Thobie (1991).

<sup>31</sup> IOB (1863–1914).

<sup>32</sup> Tuncer (2011, p. 315).

<sup>33</sup> Pamuk (2001, 2006).

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**Note:** In the following tables “..” indicates that the item did not exist; in case of reconstructed data, that the entry was not calculated for that point in time. “.” indicates missing value. An absolute zero is coded as “-“, while “0.0” codes a rounded zero. For details on the unit of the series, see index table in section 2.

TABLE OEI\_A Monetary variables, 1863–1914

Year	Banknotes in circulation (IOB)	Total reserves of IOB	Gold coinage	Silver coinage	Bronze and nickel coinage
	OE1A_A	OE1B_A	OE1C_A	OE1D_A	OE1E_A
1863	7.9	366.7	.	.	.
1864	6.8	416.9	.	.	.
1865	22.9	634.9	.	.	.
1866	36.3	506.6	.	.	.
1867	38.6	516.1	.	.	.
1868	87.8	565.5	.	.	.
1869	224.0	498.5	.	.	.
1870	62.3	849.5	.	.	.
1871	121.9	613.8	.	.	.
1872	225.1	582.8	.	.	.
1873	202.6	535.9	.	.	.
1874	295.1	838.2	.	.	.
1875	99.2	490.7	.	.	.
1876	22.3	260.7	77.8	257.7	0.0
1877	16.5	219.5	410.3	472.2	0.0
1878	16.1	444.4	406.7	1189.2	0.0
1879	63.7	495.3	4.3	23.8	0.0
1880	123.5	481.5	0.0	0.0	0.0
1881	239.9	809.9	249.2	0.0	0.0
1882	172.3	700.2	137.5	0.0	0.0
1883	236.6	885.8	305.6	10.0	0.0
1884	312.8	651.7	35.1	48.8	0.0
1885	348.6	1333.9	585.5	0.0	0.0
1886	351.7	1230.0	285.4	280.0	0.0
1887	438.8	1601.7	13.0	111.3	0.0
1888	452.1	1231.2	22.6	127.1	0.0
1889	492.0	741.7	336.9	19.0	0.0
1890	665.0	1105.3	10.2	9.7	0.0
1891	682.6	1257.2	759.6	105.3	0.0
1892	870.1	1416.9	32.0	201.0	0.0
1893	865.7	1623.8	175.9	1.5	0.0
1894	838.8	1746.9	20.2	102.4	0.0
1895	625.8	1327.6	789.5	100.1	0.0
1896	566.7	1597.8	21.9	1.7	0.0
1897	691.6	1771.5	200.0	99.8	0.0
1898	810.8	2144.5	325.0	100.7	0.0
1899	832.3	1873.5	62.4	56.5	0.0
1900	846.2	2064.7	78.3	1.8	12.9
1901	880.5	2335.2	68.3	1.3	34.1
1902	1106.9	1819.1	196.1	194.0	81.0
1903	1117.5	1697.2	1098.2	313.0	96.0
1904	1177.8	2456.3	1165.7	226.6	0.0
1905	1142.0	2709.4	1893.8	36.3	98.5
1906	1181.8	2310.4	3018.5	237.8	0.0
1907	1090.8	3468.0	2188.0	268.1	0.0
1908	840.0	3621.1	1063.3	133.1	0.0
1909	844.7	3246.1	1958.6	193.7	0.0
1910	916.9	3296.8	3680.6	415.4	16.0
1911	1021.9	5391.0	5021.7	196.0	151.0
1912	1116.8	5257.0	3967.0	172.0	214.0
1913	1069.2	4327.6	1174.4	19.1	331.0
1914	.	.	3904.4	79.0	165.0

Notes: Banknotes in circulation and total reserves of the IOB are in thousands of pounds sterling. Total Reserves include gold, silver and foreign exchange reserves in Istanbul, London, Paris and other branches of the IOB. Coinage values refer to net coinage excluding re-coinages and are reported in thousands of gold liras.

TABLE OE3\_A Exchange rates, 1880–1913

Year	Lira/ pound sterling (gold sovereign)	Lira/ pound sterling (3-month bill)	Lira/ pound sterling (mint parity)	Lira/ French franc (gold Napoleon)	Lira/ French franc (3-month bill)	Lira/ French franc (mint parity)
	OE3A_A	OE3B_A	OE3C_A	OE3D_A	OE3E_A	OE3F_A
1880	1.098	1.097	1.107	0.044	0.043	0.044
1881	1.097	1.095	1.107	0.044	0.043	0.044
1882	1.102	1.106	1.107	0.044	0.044	0.044
1883	1.101	1.108	1.107	0.044	0.044	0.044
1884	1.103	1.108	1.107	0.044	0.044	0.044
1885	1.103	1.109	1.107	0.044	0.044	0.044
1886	1.105	1.114	1.107	0.044	0.044	0.044
1887	1.110	1.118	1.107	0.044	0.044	0.044
1888	1.110	1.117	1.107	0.044	0.044	0.044
1889	1.106	1.106	1.107	0.044	0.044	0.044
1890	1.102	1.097	1.107	0.044	0.043	0.044
1891	1.101	1.102	1.107	0.044	0.043	0.044
1892	1.102	1.107	1.107	0.044	0.044	0.044
1893	1.102	1.108	1.107	0.044	0.044	0.044
1894	1.103	1.109	1.107	0.044	0.044	0.044
1895	1.105	1.112	1.107	0.044	0.044	0.044
1896	1.101	1.104	1.107	0.044	0.044	0.044
1897	1.099	1.098	1.107	0.044	0.043	0.044
1898	1.099	1.101	1.107	0.044	0.044	0.044
1899	1.101	1.096	1.107	0.044	0.044	0.044
1900	1.102	1.094	1.107	0.044	0.044	0.044
1901	1.101	1.104	1.107	0.044	0.044	0.044
1902	1.101	1.104	1.107	0.044	0.044	0.044
1903	1.100	1.100	1.107	0.044	0.044	0.044
1904	1.101	1.101	1.107	0.044	0.044	0.044
1905	1.099	1.099	1.107	0.044	0.044	0.044
1906	1.099	1.098	1.107	0.044	0.044	0.044
1907	1.100	1.100	1.107	0.044	0.044	0.044
1908	1.099	1.098	1.107	0.044	0.044	0.044
1909	1.099	1.098	1.107	0.044	0.044	0.044
1910	1.100	1.098	1.107	0.044	0.044	0.044
1911	1.100	1.098	1.107	0.044	0.044	0.044
1912	1.101	1.098	1.107	0.044	0.043	0.044
1913	1.101	1.101	1.107	0.044	0.043	0.044

Notes: 1 gold lira, consisting of 100 kurus, includes 6.614 gr of gold. Values refer to annual averages of monthly figures.

TABLE OE4\_A Government finances, 1846–1918

Year	Total government revenue	Total government expenditure	Foreign debt	Interest service	Year	Total government revenue	Total government expenditure	Foreign debt	Interest service
	OE4A_A	OE4B_A	OE4C_A	OE4D_A		OE4A_A	OE4B_A	OE4C_A	OE4D_A
1846	6250.0	6332.1	..	..	1883	16355.0	20909.9	126079.2	2309.4
1847	6535.0	6786.7	..	..	1884	15769.0	21534.3	125053.4	2277.0
1848	6662.3	7544.6	..	..	1885	.	.	123977.0	2243.6
1849	7100.0	7888.9	..	..	1886	.	.	128725.5	2355.6
1850	7021.3	8010.3	..	..	1887	17573.8	22721.1	127476.4	2463.8
1851	7244.0	7780.3	..	..	1888	18137.6	21017.1	127647.6	2456.6
1852	7729.7	7943.9	..	..	1889	17795.5	21154.0	126233.0	2446.8
1853	7574.6	7791.2	..	..	1890	17767.4	19927.3	131779.3	2416.6
1854	.	11081.3	2981.2	90.0	1891	17922.4	19842.1	132752.7	2399.4
1855	.	.	8442.2	233.9	1892	18371.8	19290.9	131907.0	2449.0
1856	8880.5	9293.6	8400.2	396.5	1893	18299.9	21422.2	131037.9	2427.7
1857	10429.5	11315.9	8355.2	394.0	1894	18656.6	20411.0	135556.3	2426.2
1858	11333.0	12006.7	13291.7	466.3	1895	18325.9	20952.6	134715.7	2545.3
1859	11613.8	13672.0	13142.9	687.5	1896	18291.1	23010.4	137118.1	2607.2
1860	12000.7	13116.4	15010.7	740.4	1897	18511.3	18449.3	136219.1	2668.4
1861	12211.8	13934.1	14819.3	792.0	1898	18126.6	19090.5	135296.5	2646.3
1862	16610.2	14906.9	22520.2	1261.3	1899	18829.3	20176.5	134351.5	2623.3
1863	15052.7	14845.0	30111.6	1724.2	1900	19612.3	20877.8	133382.5	2599.6
1864	16211.1	16028.4	29675.8	1700.4	1901	19434.7	21872.5	133519.7	2597.8
1865	15255.8	.	35150.9	1855.1	1902	19764.0	21978.4	135847.2	2558.6
1866	15585.7	16795.9	34415.5	2004.0	1903	20062.4	24393.5	96334.5	3237.5
1867	15979.9	18683.2	69590.0	3325.4	1904	20258.2	21232.0	95473.8	3401.6
1868	18258.7	20728.7	68213.5	3711.8	1905	22291.3	21962.2	97064.0	3471.0
1869	17751.4	20360.8	88282.1	4954.1	1906	22904.9	25364.6	101177.2	3588.8
1870	18394.8	20709.3	86173.5	4844.1	1907	.	.	100265.2	3608.1
1871	19200.8	22765.3	121083.8	5368.5	1908	23649.5	28687.1	112654.3	3842.8
1872	20637.2	21404.5	142617.9	7158.4	1909	25079.0	30539.5	119853.1	4245.9
1873	21099.3	26186.6	201096.8	10353.1	1910	26015.1	35693.8	120244.4	4409.0
1874	24807.4	25134.6	196391.4	10117.5	1911	28477.4	36233.2	125383.5	4526.1
1875	23882.9	28929.1	196337.7	8533.3	1912	30514.2	34676.7	124024.0	4607.9
1876	22027.5	25726.2	196337.7	190.0	1913	.	.	123583.1	4582.1
1877	20071.0	46283.2	201271.4	612.5	1914	32697.0	34012.0	142094.6	4954.9
1878	.	.	201198.4	734.3	1915	26836.4	35657.5	.	.
1879	14285.8	15236.6	201121.1	730.6	1916	25012.6	39724.7	.	.
1880	16155.8	21950.0	201039.3	726.7	1917	23584.2	53304.5	.	.
1881	15942.5	27568.5	124992.6	2014.8	1918	34028.7	51969.7	.	.
1882	15059.0	20197.9	127057.9	2338.8					

Notes: Government revenue and expenditure are based on the Rumi calendar; the Ottoman fiscal year starts on 1 March; in thousands of gold liras. The estimates of foreign debt and interest service are reported in thousands of pounds sterling.

**TABLE OE5\_A Prices, production and labour, 1840–1914***(1913=100, consumer prices in Istanbul, in silver akçes)*

Consumer price index		Consumer price index	
Year	OE5A_A	Year	OE5A_A
1840	51.56	1881	.
1841	57.78	1882	.
1842	61.55	1883	.
1843	62.79	1884	72.42
1844	55.02	1885	67.38
1845	56.07	1886	75.28
1846	59.30	1887	82.83
1847	52.88	1888	79.92
1848	71.58	1889	82.97
1849	59.99	1890	86.00
1850	52.94	1891	89.22
1851	56.76	1892	79.91
1852	56.30	1893	79.12
1853	60.75	1894	72.51
1854	.	1895	73.45
1855	78.70	1896	71.43
1856	100.68	1897	69.00
1857	99.89	1898	68.71
1858	105.46	1899	67.75
1859	92.32	1900	68.51
1860	91.80	1901	63.63
1861	109.09	1902	64.17
1862	98.14	1903	67.51
1863	.	1904	67.90
1864	.	1905	71.38
1865	.	1906	71.59
1866	.	1907	76.49
1867	88.79	1908	82.68
1868	88.88	1909	84.18
1869	80.57	1910	85.78
1870	91.33	1911	92.63
1871	87.45	1912	99.80
1872	93.47	1913	100.00
1873	101.46	1914	100.00
1874	92.68		
1875	85.64		
1876	82.87		
1877	85.15		
1878	77.89		
1879	80.73		
1880	81.17		

TABLE OE6\_A Trade, 1830–1913

(in thousands of pounds sterling)

Year	Commodity exports	Commodity imports	Year	Commodity exports	Commodity imports
	(FOB)	(CIF)		(FOB)	(CIF)
	OE6A_A	OE6B_A		OE6A_A	OE6B_A
1830	3700	5300	1872	20200	23200
1831	3600	4600	1873	19200	22400
1832	4200	4900	1874	21100	23300
1833	4100	4400	1875	19000	22100
1834	3900	4500	1876	23000	19700
1835	4400	5200	1877	17400	16400
1836	4400	5700	1878	13600	18000
1837	4500	4500	1879	15000	18900
1838	4400	6200	1880	14300	15800
1839	4800	5400	1881	15300	15200
1840	4700	5200	1882	15900	15200
1841	5300	5800	1883	16300	15300
1842	5500	6000	1884	16700	15000
1843	5700	6200	1885	16900	15800
1844	5700	7500	1886	16300	16500
1845	6200	7400	1887	14000	16600
1846	6200	6500	1888	13200	16000
1847	7800	8400	1889	16300	18500
1848	5800	7800	1890	17100	19400
1849	6600	8100	1891	17600	18700
1850	7800	8900	1892	19100	19400
1851	8800	8700	1893	17700	19300
1852	9800	10800	1894	15700	20500
1853	9800	11300	1895	17100	17400
1854	9300	10700	1896	17600	16300
1855	9700	19200	1897	19900	17700
1856	12500	18400	1898	17300	19800
1857	10000	12000	1899	17600	18000
1858	9800	11900	1900	19500	18400
1859	10400	10600	1901	20100	21900
1860	11100	13700	1902	21200	20600
1861	12200	12000	1903	22500	21600
1862	13700	13100	1904	22300	27600
1863	15800	17500	1905	24100	26100
1864	16700	19900	1906	26100	30800
1865	15600	19400	1907	26600	31300
1866	15500	20400	1908	23100	28800
1867	14900	19800	1909	24500	33300
1868	19700	22800	1910	26000	39200
1869	18900	24000	1911	27100	40400
1870	17400	22500	1912	27600	35200
1871	20700	21400	1913	28400	39400

**TABLE OE6\_A GDP and population***(OE6C\_A in millions of current Ottoman liras; OE6D\_A million inhabitants)*

Years	GDP		Population	
	OE6C_A		OE6D_A	
1840–1842	130.0		26.0	
1880–1882	160.0		20.0	
1913–1914	260.0		22.0	







## Bulgaria: from 1879 to 1947

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### I MAJOR MONETARY EVENTS

Almost immediately after gaining its independence on 3 March 1878,<sup>3</sup> Bulgaria started to build its political, financial and administrative institutions. The Bulgarian National Bank (BNB, Българска Народна Банка - БНБ) was established on 25 January 1879 as a state-owned deposit and commercial bank with a capital provided by the government. The government had two specific ways of exerting influence over the bank, namely through the Minister of Finance, to whom the bank reported on its activities, and by selecting the governor. According to its statute, the BNB had the objective of promoting trade development, regulating commercial relations and providing credit to the economy. The articles of establishment did not envisage any issuing rights of the BNB and allowed it to provide traditional commercial banking services.<sup>4</sup>

The coinage system in the Principality of Bulgaria was legislated for the first time in 1880. With the Monetary Law of 27 May 1880 the lev (лев) was established as legal tender, at par with the French franc.<sup>5</sup> Under the coinage system of the Latin Monetary Union (LMU), all silver and gold Bulgarian coins were to be minted with the same weight and fineness as the French equivalents (BNB 2009). The compliance of the national monetary standard with the prevailing international standard was thought crucial for the integration of the new state into the ‘concert of nations’ (Avramov 2006, Dimitrova and Fantacci 2010). The state had the exclusive right to mint coins as the Parliament voted on the proposal from the Minister of Finance on how many and what coins should be minted (see Article 1 of the 1880 Monetary Law). According to Article 14, gold and silver coins were legal tender under other existing laws prescribing that certain government revenues (such as import taxes) should be paid only in gold leva. Thus, Bulgaria officially adopted the bimetallic standard (see BNB 1929, p. 55, Yordanov 1910, p. 51 and Avramov 1999, p. 18).

<sup>1,2</sup> *Monetary History Program; Institute for Historical Research.* The chapter expands on earlier data releases of the South-eastern European historical database edited by the OeNB, *Proceedings of OeNB Workshops* no. 13 (2008) and the Bank of Greece, *Working Paper* no. 94 (2009). We would like to thank Roumen Avramov for providing us with interesting details on the major monetary events in Bulgarian economic history. Special acknowledgements should be extended to Clemens Jobst, who provided the data on the prices and yields of Bulgarian government bonds. We are also grateful to Svetla Vladimirova, Kiril Kosev and Joanna Bachovska for their valuable assistance in collecting and double checking the data. Last but not least, we would like to thank Nikolay Nenovsky for initiating the SEEMHN and encouraging us to work on this project. The views expressed herein are strictly those of the authors and do not necessarily reflect the views of the Bulgarian National Bank or the Institute of Historical Research at the Bulgarian Academy of Science. The authors alone are responsible for any remaining errors. *Email to:* dimitrova.ka@gmail.com; hadjimartin@abv.bg

<sup>3</sup> As a result of the Russo-Turkish War of 1877–78, Bulgaria restored its *de facto* political independence. The Berlin Peace Treaty of 1878, however, divided present-day Bulgaria into several parts. The Principality of Bulgaria, comprising the territories between the Danube and the Balkan Mountains range was a tributary state with only very weak links to Istanbul. To the south, the Treaty created the autonomous Ottoman province of Eastern Rumelia, which in 1885 united with the Principality. As a result of both Balkan Wars (1912–13) and World War I, Bulgaria received part of Eastern Macedonia but lost the fertile Dobrudja region to Romania. In September 1940, with the Craiova Agreement, Bulgaria was given Dobrudja back and achieved its present-day borders.

<sup>4</sup> For a detailed chronology of the institutional development of the BNB, see Avramov (1999).

<sup>5</sup> See State Gazette, issue 49, 4 June 1880.

TABLE I Chronology of major monetary events

BNB institutional milestones	Milestones in the monetary history of Bulgaria
<i>1879 The BNB was established as a state-owned deposit/merchant bank.</i>	1880 The lev was introduced as legal tender. Coins were minted according to the system of the Latin Monetary Union. 1880–1887 Monetary chaos and demonetisation of foreign currencies.
<i>1885 The BNB was granted the privilege of note issue. The BNB became a commercial and issuing bank.</i>	1888–1902 Agio (premium on gold). 1899–1902 Gold-backed banknotes convertibility was suspended; only silver convertibility was allowed (plus daily agio). 1906–1912 The Bulgarian lev was de facto on gold. 1912 War force majeure: convertibility was suspended. 1915–1923 Fiat money; war and post-war inflation. 1924 De facto stabilisation of the lev at 1/27 of the pre-war gold parity.
<i>1928 The BNB was transformed into a pure central bank under the aegis of the League of Nations.</i>	1928 De jure stabilisation and entry into the gold-exchange standard. 1931 Exchange controls were imposed. 1939–1944 Monetary expansion based on clearing surpluses with Germany. 1945–1947 War and post-war inflation.
<i>1947 BNB as a monobank.</i>	1947 Nationalisation of the banking system.

Source: Avramov (2006).

While the monetary system in Bulgaria was formally intended to follow the system of the countries of the LMU, in practice it was a hybrid (Nedelchev 1940, p. 13). This is because first, the Monetary Law allowed minting of copper coins that were not legal tender. Moreover, although the law prescribed the amount of copper coins to be minted, it did not set any maximum limit on the amount that could be accepted in money transactions. Foreign copper coins were not allowed to circulate in the domestic money market. Second, although the government had the exclusive right to mint coins (private coinage was not permitted), an upper limit on silver coinage had not previously been set and therefore, in the 1890s, the practice of excessive silver coin minting turned out to be the ‘apple of discord’ between the BNB and the government, which was severely criticised by economists such as Christoforoff (1946, p. 66) and Bochev (1924, p. 33).<sup>6</sup> Third, according to Article 17, the law recognised as legal tender all foreign gold and silver coins circulated in the LMU countries together with Russian and Turkish silver coins, as the Treasury accepted them at exchange rates set by the government in the monetary tariffs.

The first Bulgarian coins were minted in 1881 and were made of copper; they served for petty cash transactions. With the view to enhancing domestic money circulation, the government minted silver coins successively in 1882, 1883 and 1884, and in particularly large amounts in 1885, while the first Bulgarian gold coins were minted in 1894. While the parallel circulation of the LMU silver coins was by no means a departure from the LMU principles, the domestic money market was flooded with foreign silver coins due to the overvalued exchange rate of the silver Russian rouble<sup>7</sup> imposed by the Provisional Russian Government (1878–1879) as well as due to the earlier

<sup>6</sup> For a chronology of the debate, see BNB (1998), pp. 356–376.

<sup>7</sup> Researchers argue that this was done with an aim to support the Russian currency by creating external demand for it, namely a zone (Bulgaria, Serbia and Romania) of roubles in circulation, making it as strong as the French franc (Christoforoff, 1946, p. 36).

demonetisation of foreign silver coins in the neighbouring countries. This resulted in an increase in the *agio*, which is defined as the premium over gold coins expressed in silver coins at the local market with respect to the officially set rate.<sup>8</sup> That period, known in the literature as ‘monetary chaos’ (see Kiosseva 2000), continued until late 1887, when all foreign silver coins were ultimately demonetised.<sup>9</sup>

In 1885, the BNB was granted the monopoly of issuing banknotes. The first issue of banknotes, of which one third had to be covered by gold (i.e. gold-backed notes), followed soon afterwards. Although effective coverage was well above the minimum ratio, public confidence in the banknote was very low and agents were averse to holding them, keeping a vivid memory of the devalued Ottoman paper money (*kaime*) (BNB 1929, p. 57). Moreover, private agents had a strong preference for silver coins due to the high agio, since gold-backed banknotes were accepted at their nominal/face value (BNB 1895, p. 21).

Following the increasing number of countries which took steps to move onto gold in the early 1890s (Austria-Hungary, Romania), Bulgaria also made efforts in the same direction in the 1890s, but without much success (Avramov 1999, pp. 30–31). While the BNB was in favour of adopting the gold standard in order to increase the circulation of its banknotes and eliminate the agio, neither a final decision nor effective measures had been taken by the government because of the poor public finances and the need to keep reaping the seigniorage gains from the silver minting to finance fiscal deficits (Yordanov 1910, p. 52). As a compromise, the BNB was granted in 1891 the right to issue silver-backed banknotes, however only *de jure* since the ministerial decision to put this law into effect was not issued by the Minister of Finance.

The economic crisis of 1897–1901 resulted in large trade deficits, shortage of gold currencies and severe financial difficulties both for the private sector and the government and put an abrupt end to the government’s second attempt to join the classical gold standard. It is noteworthy that these last efforts culminated with a draft law on the establishment of the gold standard in 1897 (see State Gazette 1897, issue 81, 17 April 1897).<sup>10</sup> In view of the depletion of its gold reserves, the BNB was *de facto* allowed to exercise its right of issuing silver-backed banknotes in 1899, the coverage of which was set at one third provided by silver holdings only. These banknotes quickly started circulating and replacing the silver coins. To avoid any further outflow of its gold reserves, convertibility of the gold-backed banknotes was suspended with the law of 13 November 1899. Suspension lasted for almost three years. Bulgarian economists consider that period as ‘actual silver standard’, since the gold-backed banknotes could be accepted by the BNB in exchange of silver plus the daily agio (see Nedelchev 1940, p. 27 and Christophoroff 1946, p. 68).

Soon after the end of the economic crisis, the two bumper crops of 1902 and 1903 resulted in unprecedented foreign trade surpluses. In 1902, the government managed to restructure its public foreign debt by retiring a considerable portion of the Bulgarian government bonds of past foreign loans and liquidating the floating debt and redemptions at maturities in pending with a large French loan. In return, the government provided the revenues from its tobacco monopoly to service and repay the loan and allowed for a representative of the creditor country (France) who had control on tobacco revenues.<sup>11</sup>

<sup>8</sup> A detailed study on the development of the agio in Bulgaria is provided in Dimitrova and Fantacci (2011).

<sup>9</sup> According to Joseph Petkof (1926, pp. 17–18), foreign silver coins continued to circulate until 1888.

<sup>10</sup> The Council of Ministers had the right to implement this law when appropriate. However, poor harvests in 1898 and 1899 prevented the application of the law.

<sup>11</sup> A thorough history of the Bulgarian public foreign debt is provided by Ivanov et al. (2009).

The 1902 foreign loan was contracted provided that convertibility of gold-backed banknotes would be re-established soon. Gold convertibility was eventually restored on 24 November 1902, putting an end to extra budget financing through silver coinage. An enabling domestic economic and financial environment allowed the BNB to accumulate sufficient gold reserves to keep the lev convertible. Further steps were taken to reform the monetary sector, including a switch in the backing of the widely used banknotes of lower denominations from silver to gold and an increase in the legal minimum coverage of silver-backed banknotes from one third to one half.<sup>12</sup> As a result, the newly set legal minimum cover ratio was closer (in real/effective terms) to that provided for the gold-backed banknotes (BNB 1929, p. 28). All these measures led to the disappearance of the agio, an increase in the gold-backed banknotes in circulation and an ‘invisible transition to the gold standard’ by the end of 1906 (BNB 1907, p. 17).<sup>13</sup> With a new round of political turbulence starting on 10 October 1912 with the outbreak of the First Balkan War, the BNB stopped converting both gold- and silver-backed banknotes and a paper standard was *de facto* established (Avramov 1999).<sup>14</sup>

The First Balkan War in 1912, and in close succession the Second Balkan War in summer 1913 and World War I in 1914, forced Bulgaria to default on its foreign debt, which by 1912 amounted to over 600 million French francs. Extensive war financing and huge reparations imposed by the ‘Entente Powers’ in 1919 caused strong devaluation pressures on the lev against the leading European currencies as the country’s reserves were denominated in devalued German marks.

First attempts at monetary stabilisation were made in December 1923, when the BNB was granted a monopoly in foreign exchange trading. Steps towards establishing the gold-exchange standard were also taken when the BNB targeted an exchange rate of 139 leva per 1 US dollar according to the Law of 2 May 1924.<sup>15</sup> At the same time, the Bank stopped issuing silver-backed banknotes. Article 7 of the BNB Law, as amended on 14 March 1924, gave to the bank the exclusive privilege of issuing ‘gold banknotes’ also backed by foreign currency at the gold-French franc parity. Foreign loans such as the Refugees Loan in 1926 and the Stabilisation Loan in 1928 helped the country to accumulate foreign reserves. On 3 December 1928, the lev was *de jure* stabilised and legally pegged to gold at the rate of 92 leva per 1 gram pure gold or 139 leva per 1 dollar. As a result, 1 gold lev equalled 27 paper leva (Nedelchev 1940, p. 85). According to the stabilisation law, all previously minted coins were demonetised. The new silver coins to be minted were of different fineness and weight and were not legal tender, but were acceptable for payments up to a limited amount (Article 6). Furthermore, no gold coin was envisaged and all pre-stabilisation banknotes were gradually withdrawn from circulation (Article 8). While the December 1928 amendment to the BNB Law envisaged free convertibility of banknotes, the June 1929 amendment did not implement it, as the 1924 Foreign Exchange Trade Act was still in force (Nedelchev 1940, p. 36). However, the 1928 amendment to the BNB Law allowed the operation of the bank according to the model of modern central banks: it was independent from the government and had the right to provide only short-term credit (i.e. discount facilities).

In response to the Great Depression, exchange controls were put in place by a law on 15 October 1931, which introduced restrictions in the amended Foreign Exchange Trade Act and the BNB was

<sup>12</sup> See the amendments to the BNB Law, dating back to 6 February 1906.

<sup>13</sup> Silver coins and silver-backed banknotes continued to circulate (as there was no change in the Monetary Law) but *de facto* served money transactions of low value.

<sup>14</sup> By the Law of 3 January 1919, the *de facto* inconvertibility of the Bulgarian banknotes was acknowledged.

<sup>15</sup> A study on the monetary stabilisation from a modern perspective is provided by Nenovsky (2006), analysing contemporaries’ attitudes at that time (see, for example, Nikolov 1927, Yurii 1923, Toshev 1928 and Burlikov 1928).

given the full monopoly of foreign exchange trading.<sup>16</sup> The two BNB ordinances that followed<sup>17</sup> aimed at concentrating all foreign exchange at the bank and keeping it at its disposal. Meanwhile, the country's reparation burden was significantly reduced by two cut downs, following the second session of the Hague Conference on reparations in January 1930 and the Lausanne Conference in June-July 1932.<sup>18</sup> Ultimately, with the assistance of the League of Nations, Bulgaria achieved substantial public foreign debt relief, which by 1935 reached almost 80 per cent of interest payments, while amortisation was postponed but practically never repaid (Ivanov and Tooze 2011).

As a response to the British and French tariff and non-tariff constraints, under which foreign trade was bound with foreign debt service,<sup>19</sup> Bulgaria signed bilateral clearing agreements with Austria (October 1931), Switzerland (April 1932), Germany (June 1932) and Italy (1933) at fixed exchange rates. The effective appreciation of the Reichsmark vis-à-vis the lev boosted Bulgarian exports to Germany. Therefore, the clearing surpluses formed by the end of the 1930s supported the increase in money supply, thus avoiding deflation (Nenovky and Dimitrova 2007, pp. 16–17).

The negative impact of the imposition of exchange controls on foreign trade was at least partially overcome by allowing private compensation deals with an exchange rate premium. Starting in 1933, large amounts of convertible currencies were freely traded with a premium, indicating an implicit devaluation. By 1937, compensation deals amounted to 36% of the foreign trade turnover (see Christoforoff 1939, p. 16).

On 1 March 1941 Bulgaria entered WWII on the side of the Axis Powers, and the Bulgarian monetary authorities designated the Reichsmark as the new nominal anchor. This decision permitted the BNB to explicitly include foreign exchange in Reichsmark in the cover ratio, in spite of the fact that the Reichsmark did not possess the characteristics of reserve currency. Therefore, the country maintained a fixed exchange rate regime supported exclusively by extensive controls on foreign exchange transactions throughout wartime. As a result, the monetisation of war-related budget deficits caused high inflation.

By the Law on Banks of 26 December 1947 the nationalisation of the domestic banking system was effected, and the 1928 Law on BNB was abolished. Under the new law, all banking transactions were an exclusive government monopoly, entrusted to the BNB.<sup>20</sup> All joint-stock banks, under domestic and foreign ownership alike, ceased to exist independently (head offices and branches), as all their assets and liabilities were transferred to the BNB, except those of the Bulgarian Mortgage Bank that were transferred to the Bulgarian Investment Bank which provided long-term credit. According to the law, the BNB could delegate the right of certain banking transactions to the Postal Savings Bank, the Popular Banks and to the Multipurpose Agricultural Cooperatives and Departmental Funds.

In the context of the centrally planned economy established in 1947, the foreign exchange market was completely controlled. The country kept fixed exchange rates against the Soviet rouble and, through it, the lev was pegged to the US dollar (and implicitly to gold).

<sup>16</sup> For a detailed study of the exchange control system in Bulgaria and Italy, see Nenovsky et al. (2008).

<sup>17</sup> In particular, see the BNB's Ordinance No.1 (20 October 1931) and Ordinance No. 4 (26 February 1932).

<sup>18</sup> See Royal Institute of International Affairs (1936, p. 98).

<sup>19</sup> See Royal Institute of International Affairs (1936, p. 131).

<sup>20</sup> The term 'monobank' system was introduced by Antonov (1990) and widely accepted by his contemporaries (Avramov 1999, p. 161).

## 2 DEFINITION AND DESCRIPTION OF VARIABLES

## INDEX TABLE - Country: BULGARIA

continue

List of Variables	Time Span	Data Frequency	Unit of account	Series Code
<b>1. MONETARY VARIABLES</b>				
<i>Total reserves</i>	1879–1947	annual	in national currency (thous.), end-of-period	BG1A_A
	Dec. 1879–Dec. 1947	monthly		BG1A_M
<i>Metallic holdings</i>	1879–1947	annual	in national currency (thous.), end-of-period	BG1B_A
	Dec. 1879–Dec. 1947	monthly		BG1B_M
<i>Gold holdings</i>	1886–1947	annual	in national currency (thous.), end-of-period	BG1C_A
	May 1906–Dec. 1947	monthly		BG1C_M
<i>Silver holdings</i>	1886–1929	annual	in national currency (thous.), end-of-period	BG1D_A
	May 1906–Sept. 1930	monthly		BG1D_M
<i>Foreign exchange</i>	1902–1947	annual	in national currency (thous.), end-of-period	BG1E_A
	Aug. 1902–Dec. 1947	monthly		BG1E_M
<i>Total banknotes in circulation</i>	1885–1947	annual	in national currency (thous.), end-of-period	BG1F_A
	Oct. 1885–Dec. 1947	monthly		BG1F_M
<i>Gold-backed banknotes</i>	1885–1923	annual	in national currency (thous.), end-of-period	BG1G_A
	Oct. 1885–Aug. 1924	monthly		BG1G_M
<i>Silver-backed banknotes</i>	1899–1923	annual	in national currency (thous.), end-of-period	BG1H_A
	Dec. 1899–Aug. 1924	monthly		BG1H_M
<i>Other central bank liabilities at sight</i>	1927–1947	annual	in national currency (thous.), end-of-period	BG1I_A
	Jan. 1927–Dec. 1947	monthly		BG1I_M
<i>Effective cover ratio of gold-backed banknotes</i>	1886–1918	annual	per cent, end-of-period	BG1J_A
	May 1906–Dec. 1918	monthly		BG1J_M
<i>Effective cover ratio of silver-backed banknotes</i>	1899–1918	annual	per cent, end-of-period	BG1K_A
	May 1906–Dec. 1918	monthly		BG1K_M
<i>Overall effective cover ratio</i>	1919–1947	annual	per cent, end-of-period	BG1L_A
	Jan. 1919–Dec. 1947	monthly		BG1L_M
<i>Monetary base</i>	1881–1945	annual	in national currency (thous.), end-of-period	BG1M_A
<i>Total currency in circulation</i>	1881–1945	annual	in national currency (thous.), end-of-period	BG1N_A
<i>Of which: Coins in circulation</i>	1881–1945	annual	in national currency (thous.), end-of-period	BG1O_A
<i>Bank deposits at sight at the central bank</i>	1927–1945	annual	in national currency (thous.), end-of-period	BG1P_A
<i>Broad money</i>	1881–1945	annual	in national currency (thous.), end-of-period	BG1Q_A
<b>2. INTEREST RATES</b>				
<i>Discount rate</i>	1879–1946	date of change	per cent	BG2A_D
	Jan. 1879–Dec. 1946	monthly	per cent, end-of-period	BG2A_M
<i>Market price of 1889 State railroad mortgage bond</i>	1890–1907	annual	FF, period average	BG2B_A
	Jan. 1890–Sept. 1907	monthly	FF, end-of-period	BG2B_M
<i>Current yield of 1889 State railroad mortgage bond</i>	1890–1907	annual	per cent, period average	BG2C_A
	Jan. 1890–Sept. 1907	monthly	per cent, end-of-period	BG2C_M
<i>Market price of 1892 State mortgage bond</i>	1893–1914	annual	FF, period average	BG2D_A
	Feb. 1893–June 1914	monthly	FF, end-of-period	BG2D_M
<i>Current yield of 1892 State mortgage bond</i>	1893–1914	annual	per cent, period average	BG2E_A
	Feb. 1893–June 1914	monthly	per cent, end-of-period	BG2E_M
<i>Market price of 1902 Tobacco bond</i>	1902–1914	annual	FF, period average	BG2F_A
	Oct. 1902–June 1914	monthly	FF, end-of-period	BG2F_M
<i>Current yield of 1902 Tobacco bond</i>	1902–1914	annual	per cent, period average	BG2G_A
	Oct. 1902–June 1914	monthly	per cent, end-of-period	BG2G_M
<i>Market price of 1907 State Gold bond</i>	1907–1914	annual	per cent, period average	BG2H_A
	June 1907–June 1914	monthly	per cent, end-of-period	BG2H_M
<i>Current yield of 1907 State Gold bond</i>	1907 - 1914	annual	per cent, period average	BG2I_A
	June 1907–June 1914	monthly	per cent, end-of-period	BG2I_M
<i>Market price of 1909 State Gold bond</i>	1910–1914	annual	per cent, period average	BG2J_A
	Apr. 1910–June 1914	monthly	per cent, end-of-period	BG2J_M
<i>Current yield of 1909 State Gold bond</i>	1910–1914	annual	per cent, period average	BG2K_A
	Apr. 1910–June 1914	monthly	per cent, end-of-period	BG2K_M

## INDEX TABLE - Country: BULGARIA

<i>List of Variables</i>	<i>Time Span</i>	<i>Data Frequency</i>	<i>Unit of account</i>	<i>Series Code</i>
<b>3. EXCHANGE RATES</b>				
<i>Pound sterling</i>	1890–1947	annual	in national currency, period average	BG3A_A
	Jan. 1890–Dec. 1947	monthly		BG3A_M
<i>French franc</i>	1890–1947	annual	in national currency, period average	BG3B_A
	Jan. 1890–Dec. 1947	monthly		BG3B_M
<i>Mark/Reichsmark</i>	1890–1946	annual	in national currency, period average	BG3C_A
	Jan. 1890–July 1946	monthly		BG3C_M
<i>US dollar</i>	1913–1947	annual	in national currency, period average	BG3D_A
	Jan. 1919–Dec. 1947	monthly		BG3D_M
<i>Agio</i>	1886–1906	annual	per cent, period average	BG3E_A
	Oct. 1885–Dec. 1906	monthly		BG3E_M
<b>4. GOVERNMENT FINANCES</b>				
<i>Total government revenue</i>	1879–1945	annual	in national currency (thous.)	BG4A_A
<i>Total government expenditure</i>	1879–1945	annual	in national currency (thous.)	BG4B_A
<i>Foreign debt payments</i>	1887–1945	annual	in national currency (thous.)	BG4C_A
<i>Foreign public debt</i>	1888–1945	annual	in national currency (thous.)	BG4D_A
<i>Domestic public debt</i>	1899–1945	annual	in national currency (thous.), end-of-period	BG4E_A
<b>5. PRICES, PRODUCTION AND LABOUR</b>				
<i>Cost-of-living index (1914=100)</i>	1922–1941	annual	index number	BG5A_A
	Jan. 1922–Dec. 1941	monthly		BG5A_M
<i>Wholesale price index (1914=100)</i>	1926–1945	annual	index number	BG5B_A
<i>Retail price index (1891/01=100)</i>	1887–1912	annual	index number	BG5C_A
<i>General index of market prices (1908/12=100)</i>	1912–1932	annual	index number	BG5D_A
<b>6. NATIONAL ACCOUNTS AND POPULATION</b>				
<i>GDP, nominal terms</i>	1887–1945	annual	in national currency (thous.), at current prices	BG6A_A
<i>GDP, real terms</i>	1887–1945	annual	in national currency (thous.), at 1939 prices	BG6B_A
<i>Exports</i>	1879–1945	annual	in national currency (thous.)	BG6C_A
<i>Imports</i>	1879–1945	annual	in national currency (thous.)	BG6D_A
<i>Population</i>	1880–1945	annual	in million inhabitants	BG6E_A

(\*) Entries of value terms are denominated in lev. The code of each variable is generated by the country prefix (BG), the number of the variables group (1, 2, 3, 4, 5 and 6) and a letter identifying the respective time series within the group (A, B, C,...); at the end, A stands for annual, M for monthly time series and D for the date of change.

## 2.1 MONETARY VARIABLES

### 2.1.1 Total reserves

Total (currency) reserves (BG1A) are defined as consisting of two main elements: metallic holdings (*монетна наличности*) (BG1B) and a foreign exchange component (BG1E). As reported in the BNB balance sheets, metallic holdings include gold (*златна*) and silver (*сребърна*) holdings, foreign full-bodied coins from 1917 to 1926 and small exchange coins from 1923 to 1926. Reporting separately, gold (BG1C) and silver (BG1D) holdings are available from 1886 on an annual basis and on a monthly basis from May 1906 onwards. From January 1927, metallic holdings (i.e. gold and silver holdings) were revalued at the stabilisation rate of ‘92 leva per 1 gram pure gold’. As a result of the revaluation, gold holdings increased 27 times in nominal value and silver holdings increased 9 times at market prices.

The foreign exchange component of the reserves (BG1E) is defined differently across different time intervals, given the changing international monetary standard and the respectively adjusted legal concept and the balance sheet reporting constraints. On the asset side, the earliest available data included ‘receivables from foreign correspondents (*странни кореспонденти*)’ and ‘portfolio of liquid foreign assets (*портфейл срещу странство*)’.<sup>21</sup> The former started to be reported in August 1902 and represented foreign currencies, while the latter started in February 1911 and represented a portfolio of foreign short-term Treasury bills. Both of them, however, were officially recognised as a part of the reserves according to the 10 February 1912 amendment to the BNB Law and therefore they are included in the total reserves indicator (BG1A) since the end of February 1912.<sup>22</sup>

In the context of the first stabilisation efforts, Article 7 of the amended BNB Law (8 March 1924) stated that the foreign exchange component of the reserves should include foreign currencies and short-term foreign Treasury bills adjusted to the gold French franc parity. The new definition did not change the reported balance sheet items, and the foreign exchange component (BG1E) continued to be represented by the sum of ‘receivables from foreign correspondents’ and ‘portfolio of liquid foreign assets’ items. In accordance with Article 8 of the BNB Law as amended in November 1926, starting from January 1927 the foreign exchange component of the reserves should include ‘gold-backed currencies and foreign banknotes, redeemable in gold’; thus from January 1927 to November 1928 the foreign exchange indicator (BG1E) comprises two new balance sheet items on the asset side, namely ‘stable foreign currencies’ (*стабилни чужди банкноти*) and ‘foreign exchange’ (*девизи*). Although ‘foreign exchange’ also contained not-yet-stabilised currencies, the decomposition available at the end of 1927 showed that 85% was in stabilised currencies (BNB 1928, p. 48).

As from December 1928, the foreign exchange component (BG1E) represents ‘net foreign gold-backed currencies’ (*чиста сума на чуждестранните златни девизи*) (Article 10 of the BNB law), which could be directly derived from the balance sheet items ‘gold-backed foreign exchange’ (*златни чуждестранни девизи*) on the asset side and ‘foreign exchange liabilities’ (*задължения в чужди девизи*). Apart from being clearly identified in the bank’s balance sheet, they were also reported in a separate table according to a template laid down in the amended BNB Law (27 September 1928) designated for calculating the effective cover ratio. Being net, the foreign

<sup>21</sup> The currency reserves data published in Dimitrova and Ivanov (2008) do not include foreign exchange.

<sup>22</sup> Data on the foreign exchange reserve’s component are provided as early as they appeared in the BNB’s balance sheet.



exchange component recorded negative values after 1931 with the devaluation of gold convertible foreign currencies and the collapse of the gold-exchange standard (Germany and the UK abandoned the gold standard in 1931, and the US in 1933).

After the collapse of the Gold Bloc in 1936 and the devaluation of the French franc, there were no receivables in gold-backed currencies in the balance sheet of the BNB from October 1936 to November 1939; hence, data on the foreign exchange reserve component were not reported. In spite of the rapidly changing international economic environment, total reserves continued to be evaluated at the 1924 rate of '92 leva per 1 gram of pure gold'. In an attempt to avoid the official devaluation of the lev and meet the coverage requirement, the gold reserves component (BG1B) was revalued by 25% in October 1941, accounting for the market price of gold.

### 2.1.2 Banknotes in circulation and liabilities at sight

The starting date for the data series on banknotes in circulation (BG1G) is October 1885, when the BNB was granted the exclusive privilege to issue gold-backed banknotes (*банкноти в обръщение в злато*). Although gold holdings were high enough to cover all banknotes in circulation, they were soon returned at the BNB cash desks to be exchanged for coins due to lack of public confidence in fiduciary money and the high agio. Total banknotes in circulation (*банкноти в обръщение*) (BG1F) started to increase only in 1899, when the bank exercised its right to issue silver-backed banknotes (*банкноти в обръщение в сребро*) (BG1H), granted in 1891. After gaining credibility, gold-backed and silver-backed banknotes in circulation increased rapidly, reflecting also the gradual economic development of the country. From September 1922 onwards, the item of total banknotes in circulation reported in the bank's balance sheet also included cheques (until March 1923) and Treasury bills (until July 1924). Their individual values were provided in the weekly BNB balance sheets and the respective BNB Annual Reports (see Table 2).

**TABLE 2 Non-typical components, included in total banknotes in circulation (1922–1924)**

Dates/components	Sept. 1922	Oct. 1922	Nov. 1922	Dec. 1922	Jan. 1923	Feb. 1923
<i>Cheques</i>	14570	11820	15060	52240	52540	26040
<i>Treasury bills</i>	56999	111115	27661	46421	3552	1978
Dates/components	Mar. 1923	Apr. 1923	May 1923	June 1923	July 1923	Aug. 1923
<i>Treasury bills</i>	1249	878	710	639	603	371
Dates/components	Sept. 1923	Oct. 1923	Nov. 1923	Dec. 1923	Jan. 1924	Feb. 1924
<i>Treasury bills</i>	365	365	365	340	340	340
Dates/components	Mar. 1924	Apr. 1924	May 1924	June 1924	July 1924	
<i>Treasury bills</i>	340	340	340	340	340	

Notes: End-of-month values; in thousands of leva.

In line with the stabilisation efforts and in accordance with Article 7 of the BNB Law as amended on 8 March 1924, the BNB suspended the issue of silver-backed banknotes. It however maintained the exclusive privilege of issuing 'gold banknotes', which are reported as 'banknotes in circulation' (BG1F) and were covered by foreign currency at the gold franc parity. As a result, from September 1924 onwards, separate reporting of silver- and gold-backed banknotes ceased.

Article 9 of the 1926 amendment of the BNB Law expanded the liabilities' component by adding 'other liabilities at sight' (*други задължения на виждане*) next to banknotes in circulation. Being in effect from the beginning of 1927, the 'other central bank liabilities at sight' (BG1I) did not only include other banks' deposits but also government and private current account deposits at the BNB. When available, the composition of this item turned out to have included also municipal and public funds, non-interest deposits for guarantees, among other sub-items (BNB 1929, p. 51). The flexible content of this item allowed later for manipulations of the liabilities' component of the cover ratio, whenever the bank had to meet the legal minimum cover ratio at least officially in public (BNB 1944, p. 6).

### Effective cover ratios

All amendments to the BNB Law defined the content of the liabilities' component and the eligible assets of the minimum cover ratio taking into account the prevailing monetary regime, the international financial constraints and the local market specificities (see Table 3).

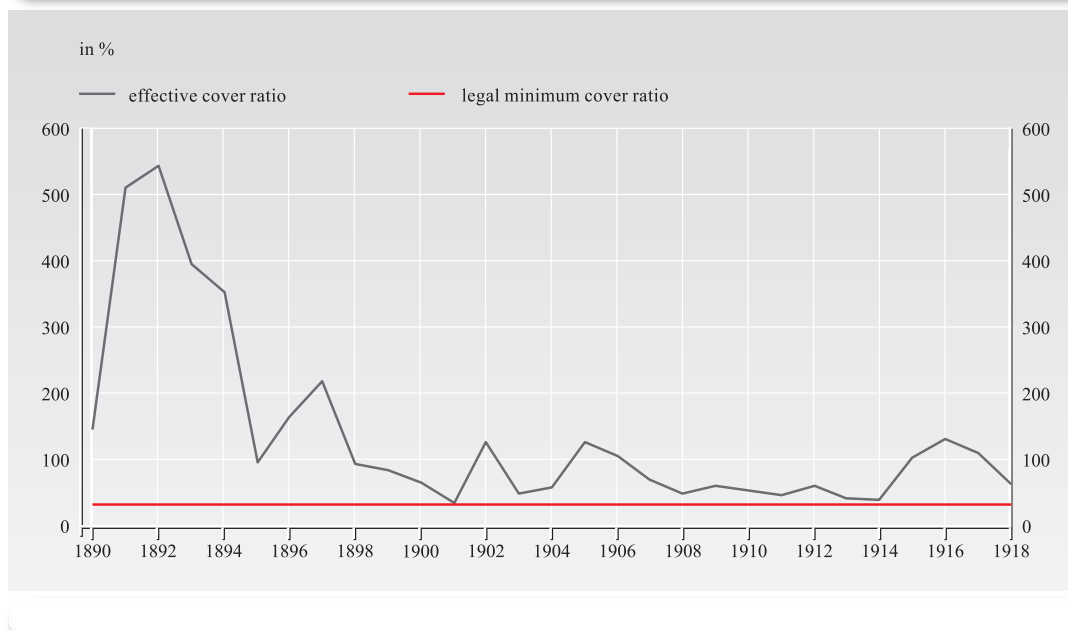
**TABLE 3 Minimum legal coverage of the BNB liabilities**

Period	Legal cover ratio (%)	Eligible assets to cover BNB liabilities	BNB liabilities to be covered
1885–1911	33.3	Gold holdings	Gold-backed banknotes
1912–1924	33.3	Gold holdings, foreign exchange and foreign short-term Treasury bills	Gold-backed banknotes
1899–1906	33.3	Silver holdings	Silver-backed banknotes
1906–1918	50.0	Silver holdings	Silver-backed banknotes
1919–1924	33.3	Gold holdings, foreign exchange and foreign short-term Treasury bills	Silver-backed banknotes
1924–1926	33.3	Metallic (gold and silver) holdings, foreign exchange adjusted to the gold French franc parity	Total banknotes
1927–1928	33.3 (40.0)	Metallic (gold and silver) holdings, foreign stabilised currencies	Total banknotes and other liabilities at sight
1928–1936	33.3	Metallic (gold and silver) holdings and net foreign gold-backed currencies	Total banknotes and other liabilities at sight
1936–1940	25.0	Gold and net foreign gold-backed currencies	Total banknotes and other liabilities at sight
1941–1947	25.0	Gold and net foreign exchange adjusted with the exchange rate premium	Total banknotes and other liabilities at sight

The main purpose of presenting separate elements of the total reserves and the liabilities subject to coverage across different periods is to calculate the effective cover ratio and compare it with the legal minimum cover ratio. In line with the BNB Act of 1885, the BNB adopted the continental European monetary system, according to which the gold-backed banknotes in circulation should be covered by gold metallic holdings at the ratio of 1/3 (33.3%) and the bank was obliged to redeem them into gold at demand. Therefore, from December 1885 to January 1912 the effective cover ratio of gold-backed banknotes (BG1J) presents the ratio (in per cent) of gold holdings (BG1C) to gold-backed banknotes in circulation (BG1G). With the amendment to the BNB Law on 10 February 1912, the foreign exchange component (BG1E) was also recognised as eligible to cover gold-backed banknotes together with gold holdings, and this is incorporated in the assets component of the calculated effective

tive cover ratio of gold-backed banknotes from end-February 1912 through to end-1918. Due to difficulties in placing gold-backed banknotes into circulation and the precautionary reserve management in order to maintain the value of the lev stable, the effective cover ratio of gold-backed banknotes was systemically above the legal minimum ratio until 1918, as seen in Figure 1.

**FIGURE 1 Effective Cover Ratio of Gold-backed Banknotes, 1890–1918**



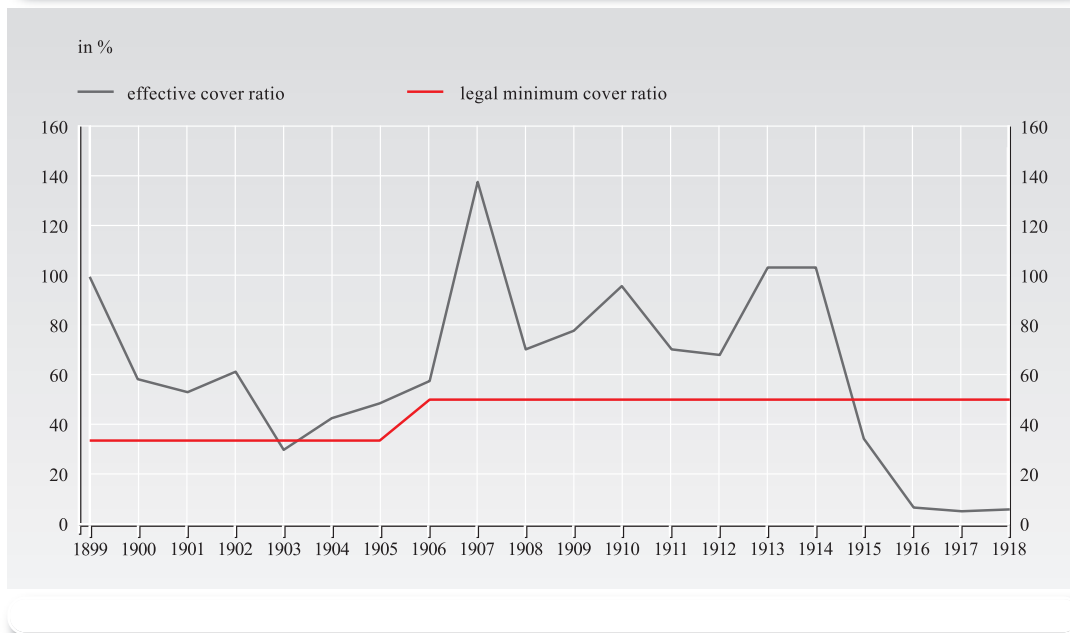
The effective cover ratio of the silver-backed banknotes (BG1K), defined as the ratio of silver holdings (BG1D) to silver-backed banknotes (BG1H), also exceeded the legal threshold during most of the period from 1899 to 1918, with two exceptions (see Figure 2). Once in 1903, when the effective cover ratio of the silver-backed banknotes fell slightly below the legal rate and scored 29.9% as a result of an excessive issue of silver-backed banknotes in that year and a sharp decrease in silver holdings. The second episode occurred in 1915, when it fell steadily below the threshold due to the monetisation of war financing.

After WWI, silver-backed banknotes could also be covered by gold holdings (BG1C), foreign exchange and foreign short-term Treasury bills (BG1E) as stipulated by the Law of 3 January 1919 (foreign exchange component of the reserves, BG1E). The cover ratio was set at 1/3, thus allowing for the calculation of a unified coverage of gold- and silver-backed banknotes. From January 1919 to August 1924 the reported 'overall effective cover ratio' (BG1L) is calculated as a weighted average of the respective effective cover ratios of both gold- and silver-backed banknotes.<sup>23</sup> When the separate reporting of the gold- and silver-backed banknotes ceased in 1924, the overall effective cover ratio (BG1L) is calculated as the ratio (in per cent) of total reserves (BG1A) to total banknotes in circulation (BG1F; from September 1924 to end-1926).

According to Article 8 of the 1926 amendment to the BNB Law (effective from 1 January 1927), the liabilities' component of the coverage (i.e. the denominator) comprises total banknotes in cir-

<sup>23</sup> The share of silver- and gold-backed banknotes to total banknote circulation is used as weight.

FIGURE 2 Effective Cover Ratio of Silver-backed Banknotes, 1899–1918



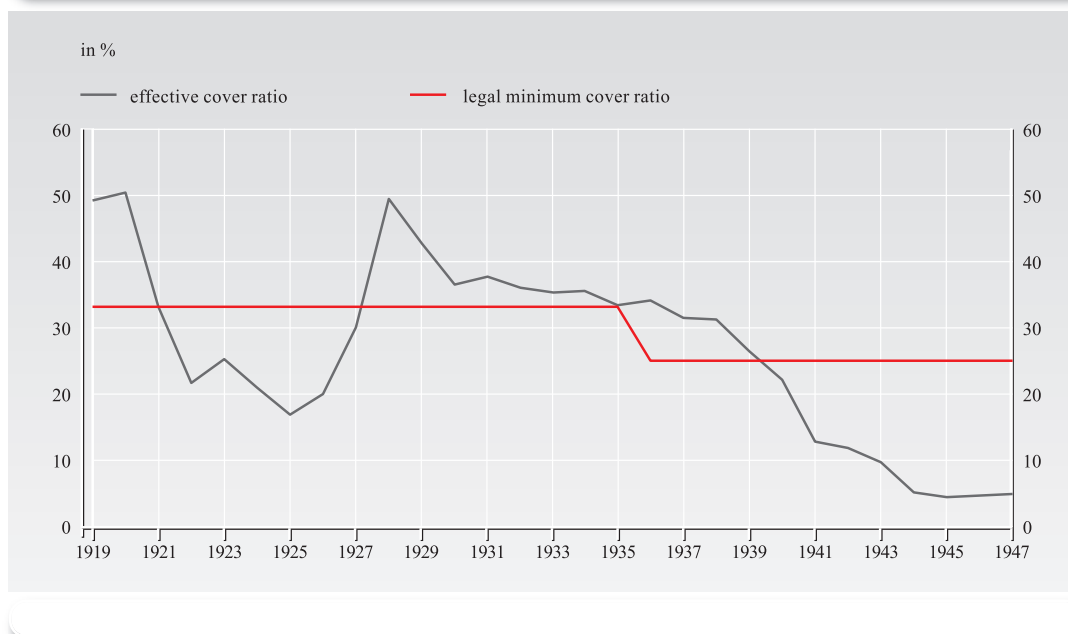
ulation (BG1F) and other central bank liabilities at sight (BG1I). Besides, apart from the legal minimum cover ratio of 33.3%, the BNB should strive to keep that component at 40%. Since then, the bank started officially reporting the ‘cover ratio’ (*покривие*) (in per cent in its weekly balance sheet statements and annual reports). In spite of the difficulty in reproducing the data series on the cover ratio published by the bank, the reported data points for the overall effective cover ratio (BG1L) from January 1927 to November 1928 are based on the bank’s balance sheet values following the changes in legislation.

As seen in Figure 3, between 1922 and 1928 the effective cover ratio was in breach of the legal minimum ratio due to several factors. First, the significant decrease in the foreign exchange component of the reserves, a substantial part of which were denominated in German marks and started to deplete after the hyperinflation in Germany. Second, the lack of economic policy coordination among the major monetary authorities of the time, and third, the comparatively early stabilisation measures taken in Bulgaria, which specified that reserves should only include stabilised foreign currencies.

Thanks to the 1928 stabilisation loan, total reserves, comprising gold, silver holdings<sup>24</sup> and net foreign gold-backed currencies, increased at the end of December 1928 and enabled to cover not only banknotes in circulation but also ‘other central bank liabilities at sight’ quite above the legal minimum ratio. Following the devaluation of the leading foreign currencies in the early 1930s, the effective cover ratio started to fall again. Upon the collapse of the France-led Gold Bloc in 1936, the legal minimum cover ratio was lowered to 25%.

Difficulties in following the monetary rules and meeting the legal minimum cover requirement resulted in a series of legislative ad hoc amendments and accounting innovations. Motivated by

<sup>24</sup> From 1927 onwards, there was a 3-year transitory period when silver holdings were still eligible for reserves. They were sold in October 1930.

**FIGURE 3 Effective Cover Ratio of Total Banknotes in Circulation, 1919–1947**

the increase in the market price of gold and the unchanged accounting practice of valuation of the gold reserves at the 1924 rate of '92 leva per 1 gram pure gold', the gold reserve component (i.e. total reserves) was revalued by 25% since October 1940 (BNB 2004, p. 94). Since the revaluation was not reflected in the balance sheet of the bank, but only in the table designated for calculating the cover ratio, it is not taken into account in the overall effective cover ratio which is reported in the BG1L series.

In an attempt to expand the eligible assets, and given the clearing surpluses with Germany, the BNB Law amendment of May 1941 resulted in adding the 'net of other foreign exchange', taking also into account the premium in the foreign exchange component of the coverage. The inclusion of these assets was justified by the clearing agreement with Germany allowing for immediate payment since 1940, and the practice of using them to increase the growing demand for banknotes in circulation (BNB 1943, p. 4). Moreover, manipulations applied for the artificial maintenance of the cover ratio (see BNB 1944, p. 7), thus the officially reported cover ratio could not be deducted from the published balance sheet items. Therefore, the estimated overall effective cover ratio (BG1L series), which is based on the bank's balance sheet, differs from the officially reported cover ratio. Even though the revaluation of the gold reserves by 25% was reflected in the balance sheet data by the end of October 1941, the effective cover ratio was systemically below the legal threshold due to the excessive increase in the BNB liabilities' component related to war financing.

### Monetary base

The monetary base (BG1M) is defined as the sum of total currency in circulation (BG1N) and commercial bank sight deposits at the BNB (BG1P). Total currency in circulation comprises the most liquid liabilities, such as banknotes in circulation (liabilities of the issuing bank, BG1F) and coins in circulation (liabilities of the Treasury, BG1O). While official data on coins in circulation are only available from 1909, the series from 1881 to 1908 has been calculated using the informa-

tion on coins mintage and demonetisation. The so constructed data series suffers from some deficiencies which compensate for each other to some extent. On the one hand, it tends to overestimate the quantity of the coins in circulation since the BNB's vault has not been deducted. On the other hand, it underestimates the quantity of coins in circulation before the demonetisation of foreign coins as legal tender. Data on coins in circulation are not available for the period 1916–1923 and, for the sake of continuation of the time series, we applied linear interpolation for reconstructing the BG10 series, being aware of the deficiencies of this statistical manipulation and for this particular period of time, including WWI.

As explained above, banknotes in circulation (BG1F) also included cheques and Treasury bills from September 1922 to July 1924. It, however, does not include the 3% Treasury bills issued in 1942, which represented a growing and very important amount until 1947, when they were withdrawn from circulation. Although they were recognised as legal tender, they were not reflected in the BNB balance sheet with a view to keeping the liabilities' component of the coverage within limits. Additional information in the BNB annual reports (see Table 4) provides some data on Treasury bills, which are added to the series of total currency in circulation (BG1N).

**TABLE 4 3% Treasury bills recognised as legal tender, 1942–1945**

Year/ values	1942	1943	1944	1945
Treasury bills	1.837	8.978	18.200	26.200

Notes: Data refer to end-of-year values and are in billion leva.

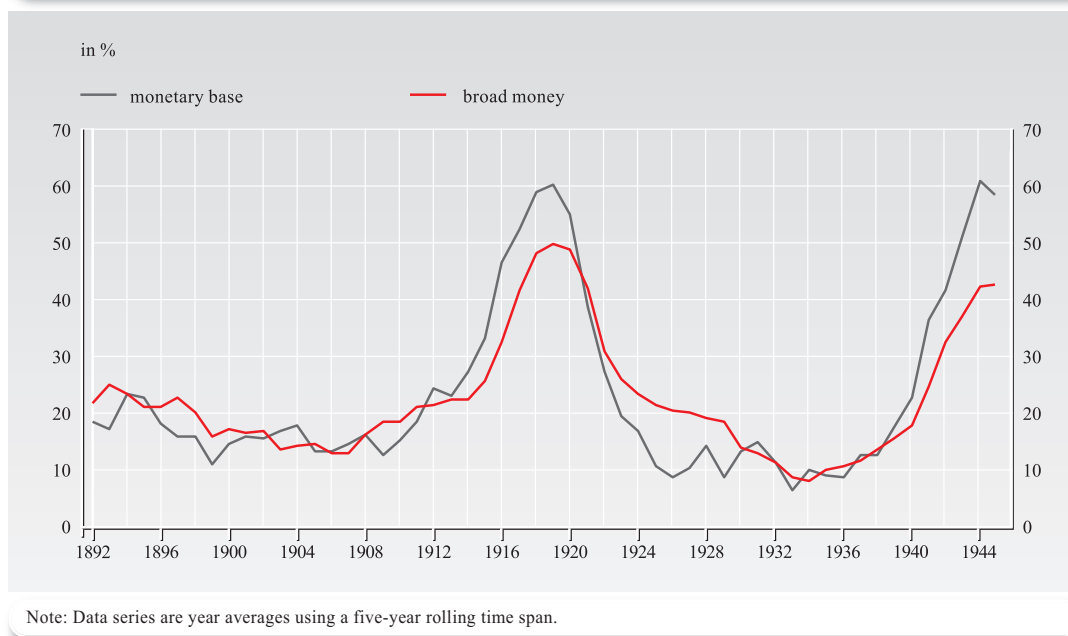
The economic concept of the monetary base demands adding commercial banks' deposits at the central bank, which were treated as commercial banks' reserves. Therefore, the constructed monetary base indicator (BG1M) includes also bank sight deposits at the central bank (*текущи сметки на банки*) (BG1P), which began being published as a separate balance sheet item only since 1927. They were part of other central bank liabilities at sight (BG1I), which were subject to coverage.

### Broad monetary aggregates

Utilising different monetary aggregates according to the degree of liabilities' liquidity, we were able to construct a 'broad money' indicator of money supply. The aggregated indicator (BG1O) includes total currency in circulation (BG1N) without commercial banks' cash, plus all bank deposits. The latter includes all deposits at the BNB from 1879 to 1926<sup>25</sup> and thereafter only private (non-government and non-bank) deposits at the BNB, deposits at the Bulgarian Agrarian Bank, and at private banks (since 1887), deposits at the Post Saving Bank (since 1896), at credit cooperatives (since 1900), at the Bulgarian Central Cooperative Bank (since 1911) and at the Popular Banks (since 1912).

Developments in the monetary base and money supply outline both periods of accommodative and disinflationary monetary policies, as seen in Figure 4. In periods of low financial intermediation and extensive monetisation of fiscal deficits, which was closely related to war financing,

<sup>25</sup> In fact, shortly after its establishment, the BNB relied extensively on government deposits at lower costs, while in 1883 it stopped accepting private deposits because of the higher costs incurred.

**FIGURE 4 Money Supply and Monetary Base, 1892–1945**

the growth of the monetary base exceeded that of the broad monetary aggregate. Whenever the economic situation was stabilised and adherence to the gold-exchange standard was restored, as was the case in the second half of the 1920s, financial development was enhanced and therefore money supply outperformed the growth of the monetary base.

## 2.2 INTEREST RATES

### 2.2.1 Short-term interest rates

#### Discount rate

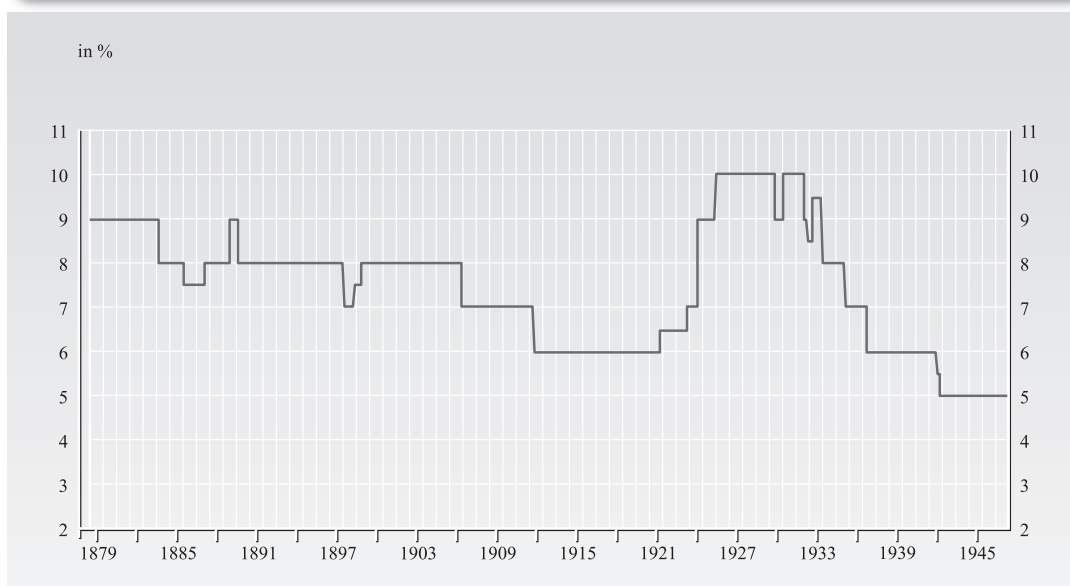
Since the BNB operated as a commercial bank and a bank of note issue, its discount rate (*сkonto*) (series BG2A) which was applied to short-term loans (up to 3 months) to traders, commercial enterprises and other banks, is considered the official interest rate. Loans were provided through buying commercial papers and discounting bills of exchange, which had to carry at least two authorised signatures. Both values by dates of change and by the end-of-month are available. As the biggest bank in the country, the BNB was the market maker determining the lending rates in the country (BNB 1929, p. 77).

Compared with core European countries, the BNB's discount rate was relatively high in the first few decades after its establishment, revealing money scarcity (Figure 5). Until 1906, its discount rate policy was not very effective, given that the bank did not have branches in the countryside until 1884, and its credit portfolio was of a long-term character as the credits extended against bills of exchange were often not repaid (BNB 1929, p. 74). The re-organisation of the BNB in 1906 resulted in an increase of the share of high-quality commercial paper and short-term credits extended against bills of exchange. In 1911, the BNB's discount portfolio was larger than the discount portfolio of the rest of the banking system, and thus it was more efficient in regulating

banking activity (BNB 1929, p. 79). From May 1911 to July 1920, the bank imposed differentiated discount rates (BG2A) depending on certain characteristics of the borrowers. For example, it lent companies with paid-in capital exceeding 500,000 leva and turnover exceeding 800,000 leva at 6% and the remaining companies at 6.5%.

A (discount) interest rate rule was legislated for the first time in the BNB Law amendment of 1926, stating that ‘whenever the minimum cover ratio of 33 1/3% was violated, the governor should propose an increase of the discount rate, as well as all other measures necessary to meet the cover ratio’ (Article 10). At the same time, the BNB ceased its operations on extending mortgage and other long-term loans, and was only allowed to discount short-term commercial paper (up to 3 months). This ‘rule’ was activated with the 1928 BNB Law amendment, stating that ‘whenever the minimum cover ratio was violated, the minimum discount rate should be increased.....’ (Article 12). Later, in the 1930s, the BNB’s discount policy again diverged from the internationally established monetary policy rule, and efforts were directed into manipulating the effective cover ratio as discussed above (cf. description of the reported effective cover ratio).

**FIGURE 5** The BNB Discount Rate, 1879–1947



### 2.2.2 Long-term interest rates

#### Fixed-rate government bonds: market prices and current yields

We provide data on the market prices (BG2B, BG2D, BG2F, BG2I, and BG2J) and current yields (BG2C, BG2E, BG2G, BG2H and BG2K) of fixed-rate government bonds traded on the Vienna Stock Exchange.<sup>26</sup> The data series refer to a period from the earliest available quotations to June 1914 for five fixed-rate government bonds (for details see Table 5).

<sup>26</sup> The data were generously provided by Clemens Jobst (OeNB). This was done due to very fragmentary information on quotations from Bulgaria. The Sofia Stock Exchange was founded only in 1914 but never managed to establish itself as an important institution in the domestic capital market.



The market prices for the 1889, 1892 and 1902 Bulgarian bonds listed on the Vienna market were quoted at a nominal value of 125 French francs, which was  $\frac{1}{4}$  of the face value, as one security had a face value of 500 French francs.<sup>27</sup> The market prices for the 1907 and 1909 bonds were given in percentages of their face value (500 FF). Therefore, the quoted price was multiplied by 4 to arrive at the price of one security. The coupon was paid in gold French francs or in another gold-convertible foreign currency. As the exchange rate of the Austrian currency fluctuated against gold convertible currencies (at least for a part of the period), the coupon price was converted into the Austrian currency in order to calculate current yield. To do so, the coupon price is divided by the price of the gold French franc traded on the Vienna market.<sup>28</sup> The yields are not adjusted for the coupon (which is included in the quoted price in Vienna) and do not account for regular drawings and the possibility of early redemption or conversion.

**TABLE 5 Bulgarian government bonds quoted in Vienna**

Bond name traded on the Vienna Stock Exchange	Coupon rate	Law	Amount	Coupon Payment	Redemption
<i>1889 State railroad mortgage bond</i>	6%	1st (13th) of November 1889	30,000.000 Leva (= FF) = £ 1,200.000 = Mk. 24,300.000	1st (14th ) April 1st (13th ) October	33 years in half yearly drawings. Redemption by 1907 State Gold bond.
<i>1892 State mortgage bond</i>	6%	7th October (8th November) 1892	142,780.000 Leva (=FF) = £ 5,711.200 = Mk. 115,651.800	2nd (15th) January 1st (14th) July	33 years in half yearly drawings on 1st (14th) May and 1st (14th) November. Additional early redemption possible after 1898.
<i>1902 Tabacco bond</i>	5%	3rd (16th) July 1902	106,000.000 Leva (=FF) = Rouble 39,750.000 = Mk. 85,860.000 = £ 4,197.600 = K 100,912.000 = holl. fl. 50,880.000	1st (14th) March 1st (14th) September	50 years in half yearly drawings on 1st (14th) February 1st (14th) August. Additional early redemption possible after September 1913.
<i>1907 State Gold bond</i>	4.5%	21st February (6th March) 1907	Gold Leva (=FF) 145,000.000 = Rouble 54,375.000 = Mk. 117,450.000 = £ 5,742.000 = K 138,040.000 = holl. fl. 69,600.000	1st (13th ) February 1st (13th ) August	60 years in half yearly drawings on 1st January 1st July (payment one month later). The entire bond could be redeemed after November 1915.
<i>1909 State Gold bond</i>	4.5%	14th (27th ) November 1909	Gold Leva (=FF) 100,000.000 = Mk. 81,000.000 = £ 3,960.000 = K 95,200.000 = holl. fl. 48,000.000	1st (13th ) June 1st (13th ) December	50 years in half yearly drawings on 1st June 1st December. The entire bond could be redeemed or converted after 1920.

Note: The dates of the law (column 2) differ with 13 days due to the two different calendars. The earlier date is according to the Gregorian calendar and the later one is according to the Julian calendar. Bulgaria switches to the Gregorian calendar in 1916.

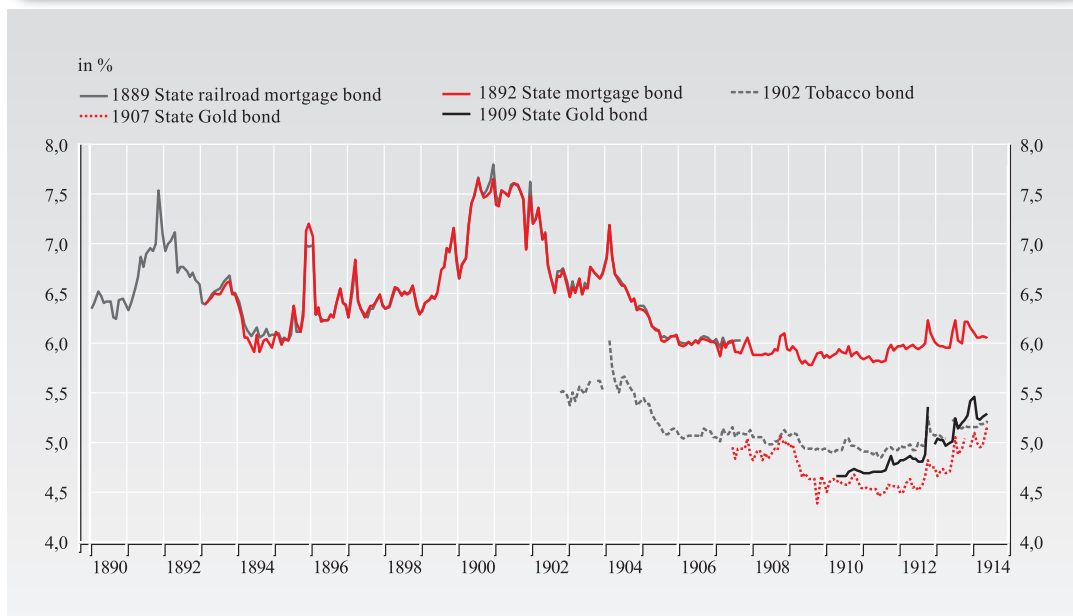
Figure 6 depicts the development of current yields on Bulgarian government bonds traded in Vienna before WWI. The earliest available quotations are of the State railroad mortgage bonds issued at the end of 1889, for which the Imperial Minister of Finance of Austria-Hungary gave his consent

<sup>27</sup> Between December 1899 and March 1900, market prices on the Vienna Stock Exchange were quoted in per cent of their face value.

<sup>28</sup> The formula used in calculating current yield is: current yield = coupon price/quoted price, which for the first three bonds is adapted to current yield = (500 \* coupon rate \* price of one 20 FF gold coin/20) / (quoted price \* 4) and for the second two bonds: current yield = (100 \* coupon rate \* price of one 20 FF gold coin/20) / (quoted price). The yield calculation corrects for price quotations in per cent between December 1899 and March 1900 applying the formula: current yield = (100 \* coupon rate \* price of one 20 FF gold coin/20) / (quoted price). The price of one 20 FF gold coin in the Austrian currency is provided in Austrian-Hungary data tables (AH3E\_M).

to be traded on the Vienna Stock Exchange. The issue was assessed as successful, although the stock exchanges in Berlin, Paris and London refrained from quotations (Ivanov et al. 2009). There is an increase in the yield from the beginning of 1891 until the end of 1892 against the background of an unsuccessful attempt of the central bank to introduce the gold standard, and a counter-attempt to start issuing silver-backed banknotes in order to enhance the circulation of banknotes and implement monetary policy efficiently. The government, for its part, proposed a change in the statute of the BNB, converting it from state-owned to a private shareholders' bank, which was, however, viewed as threatening public confidence in the major credit institution of the country and thus made German banks to demand repayment of their credits.

**FIGURE 6** Yields on Bulgarian Government Bonds in Vienna, 1890–1914



Note: Quotations in Vienna; not adjusted for coupons and redemptions.

The State mortgage loan of 1892 was also invested in railroad construction works, and the yield on the issued bonds moved very closely to the State railroad mortgage bond of 1889 throughout the whole period.<sup>29</sup> The prolonged economic crisis in the late 1890s put public finances in disorder. The extremely difficult financial situation resulted in the inconvertibility of the gold-backed banknotes, which caused the yields on Bulgarian government bonds to soar until July 1902. The 1902 loan was guaranteed by budget receivables from tobacco production and directly managed by the established Committee of International Financial Control, headed by a French creditors' community representative. Thus, the country's foreign public debt was consolidated and its repayment was controlled by its holders. The granting of the 1902 tobacco loan was accompanied by the government's commitment to repay all its floating debt to the BNB and to avoid minting new silver coins without an agreement with its debt holders. On the other hand, the BNB was obliged to limit its banknote circulation in order to keep the coverage of banknotes stable, and to restore convertibility. The implication of these clauses assured creditors that their receivables would not be depreciated and thus mitigated sovereign risk.

<sup>29</sup> The 1889 State railroad mortgage bond was redeemed through the 1907 State Gold bond.

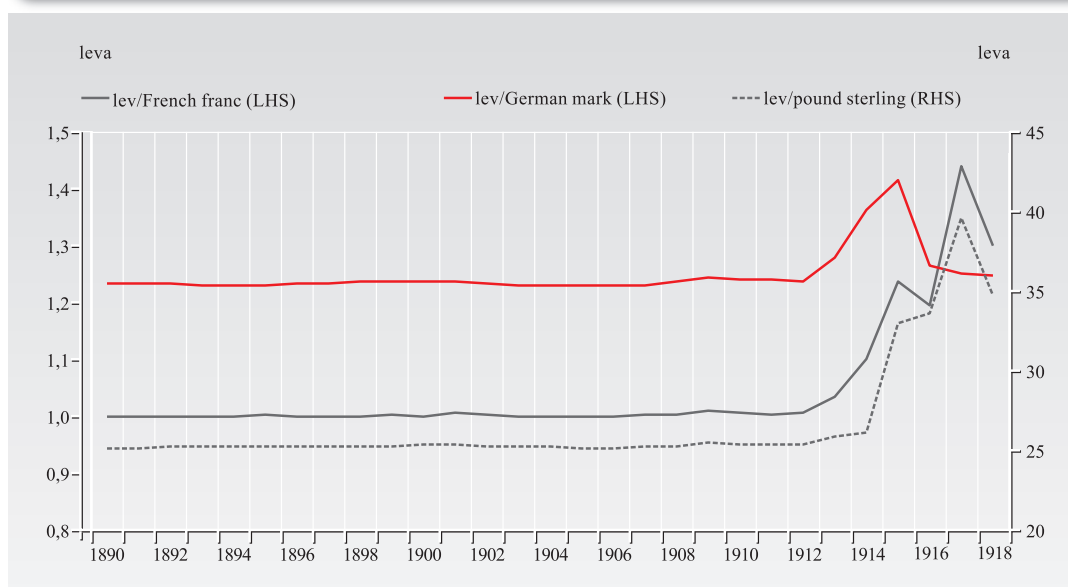
The 1907 4½ State Gold bond loan was also successfully contracted. In contrast to the 1902 loan, this one provided resources for the conversion of the residuals of the 1888 and 1889 loans only. The State Gold loan signed with the Wiener Bank-Verein in 1909 was the first (and only) foreign debt deal of the Bulgarian government which was free of any political requirements and guarantees accompanying the 1902 and 1907 loans. The loan was used to repay the outstanding public debt and to complete the railroad works. The bonds were also quoted in London and Berlin and other smaller European stock exchanges. However, from October 1912, when Bulgaria entered a long wartime period starting with the Balkan Wars, investors demanded higher returns in order to put their money into government bonds.

After WWI, Bulgaria managed to contract only two foreign loans under the auspices of the League of Nations. The first of them, issued as late as 1926, was designed to accommodate over 300,000 Bulgarian refugees that fled territories that were given to Greece and Yugoslavia at the Paris Peace Conference. The 7.5% 1928 Loan was mainly used to stabilise the national currency (Stoyanov 1933).

### 2.3 EXCHANGE RATES

The nominal exchange rates of the Bulgarian lev against the pound sterling (BG3A), the French franc (BG3B) and the German mark/Reichsmark (BG3C) are traced back to 1890, and against the US dollar (BG3D) to 1913. All exchange rates are transformed to report Bulgarian leva per 1 unit of foreign currency, although the original quotations of the exchange rate against the French franc and the German mark/Reichsmark were per 100 units of the respective foreign currency. For the sake of presenting a consistent and long-run time series, we report the selling rate of the bills of exchange drawn on foreign markets utilising different sources of information. The annual data series reports the year average based on 12 monthly averages, and in the cases where monthly average data are not available in the BNB Annual Reports, the series is reconstructed by averaging 4 weekly

**FIGURE 7 Exchange Rates of the Bulgarian Lev Against the Pound Sterling, the French Franc and the German Mark, 1890–1918**

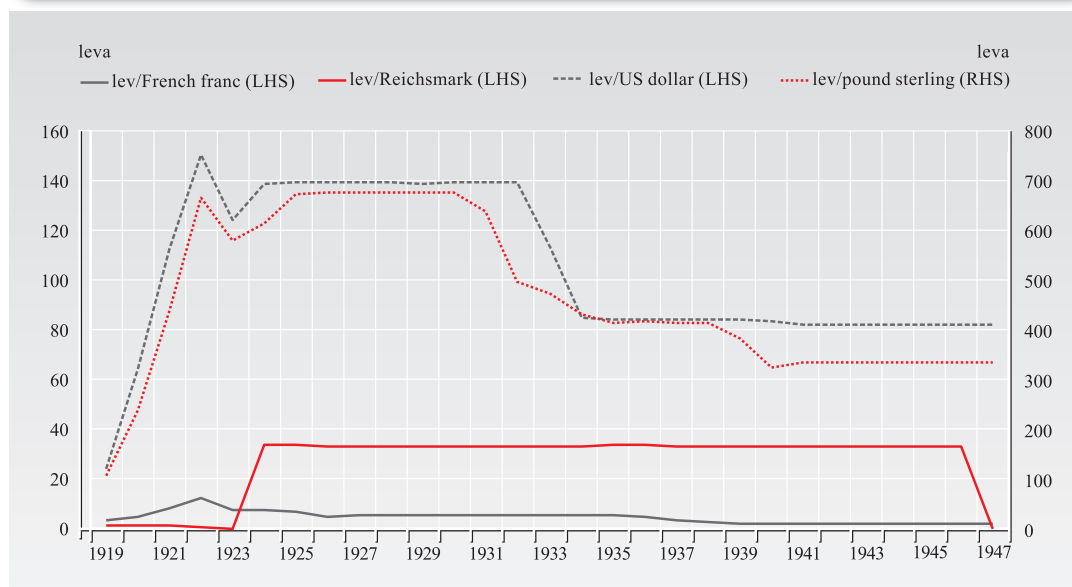


observations of the selling rate at certain dates from the State Gazette, quoted as ‘BNB exchange rates section’.<sup>30</sup> The annual average exchange rates against the French franc and the pound sterling for the years 1917 and 1918 are taken from the statistical yearbook of the Bulgarian Statistical Office since there are no monthly or daily quotations during WWI. The nominal exchange rate against the US dollar starts as late as 1913 on an annual basis and January 1919 on a monthly basis.

The evolution of the nominal exchange rates of the Bulgarian lev against the four main foreign currencies can be divided into two sub-periods (Figures 7 and 8). During the classical gold standard, the lev exhibited a stable behaviour against the French franc, the pound sterling and the German mark. However, from October 1912 onwards, the lev began to suffer from strong devaluation pressures since the high war expenditures were covered by monetary expansions.

Being an ally of Germany, Bulgaria was on the side of the defeated countries in WWI. After the Treaty of Neuilly-sur-Seine signed on 27 November 1919, Bulgaria had to pay heavy war reparations, which caused further devaluation pressures on the lev with respect to the currencies of the Entente countries (see Figure 8). After a high-inflation episode in 1922, the lev partially restored its purchasing power as the country took stabilisation measures. With the German hyperinflation in 1923, the exchange rate of the lev against the mark reached 0.2 leva per 1 billion marks.<sup>31</sup> When the currency reserves, which were denominated in marks and blocked in German banks, depreciated abruptly, the lev also depreciated sharply against the pound sterling and the US dollar. In 1924, the lev was stabilised in the context of the gold-exchange standard that was implicitly in practice. In the early 1930s, when the pound sterling and the dollar were devalued, the lev remained

**FIGURE 8 Exchange Rates of the Bulgarian Lev Against the Pound Sterling, the French Franc, the Reichsmark and the US Dollar, 1919–1947**



<sup>30</sup> The monthly exchange rates which are reported in Table BG3\_M differ slightly from the data published in Dimitrova and Ivanov (2009), referring only to the averages of the monthly minimum and maximum values of the selling rates.

<sup>31</sup> Until March 1924, the lev exchange rate was expressed in terms of the mark. Thereafter, it was against the Rentmark and from 26 January 1925 against the Reichsmark.

on gold and appreciated. Thereafter, it remained relatively stable chiefly due to stringent exchange controls imposed on money flows, which were in place until the end of WWII.

During the prevailing exchange control regime, an exchange rate premium was set for a limited number of private deals in 1933 and on a larger scale in 1935. They were officially imputed by the BNB with a view to stimulating exporters by correcting the appreciation/depreciation of the lev against the foreign currencies (see Table 6). Foreign currency earned from exports was traded in ‘compensation’ deals, which formed a kind of parallel —but legal — foreign exchange market where the lev was implicitly depreciated. Those rates were officially reported and published. Nevertheless, the low trade volume during the interwar period, in conjunction with the clearing agreements did not allow for a significant increase in total exports and accumulation of other foreign currency except the Reichsmark.<sup>32</sup>

**TABLE 6 Exchange rate premium in the 1930s**

Exchange rate premium	1935	1936	1937	1938	1939	1940
<i>Reichsmark (all goods)</i>	3.90	-1.50	-1.58	-1.98	-1.59	-3.60
<i>Czechoslovakian kronas (all goods)</i>	21.82	18.53	29.90	25.10	20.28	6.85
<i>Austrian schillings (all goods)</i>	15.73	12.77	27.46	27.35	0.00	0.00
<i>French francs (all goods)</i>	33.80	31.01	30.47	32.04	34.93	34.95
<i>Pound sterling (all goods)</i>	.	.	30.49	34.04	35.00	35.00
<i>Average exchange rate premium for all currencies and all goods</i>	24.51	22.53	22.02	19.03	.	.

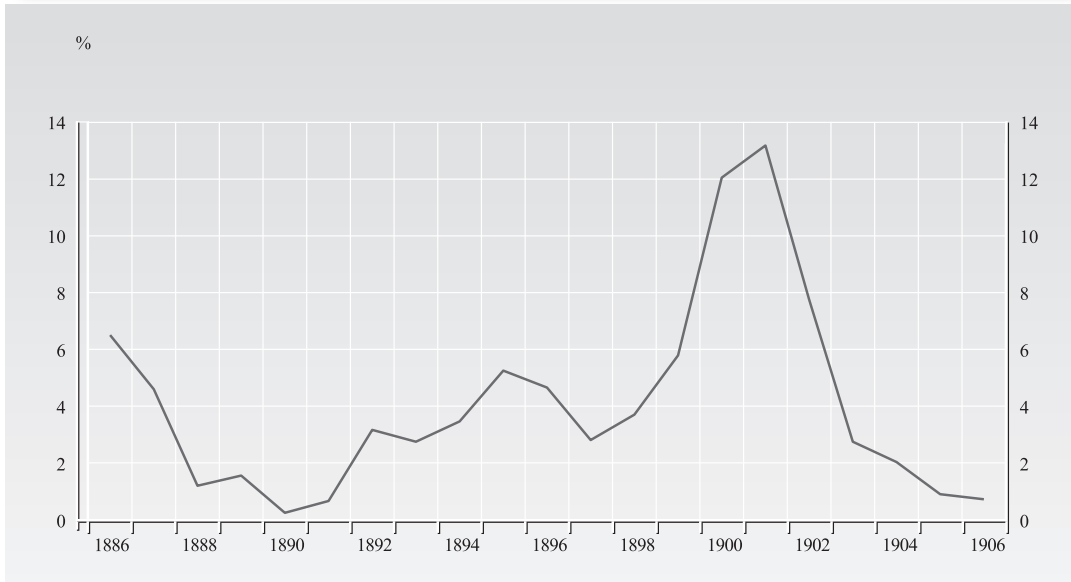
Note: Annual average data, in per cent.

Source: Statistical yearbook (1935–1940), various issues.

In our data set, we have included an additional indicator of the lev depreciation, namely the *agio*, which is defined as the difference between the market price of gold in terms of silver and the officially set ratio (i.e. legal ratio). The *agio* (BG2E) is reported in per cent and is constructed based on the monthly minimum and maximum buying and selling rates as reported by the BNB. Its development broadly followed the movements in the international bimetallic ratio and more closely the domestic money market conditions. Apart from its fundamental determinants, the *agio* was also affected by fiscal and monetary decisions and policies (Dimitrova and Fantacci 2011). It reached its minimum rate in 1890 and 1897, when the domestic monetary authorities made efforts to join gold, and its maximum rate when the BNB started massively to issue silver-backed banknotes in order to provide budget financing (Figure 9). Since 1902, the *agio* started decreasing due to the exceptionally rich harvests and foreign trade surpluses. While the value at the end of 1906 was close to zero, the BNB stated that the ‘*agio* was ultimately liquidated’ (BNB 1907, p. 17) and starting from 1907 it stopped publishing data. With the establishment of the paper standard upon the outbreak of the First Balkan War in late 1912, the *agio* was no longer applicable (Bochev 1924, p. 28 and Nedelchev 1940, p. 15).

<sup>32</sup> An analysis of the effect of the exchange control regime in Bulgaria on foreign trade is provided in Dimitrova et al. (2009).

FIGURE 9 Agio Movements in Bulgaria, 1886–1906



## 2.4 GOVERNMENT FINANCES

### 2.4.1 Revenue and expenditure

The data set on fiscal variables consists of total government revenues (BG4A), total government expenditures (BG4B), foreign debt payments (BG4C), foreign public debt (BG4D) and domestic public debt (BG4E). Total government revenues and expenditures refer to central government and the data series are available from 1879 to 1945. Apart from the regular budgetary items such as direct and indirect taxes, customs duties, expenditures for the government administration and debt repayments, they also include extraordinary items such as 1/2% seigniorage revenues derived from minting coins, loans, extra financing for infrastructural projects and war financing.

To standardise its calendar with its German and Austro-Hungarian allies during WWI, on 31 March 1916 Bulgaria adopted the Gregorian calendar by adding 13 days (that is, 1 April became 14 April). With the exception of the period 1919–1934, both the fiscal and the calendar year started on 1 January. With the 1919 reform, the fiscal year started on 1 April. In order to convert fiscal to calendar year, the following simple rule was adopted: fiscal year 1919/20 equals calendar year 1919, fiscal year 1920/21 equals calendar year 1920 and so on. On 1 April 1934, the 1919 reform was repealed and the fiscal and calendar years coincided again. As a result, the 1939 data values for total government revenues (BG4A) and expenditures (BG4B) refer to 9 months only.<sup>33</sup>

Foreign (public) debt payments are also included in our data set. Series BG4C is constructed for the period 1887–1945 and retrieved from Ivanov et al. (2009, v. 3, p. 365–440). To this end, data on debt repayment and the exchange rates reported in the statistical yearbooks were used to convert different debts into leva and thus construct a continuous time series.

<sup>33</sup> Nedkov (1937), p. 32.

## 2.4.2 Government debt

### Foreign public debt

Our series on foreign public debt (BG4D) represents the gross outstanding debt that was issued by the government and denominated in foreign currency. The starting point is 1888, when Bulgaria issued its first foreign loan. From 1888 to WWI, like most European countries, Bulgaria used to issue debt for funding the budget deficit, railways construction, and/or rearmament. Before the Balkan wars, foreign debt was kept within manageable levels of around 30% of GDP and only one loan was restructured in 1902 (cf. Section 1). With few exceptions, most foreign loans were floated in Paris and denominated in (gold) francs. To cover bondholders from eventual devaluation of the lev all credit contracts contained a gold clause.

Wartime spending and the war reparations imposed in 1919 deteriorated the country's foreign debt position. The debt-to-GDP ratio skyrocketed to over 200%. Obviously, such a ratio was not sustainable in the long run and the government had to request a significant reduction. With the mediation of the League of Nations in 1923, reparations were divided in two parts: 1.7 billion French francs were postponed until 1953, while amortisation of remaining 550 million francs was deferred until 1935. As a result, reparation payments were reduced to just 27.5 million francs (212 million leva) for the next 12 years.

To meet high spending, the country borrowed from abroad under the auspices of the League of Nations. The 1926 Refugees Loan, floated in London and New York, envisaged the accommodation of almost 300,000 refugees, who settled in Bulgaria after World War I. The 1928 Stabilisation Loan, floated in Paris, London and New York, funded *de jure* stabilisation of the national currency and the reconstruction of the regions hardly hit by the Chirpan earthquake.

With the onset of the Great Depression, prospects for further foreign lending dried up. The falling world agricultural prices reduced the gold earnings from exports and consequently national income. The country found itself in a precarious situation and urgently needed to start talks on debt renegotiation. As far as reparations were concerned, the government took advantage of the Hoover moratorium and the two international conferences at Hague and Lausanne that followed. In 1932, Greece, the main recipient of the Bulgarian reparations, agreed to apply temporarily the Hoover moratorium. In practice, Bulgaria never resumed payments and the issue was legally settled in 1964 when Greece accepted the abolition of the reparations at the exchange of a compensation of 7 million dollars from Bulgaria.<sup>34</sup>

In 1932, Bulgaria, with the assistance of the League of Nations, achieved a 50% reduction of the interest payments in hard currency. As was agreed, the other half and total amortisation were paid in leva and were held in a block account at the BNB. In the following years, Bulgaria obtained several further reductions which, in 1935, brought gold transfers down to only 21.5%. In addition, the devaluation of the pound sterling, the dollar and the French franc significantly contributed to bringing Bulgaria's foreign debt within manageable levels.<sup>35</sup>

The improved fiscal situation after 1934 and the low quotations of the Bulgarian bonds prevailing on foreign stock exchanges (12–13% on pre-war and 31–34% on post-war debts) permitted

<sup>34</sup> Ivanov et al. (2009) v. 2, pp. 1–128.

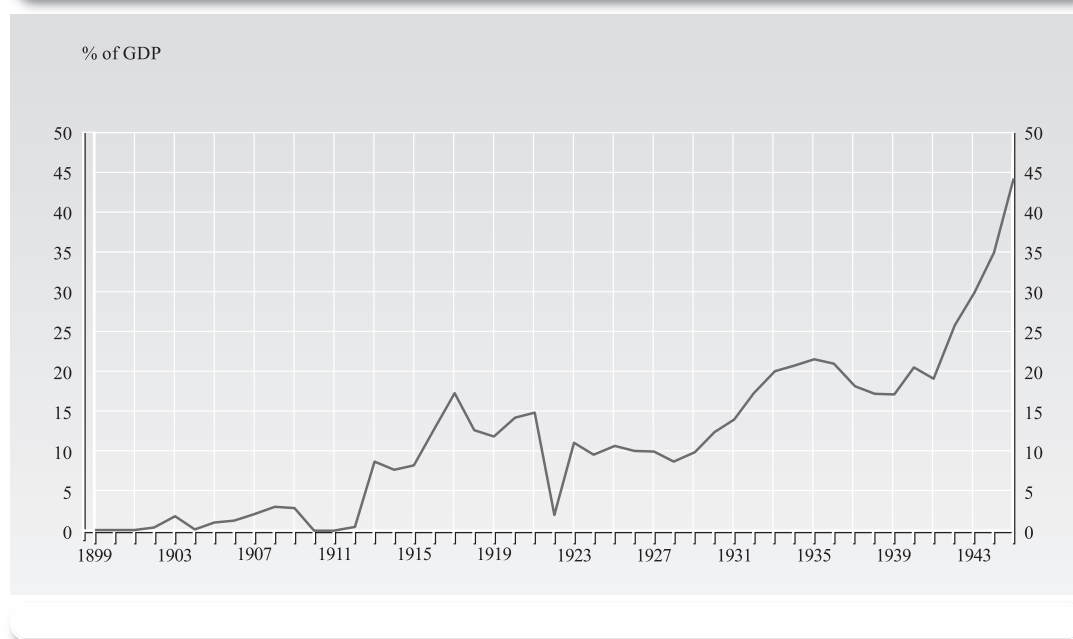
<sup>35</sup> Ivanov and Tooze (2011).

the government to adopt a pro-active debt strategy. Between 1936 and the outbreak of World War II, the government bought back a significant portion of the circulating Bulgarian bonds. Data are incomplete but, according to official reports, at least 2.8 billion leva (3.3 million dollars) were invested for that purpose.<sup>36</sup> Besides, budget consolidation and buy-back operations changed the structure of bondholding. Initially, government bonds were held predominantly by foreign (mainly French and to a lesser extent British, American and German) investors. After the mid-1930s, 30–40% was held by Bulgarian investors. A bondholder breakdown is not available. Nevertheless, if the currency of original debt issue is used as a proxy, we might conclude that at the onset of the Great Depression nearly  $\frac{3}{4}$  of total debt was held by French, 8% by British, 6% by American and the rest by Bulgarian, Dutch, Swiss, Italian and German bondholders.

### Domestic public debt

Series BG4E represents the gross outstanding debt which was issued by the government and denominated in national currency. It consists of two components: consolidated and non-consolidated debt according to the statistical reporting standards of the time. While the consolidated domestic public debt represents government debt in the form of bond issues, the non-consolidated component comprised any other form of debt of the government to the public such as direct credits from the banking system dominated by direct credits from the BNB. Domestic public debt was not consolidated until 1915. The debt of the government to the BNB was reported in the bank's balance sheet as 'loans to the State' (*заеми на държавата*) and the series started as late as 1899.<sup>37</sup> On 30 July 1912, due to a change in the bank's balance sheet reporting standards, governments' liabilities to the BNB started to be reported as 'State Treasury' (*държавно съкровище*) on the asset side of the bank's balance sheet. In 1915, the government broadened the sources of its domestic

**FIGURE 10 Domestic Public Debt, 1899–1945**



<sup>36</sup> Ivanov et al. (2009), v. 2, pp. 181–183.

<sup>37</sup> Contemporary economists argued that the BNB's monopoly right to issue silver-backed banknotes was at the cost of extending credit to the government (for details, see Danailov 1910, pp. 53–54).



debt by drawing from other banks (non-consolidated debt) and issuing bonds denominated in national currency (consolidated domestic public debt). Data on consolidated domestic debt were published in the statistical yearbook referred to 1 January of the respective year, which is treated as 31 December of the previous year, for the sake of compiling different components reported as end-of-year data in the presented series BG4E.

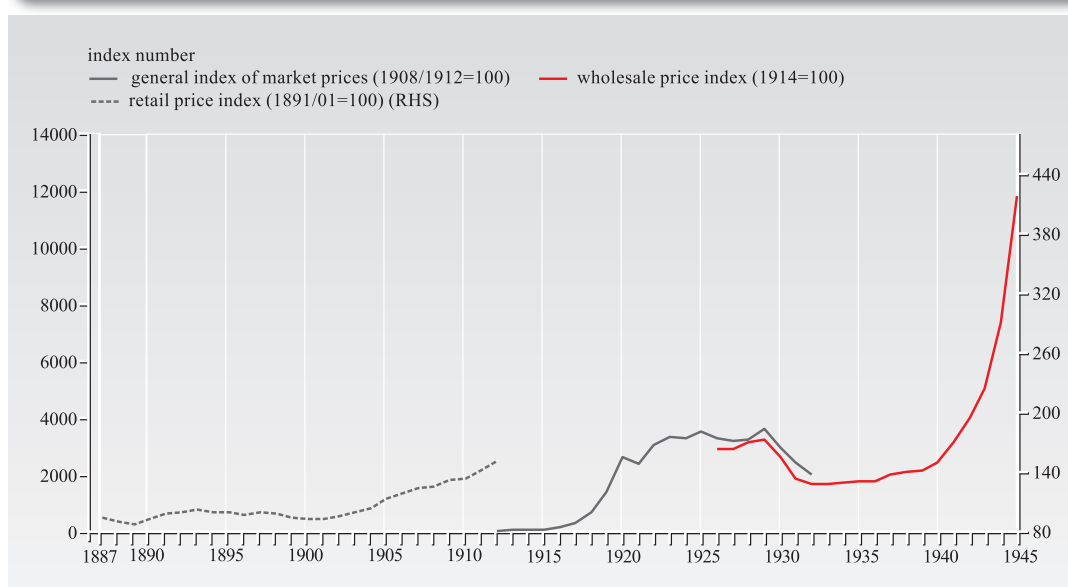
Until 1912, domestic public debt was below 5% of GDP, as seen in Figure 10. With the outbreak of the Balkan Wars, however, it escalated being dominated by direct financing from the BNB. During the interwar period, the stabilisation efforts reduced the non-consolidated component of the debt, and the overall domestic debt was kept at around 10% of GDP. With the outbreak of the Great Depression, the government could not raise funds from abroad and it thus relied on Treasury bonds issue. In the wake of WWII, state-owned commercial banks (e.g. the Bulgarian Agricultural Bank) and the BNB extended almost unlimited credits to the government.

## 2.5 PRICES, PRODUCTION AND LABOUR

### 2.5.1 Prices

Due to the lack of a single price index covering the whole sample period, we report four different price indices, which were indicative of the price developments in the domestic economy across different time periods. The earliest available data are presented by the retail price index (1891/1901=100; series BG5C) (*индекс на цените на дребно*), which was reported over the period 1887–1912. It encompassed the changes in the prices of 98 goods. A general index of market prices (1908/1912=100; series BG5D) (*общ индекс на пазарните цени*) captures the changes in the prices of goods between 1912 and 1932. The cost-of-living index (1914=100; series BG5A) (*индекс за издръжката на живота*) captures the changes in the prices of goods and services in 12 main towns and started to be regularly reported in January 1922 until December 1941. It is the only price index

**FIGURE II Price Developments, 1887–1944**



which is also reported on a monthly basis. A wholesale price index (*индекс на цените на едро*) is also available from 1926 to 1945 with different base years, which after a simple statistical transformation, resulted in the reported wholesale price index series (1914=100; series BG5B).

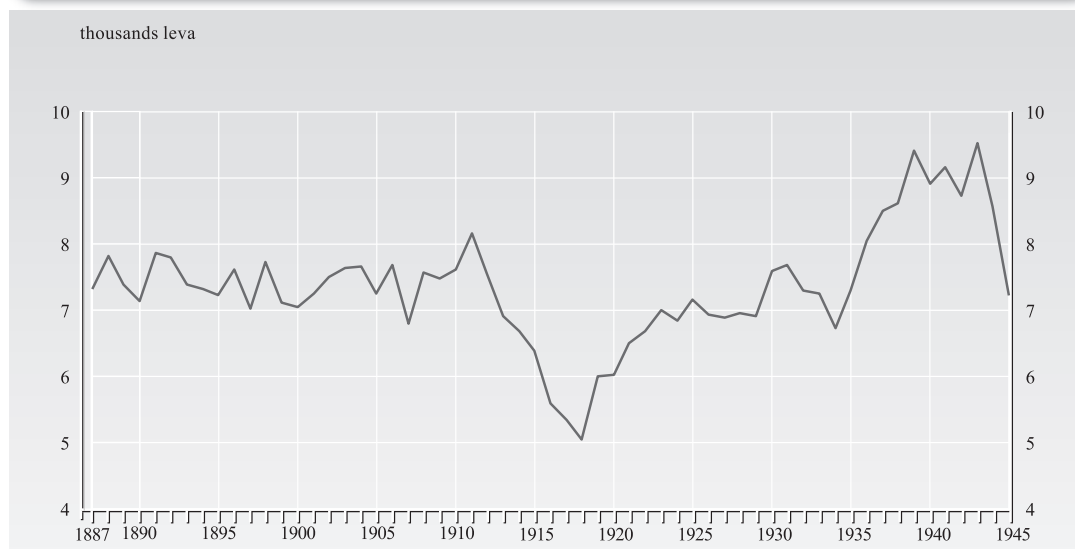
The above-mentioned price indices have different coverage and are anchored to different base years; they thus allow us to detect only a general picture of the price developments in Bulgaria (see Figure 11). Until 1912, given the rural character of the domestic economy and scarce money transactions, price developments did not fully reflect the supply and demand conditions. The general index of market prices, however, clearly depicts the rapid rise in inflation during wartime. Deflation during the Great Depression could be traced by both price indices, which outlined how wholesale price decreases were fully transmitted to retail prices. When the first signs of the economic recovery were noticed in 1934, prices started again to rise and exhibited a strong upward movement during WWII.

## 2.6 NATIONAL ACCOUNTS

### 2.6.1 Gross domestic product

In the late 19th century newly independent Bulgaria was amongst the first ten countries in the world to produce own estimates of national income.<sup>38</sup> Following in the footsteps of Popov, Geshov, and Chakalov, a new national account series for the period from the 1870s to the end of WWII has been produced recently (Ivanov 2012, Ivanov and Tooze 2009). The GDP estimates, which are reported in series BG6A and BG6B, are compiled using four different sets of data sources and methods: (i) income from agriculture and industry is derived from output data multiplied by current (and constant 1939) prices with input costs deducted; (ii) state budget and business account data provide direct information on salary bills; (iii) where neither of the former is available, annual income is estimated on the basis of the employment census data, multiplied by estimates of annual earnings; and (iv)

**FIGURE 12 GDP Per Capita (at 1939 Prices and Today's Territory), 1887–1945**



<sup>38</sup> Studenski (1956), p. 156–157.

income earned from the commercial sector is derived from both retail and wholesale as a fixed percentage of total sales. Real GDP (at 1939 prices) for the country's today territory is also available.

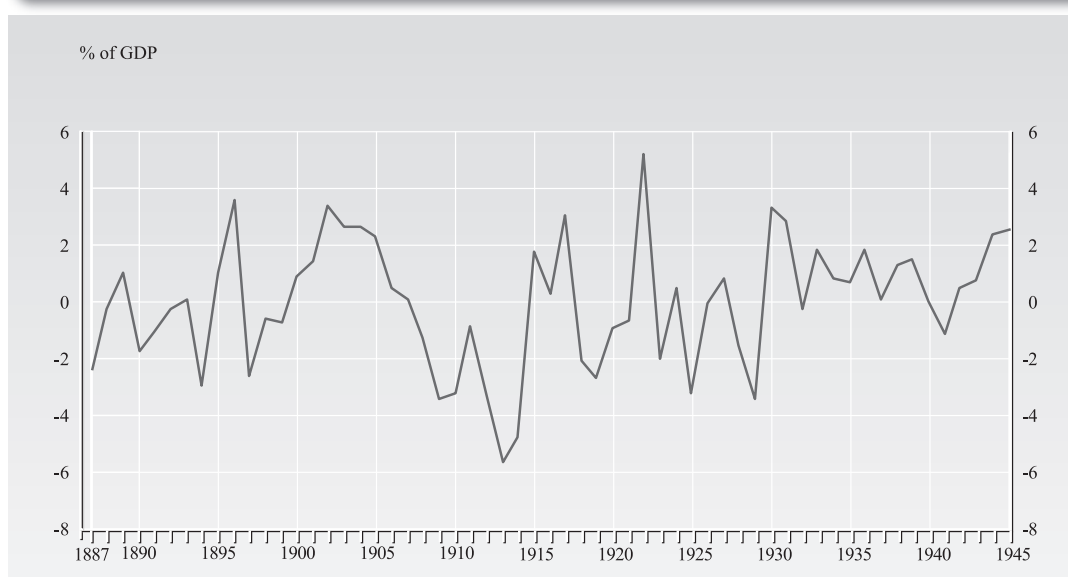
During the gold standard period real GDP per capita did not exhibit any upward long-run trend (Figure 12). The short-lived upward jump in the second half of 1900s was soon followed by a deep war recession. In the early 1920s, the Bulgarian economy stabilised, albeit at a 10–15% lower level. The two foreign loans contracted in 1926 and 1928 gave momentum to another growth episode which was abruptly ended by the Great Depression. From the mid-1930s onwards, investment in human capital (e.g. education) and infrastructure started to pay back.

### 2.6.2 Exports and imports

Foreign trade data comprise time series on exports (BG6C) and imports (BG6D) of goods only. Early data are only available from 1897 and were regularly reported in the statistical yearbooks. Although in some time intervals data were also available on a monthly basis, for the sake of presenting long-run time series, only data on an annual basis are reported. While GDP data refers to the present-day territory of the country, the data series on exports and imports reflect territorial changes that occurred in the period under study. Hence, from 1879 to 1885 export and import data mainly concern North Bulgaria.<sup>39</sup>

Based on the goods exports and imports data series, trade balance was very volatile as the economy was dominated by the agricultural sector (Figure 13). There were years of extremely large trade deficits, which put downward pressure on the gold reserves, and years of consecutive foreign trade surpluses as a result of good crop harvests (1900–1907) or of particularly intensified relations with specific trade partners such as Germany before and during WWII.

**FIGURE 13 Foreign Trade Balance, 1887–1945**



<sup>39</sup> The most significant territorial changes occurred as a result of both Balkan Wars and WWI. In 1919, the country's territory increased by 6%, as compared with 1911.

### 2.6.3 Population

Data on population (series BG6E) were regularly reported from 1881 to 1945. For the years 1880, 1881, 1887, 1892, 1900, 1905, 1910, 1920, 1926 and 1934 the relevant data were census results. End-of-year population was constructed at the time by the Bulgarian statistical office interpolating results of the population censuses carried out at regular intervals: 1880, 1881, 1887, 1892, 1900, 1905, 1910, 1920, 1926 and 1934. Population is reported based on the present-day Bulgarian borders.

## 3 DATA SOURCES

The main sources for the monetary variables are the Annual Reports of the BNB (*Годишен отчет*), its weekly balance sheets published in the State Gazette (*Държавен Вестник*) and the Statistical Yearbook (*Статистически годишник*) published by the Bulgarian Statistical Office. While BG1A is a constructed indicator, data on its elements BG1B, BG1C and BG1D are directly reported in the BNB annual and weekly balance sheets, published in the State Gazette, just before the section dedicated to commercial information and announcements. Apart from using the respective BNB balance sheet items for the calculation of the foreign exchange variable (BG1E) following legislation, additional analytical information (on annual basis) is provided in BNB (1929, pp. 63–64) for the period prior to 1925. From the beginning of 1927, Table 4 of the BNB *Annual Reports* is the main data source for the monthly data. Since December 1928, an alternative source of information for the construction of the BG1E is a separate table designed for the accurate calculation of the effective cover ratio available at the bottom of the BNB weekly balance sheets, published in the *State Gazette*, allowing for cross-checking with the respective balance sheet items. Data on BG1F, BG1G and BG1H are retrieved from the BNB balance sheet items on the liabilities side. Until the end of 1928 effective cover ratios (BG1J, BG1K and BG1L) are constructed based on the respective items of reserves and BNB's liabilities (BG1F, BG1G and BG1H) of the cover ratio according to the legislation. Although from 1927 the effective cover ratio started to be reported just below the BNB weekly balance sheets, published in the *State Gazette* and provided also in Table 4 of the BNB *Annual Reports*, series BG1L is based on the values of the balance sheet items and differs from the officially published effective cover ratio. From December 1928 onwards, an additional source is a separate table at the bottom of the BNB balance sheets designed for the more transparent calculation of the effective cover ratio, and thus series BG1L is identical to the officially published effective cover ratio. From October 1940 onwards, the overall effective cover ratio (series BG1L) is constructed on the basis of the balance sheet items' values again and thus started diverging from the officially published effective ratio. Sources for double and cross-checking the validity of series BG1L (on an annual basis) are the BNB *Annual Report for the year 1944* (1945), p. 7 and Avramov (1999), pp. 116–117.

Data on the coins in circulation (series BG1O) from 1881 to 1908 are taken from Table 1 of the *Statistical Yearbook* (see Chapter Money and Credit, *Пару и кредит*, Section B, Coins and banknotes, *Монети и банкноти*) and Table 2 from 1909 to 1945, except for the period 1916–1923 when interpolation has been applied. Data on total currency in circulation (BG1N) includes total banknotes in circulation (BG1F), as reported in the BNB balance sheets published either in its *Annual Reports* and the *State Gazette*, while from 1942 to 1945 the data on 3% Treasury bills in circulation are taken from the *Annual Reports* for the years 1943, 1944, and 1947. The data on the sight deposits at the central bank (BG1P) were reported since 1927 in the BNB *Annual Reports* (Table 4). Data on other (non-BNB) deposits at banks are retrieved from the daily press, contemporary publications, and archival material (Ivanov 2012).

The dates of change in the discount rate come from the BNB *Annual Reports*. For the period prior to 1925, alternative and complementary data are provided in the BNB *Anniversary Book* (1929), p. 76.

The data on the market prices of the Bulgarian government bonds traded on the Vienna Stock Exchange (BG2B, BG2D, BG2F, BG2H and BG2J) are taken from the *Bulletin* of the Vienna Stock Exchange, as reproduced in the Vienna daily *Neue Freier Presse* (1888–1914), *Compass* (1913) and *Deutsch Heinrich* (1910). Current yields (BG2C, BG2E, BG2G, BG2I and BG2K) are calculated using the reported market prices and additional information on the face value of the bonds and characteristics about their quotations at the Vienna Stock Exchange provided in *Compass* (1913), *Neue Freie Presse* and *Deutsch Heinrich* (1910).

The exchange rate data are collected from the BNB *Annual Reports*, Section ‘BNB exchange rate’ published on the last page of the *State Gazette*, the *Statistical Yearbook* (see Chapter Money and Credit (*Пару и кредит*), Table on the BNB exchange rates). The data on the agio are retrieved from BNB (1929), pp. 198–199.

The main data source for the fiscal variables is the *Statistical Yearbook* of the Bulgarian Statistical Office. In particular, the data series on total government revenues (BG4A) and expenditures (BG4B) are available in the chapter entitled *Finances (Финанси)* (see Section *Public finances (Държавни финанси)*, Tables for budget revenues and expenditures). Due to revisions, our data series refer to the latest available reported figure for the respective year. The data on foreign and domestic debt payments are taken from Ivanov et al. (2009, v. 3, pp. 365–440). The data on foreign public debt are published in the statistical yearbook (see Table ‘Condition of the public debt’, *Положение на държавните дългове*). From 1889 to 1912, the data on government debt to the BNB (i.e. non-consolidated domestic public debt) are from the BNB *Annual Reports*.

The time series on price indices are from the *Statistical Yearbook* (see Chapter Prices and Consumption, *Цени и потребление*). GDP data series was reconstructed drawing on the official statistical data, various contemporary publications and archival material. Detailed information on sources is presented in Ivanov (2012, pp. 126–127 and Table 1). The data on exports and imports are taken from the *Statistical Yearbook* (see chapter Foreign Trade, *външна търговия*, Table 1). Population is also published in the *Statistical Yearbook* (see Chapter Condition of the Population, *състояние на населението*, Section Population Statistics, *преброяване на населението*).

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**Note:** In the following tables “..” indicates that the item did not exist; in case of reconstructed data, that the entry was not calculated for that point in time. “.” indicates missing value. An absolute zero is coded as “-“, while “0.0” codes a rounded zero. For details on the unit of the series, see index table in section 2.



TABLE BG I.1\_A Total reserves, 1879–1947

continue

Year	Total reserves	Metallic holdings	Gold holdings	Silver holdings	Foreign exchange
	BG1A_A	BG1B_A	BG1C_A	BG1D_A	BG1E_A
1879	9425.0	9425.0	.	.	..
1880	2555.0	2555.0	.	.	..
1881	2115.0	2115.0	.	.	..
1882	1414.0	1414.0	.	.	..
1883	817.0	817.0	.	.	..
1884	1553.0	1553.0	.	.	..
1885	3659.0	3659.0	.	.	..
1886	1498.0	1498.0	482.0	1016.0	..
1887	2398.0	2398.0	1904.0	494.0	..
1888	3120.0	3120.0	2467.0	653.0	..
1889	11505.0	11505.0	10743.0	762.0	..
1890	4598.0	4598.0	2871.0	1727.0	..
1891	7377.0	7377.0	6638.0	739.0	..
1892	2948.0	2948.0	2565.0	383.0	..
1893	6201.0	6201.0	4865.0	1336.0	..
1894	10078.0	10078.0	2911.0	7157.0	..
1895	6400.0	6400.0	1625.0	4775.0	..
1896	6486.0	6486.0	3941.0	2545.0	..
1897	8921.0	8921.0	4283.0	4638.0	..
1898	9183.0	9183.0	2996.0	6187.0	..
1899	7398.0	7398.0	3205.0	4193.0	..
1900	13259.0	13259.0	4475.0	8784.0	..
1901	12519.0	12519.0	3399.0	9120.0	..
1902	20132.0	20132.0	9900.0	10232.0	12458.0
1903	12175.0	12175.0	5669.0	6506.0	2524.0
1904	19722.0	19722.0	9273.0	10449.0	24286.0
1905	30759.0	30759.0	20600.0	10159.0	10586.0
1906	38387.0	38387.0	27699.0	10688.0	6838.0
1907	42331.0	42331.0	27312.0	15019.0	5105.0
1908	39531.0	39531.0	24588.0	14943.0	0.0
1909	47823.0	47823.0	30745.0	17078.0	6343.0
1910	52801.0	52801.0	31541.0	21260.0	26667.0
1911	59336.0	59336.0	40142.0	19194.0	32370.3
1912	103584.0	67892.0	51103.0	16789.0	35692.0
1913	92524.0	78774.0	55335.0	23439.0	13750.0

TABLE BG I.I\_A Total reserves, 1879–1947

Year	Total reserves	Metallic holdings	Gold holdings	Silver holdings	Foreign exchange
	BG1A_A	BG1B_A	BG1C_A	BG1D_A	BG1E_A
1914	109255.0	83644.0	55095.0	28549.0	25611.0
1915	337022.0	83864.0	61402.0	22462.0	253158.0
1916	777209.0	85377.0	68173.0	17204.0	691832.0
1917	1335590.0	95811.0	62855.0	16876.0	1239779.0
1918	1289993.0	103803.0	64020.0	19436.0	1186190.0
1919	1431040.0	77969.0	36978.0	17158.0	1353071.0
1920	1703416.0	69226.0	37075.0	16911.0	1634190.0
1921	1207879.0	61307.0	38006.0	20866.0	1146572.0
1922	821969.0	57395.0	38420.0	18412.0	764574.0
1923	1066257.0	72246.0	39527.0	16919.0	994011.0
1924	948164.0	72996.0	40373.0	17227.0	875168.0
1925	619595.0	132718.0	41353.0	17365.0	486877.0
1926	701749.0	195732.0	43855.0	17695.0	506017.0
1927	1849161.0	1442816.0	1277435.0	165381.0	406345.0
1928	3746138.0	1493824.0	1323412.0	170412.0	2252314.0
1929	2469673.0	1558489.0	1388527.0	169962.0	911184.0
1930	1766736.0	1454801.0	1454801.0	..	311935.0
1931	1626618.0	1511446.0	1511446.0	..	115172.0
1932	1526572.0	1519391.0	1519391.0	..	7181.0
1933	1592823.0	1544968.0	1544968.0	..	47855.0
1934	1493883.0	1546675.0	1546675.0	..	-52792.0
1935	1472680.3	1590555.0	1590555.0	..	-117874.7
1936	1652498.0	1652498.0	1652498.0	..	..
1937	1994354.0	1994354.0	1994354.0	..	..
1938	2006253.0	2006253.0	2006253.0	..	..
1939	2010133.0	2006253.0	2006253.0	..	3880.0
1940	2010133.0	2006253.0	2006253.0	..	3880.0
1941	2774381.9	2507816.8	2507816.8	..	266565.2
1942	3094495.7	2557816.8	2557816.8	..	536679.0
1943	3094495.7	2557816.8	2557816.8	..	536679.0
1944	3094495.7	2557816.8	2557816.8	..	536679.0
1945	3089669.2	2563165.9	2563165.9	..	526503.3
1946	3091308.7	2564805.4	2564805.4	..	526503.3
1947	3096123.3	2569620.0	2569620.0	..	526503.3

TABLE BG I.2\_A Banknotes in circulation and effective cover ratios, 1885–1947

continue

Year	Total banknotes in circulation	Gold-backed banknotes	Silver-backed banknotes	Other central bank liabilities at sight	Effective cover ratio of gold-backed banknotes	Effective cover ratio of silver-backed banknotes	Overall effective cover ratio
	BG1F_A	BG1G_A	BG1H_A	BG1I_At	BG1J_A	BG1K_A	BG1L_A
1885	213.0	213.0	..	..	1717.84	..	..
1886	49.0	49.0	..	..	983.67	..	..
1887	1036.0	1036.0	..	..	183.78	..	..
1888	183.0	183.0	..	..	1348.09	..	..
1889	402.0	402.0	..	..	2672.39	..	..
1890	1957.0	1957.0	..	..	146.70	..	..
1891	1303.0	1303.0	..	..	509.44	..	..
1892	472.0	472.0	..	..	543.43	..	..
1893	1231.0	1231.0	..	..	395.21	..	..
1894	824.0	824.0	..	..	353.28	..	..
1895	1681.0	1681.0	..	..	96.67	..	..
1896	2397.0	2397.0	..	..	164.41	..	..
1897	1957.0	1957.0	..	..	218.86	..	..
1898	3156.0	3156.0	..	..	94.93	..	..
1899	7985.0	3779.0	4206.0	..	84.81	99.69	..
1900	21827.0	6737.0	15090.0	..	66.42	58.21	..
1901	26640.0	9579.0	17061.0	..	35.48	53.46	..
1902	24549.0	7762.0	16787.0	..	127.54	60.95	..
1903	32986.0	11226.0	21760.0	..	50.50	29.90	..
1904	40218.0	15504.0	24714.0	..	59.81	42.28	..
1905	37194.0	16267.0	20927.0	..	126.64	48.54	..
1906	44622.0	26065.0	18557.0	..	106.27	57.60	..
1907	49220.0	38298.0	10922.0	..	71.31	137.51	..
1908	71487.0	50308.0	21179.0	..	48.87	70.56	..
1909	71770.0	49730.0	22040.0	..	61.82	77.49	..
1910	81612.0	59442.0	22170.0	..	53.06	95.90	..
1911	110789.0	83360.0	27429.0	..	48.15	69.98	..
1912	164425.0	139638.0	24787.0	..	62.16	67.73	..
1913	188742.0	165959.0	22783.0	..	41.63	102.88	..
1914	226615.0	198879.0	27736.0	..	40.58	102.93	..
1915	369829.0	304763.0	65066.0	..	103.21	34.52	..
1916	833910.0	577113.0	256797.0	..	131.69	6.70	..
1917	1492768.0	1175942.0	316826.0	..	110.77	5.33	..
1918	2298619.0	1969444.0	329175.0	..	63.48	5.90	..
1919	2858489.0	2496026.0	362463.0	..	..	..	49.23
1920	3354139.0	3007588.0	346551.0	..	..	..	50.33
1921	3615440.0	3291063.0	324377.0	..	..	..	33.34
1922	3885990.0	3516338.0	270991.0	..	..	..	21.69
1923	4138985.0	3073584.0	1065061.0	..	..	..	25.38
1924	4530295.0	..	..	..	..	..	20.93
1925	3655302.0	..	..	..	..	..	16.95
1926	3480616.0	..	..	..	..	..	20.16
1927	3726972.0	..	..	2411826.0	..	..	30.12
1928	4173017.0	..	..	3389975.0	..	..	49.53

TABLE BG 1.2\_A Banknotes in circulation and effective cover ratios, 1885–1947

Year	Total banknotes in circulation BG1F_A	Gold-backed banknotes BG1G_A	Silver-backed banknotes BG1H_A	Other central bank liabilities at sight BG1I_At	Effective cover ratio of gold-backed banknotes BG1J_A	Effective cover ratio of silver-backed banknotes BG1K_A	Overall effective cover ratio BG1L_A
1929	3608643.0	..	..	2175461.0	..	..	42.70
1930	3295514.0	..	..	1547043.0	..	..	36.48
1931	2918593.0	..	..	1397380.0	..	..	37.69
1932	2634530.0	..	..	1597584.0	..	..	36.07
1933	2983903.0	..	..	1516348.0	..	..	35.39
1934	2448955.0	..	..	1734002.0	..	..	35.71
1935	2496585.0	..	..	1915712.0	..	..	33.38
1936	2570749.0	..	..	2265019.0	..	..	34.17
1937	2569336.0	..	..	3738443.0	..	..	31.62
1938	2800450.0	..	..	3626909.0	..	..	31.21
1939	4245223.0	..	..	3363386.0	..	..	26.42
1940	6518354.0	..	..	2547475.0	..	..	22.17
1941	13467119.0	..	..	8088805.4	..	..	12.87
1942	18921907.8	..	..	6952544.1	..	..	11.96
1943	23860000.0	..	..	8009000.0	..	..	9.71
1944	45833924.3	..	..	12017781.4	..	..	5.35
1945	43726367.5	..	..	25885321.0	..	..	4.44
1946	41989786.0	..	..	22892935.9	..	..	4.76
1947	38701733.0	..	..	22382639.0	..	..	5.07

TABLE BG 1.3\_A Monetary aggregates, 1881–1947

continue

Year	Monetary base BG1M_A	Total currency in circulation BG1N_A	of which: Coins in circulation BG1O_A	Bank deposits at sight at the central bank BG1P_A	Broad money BG1Q_A
1881	2100.0	2100.0	2100.0	.	4854.0
1882	2100.0	2100.0	2100.0	.	10773.0
1883	12100.0	12100.0	12100.0	.	12100.0
1884	14600.0	14600.0	14600.0	.	20614.0
1885	22313.0	22313.0	22100.0	.	27347.0
1886	22149.0	22149.0	22100.0	.	29456.0
1887	23136.0	23136.0	22100.0	.	39911.8
1888	25283.0	25283.0	25100.0	.	43355.0
1889	25502.0	25502.0	25100.0	.	57488.4
1890	27057.0	27057.0	25100.0	.	66450.9
1891	34403.0	34403.0	33100.0	.	74486.6
1892	38572.0	38572.0	38100.0	.	78649.3
1893	39331.0	39331.0	38100.0	.	99516.5
1894	53924.0	53924.0	53100.0	.	122952.3
1895	54781.0	54781.0	53100.0	.	127899.1
1896	55497.0	55497.0	53100.0	.	142133.1
1897	55057.0	55057.0	53100.0	.	164625.3

TABLE BG I.3\_A Monetary aggregates, 1881–1947

Year	Monetary base	Total currency in circulation	of which: Coins in circulation	Bank deposits at sight at the central bank	Broad money
	BG1M_A	BG1N_A	BG1O_A	BG1P_A	BG1Q_A
1898	56256.0	56256.0	53100.0	.	182377.2
1899	61085.0	61085.0	53100.0	.	182314.2
1900	74927.0	74927.0	53100.0	.	201851.5
1901	80740.0	80740.0	54100.0	.	215489.2
1902	78649.0	78649.0	54100.0	.	257056.8
1903	87086.0	87086.0	54100.0	.	234009.0
1904	98318.0	98318.0	58100.0	.	245334.3
1905	95294.0	95294.0	58100.0	.	273107.0
1906	102722.0	102722.0	58100.0	.	267661.7
1907	107320.0	107320.0	58100.0	.	318604.6
1908	129587.0	129587.0	58100.0	.	347286.2
1909	119593.0	119593.0	47823.0	.	411716.5
1910	134413.0	134413.0	52801.0	.	455588.9
1911	170124.0	170124.0	59335.0	.	520495.4
1912	232926.0	232926.0	68501.0	.	628649.8
1913	267493.0	267493.0	78751.0	.	719660.6
1914	310257.0	310257.0	83642.0	.	847092.2
1915	453692.0	453692.0	83863.0	.	1098678.3
1916	913524.4	913524.4	79614.4	.	1677520.0
1917	1568349.0	1568349.0	75581.0	.	2913374.3
1918	2370370.9	2370370.9	71751.9	.	4429184.5
1919	2926605.8	2926605.8	68116.8	.	5574798.2
1920	3418804.9	3418804.9	64665.9	.	6995091.4
1921	3676829.8	3676829.8	61389.8	.	7965792.1
1922	3944269.7	3944269.7	58279.7	.	8687706.7
1923	4194312.2	4194312.2	55327.2	.	10800241.5
1924	4587895.0	4587895.0	57600.0	.	12018468.5
1925	3714020.0	3714020.0	58718.0	.	13779873.0
1926	3542165.0	3542165.0	61549.0	.	14747404.0
1927	4186237.0	3865746.0	138774.0	320491.0	15894439.7
1928	5395218.0	4309451.0	136434.0	1085767.0	18852117.2
1929	4112379.0	3759378.0	150735.0	353001.0	20471594.7
1930	4397695.0	3528667.0	233153.0	869028.0	17860051.9
1931	4603845.0	3628738.0	710145.0	975107.0	18247637.0
1932	4554698.0	3520502.0	885972.0	1034196.0	18111253.0
1933	4559727.0	3971083.0	987180.0	588644.0	18544663.0
1934	4428047.0	3736256.0	1287301.0	691791.0	19389067.0
1935	4495162.0	3731601.0	1235016.0	763561.0	19372608.0
1936	4621648.0	3811462.0	1240713.0	810186.0	20453017.0
1937	5582460.0	3822725.0	1253389.0	1759735.0	21487974.0
1938	5550328.0	4082556.0	1282106.0	1467772.0	24335934.0
1939	7014441.0	5686557.0	1441334.0	1327884.0	27935826.0
1940	9141441.0	8082561.0	1564207.0	1058880.0	31907682.0
1941	16656888.0	15713888.0	2246769.0	943000.0	45950898.0
1942	25023907.8	23463907.8	2705000.0	1560000.0	69205082.8
1943	38115000.0	35715000.0	2877000.0	2400000.0	96408674.0
1944	69624000.0	67200000.0	3166075.7	2424000.0	138423470.0
1945	75790367.5	73126367.5	3200000.0	2664000.0	162938250.5

TABLE BG 2.1\_D Discount rate, 1879–1947

Discount rate				Discount rate			
Year	Date	Month	BG2A_D	Year	Date	Month	BG2A_D
1879	26	Jan.	9.0	1923	16	April	9.0
1884	26	Jan.	8.0	1924	16	Aug.	10.0
1885	1	Nov.	7.5	1928	15	Dec.	9.0
1887	1	May	8.0	1929	2	July	10.0
1889	1	March	9.0	1931	29	Jan.	9.0
1889	1	Nov.	8.0	1931	4	Apr.	8.5
1897	1	July	7.0	1931	29	Sept.	9.5
1898	15	April	7.5	1932	25	May	8.0
1898	20	Oct.	8.0	1934	1	Jan.	7.0
1906	1	Feb.	7.0	1935	15	Aug.	6.0
1911	15	May	6.0	1940	16	Sept.	5.5
1920	1	July	6.5	1940	1	Dec.	5.0
1922	1	July	7.0	1946	14	Aug.	4.5

TABLE BG 2.2\_A Market prices and current yields on Bulgarian government bonds, 1890–1914

Year	State railroad mortgage bond 1889		State mortgage bond 1892		Tobacco bond 1902		State Gold bond 1907		State Gold bond 1909	
	Market price	Current yield	Market price	Current yield	Market price	Current yield	Market price	Current yield	Market price	Current yield
	BG2B_A	BG2C_A	BG2D_A	BG2E_A	BG2F_A	BG2G_A	BG2H_A	BG2I_A	BG2J_A	BG2K_A
1890	108.0	6.40	..	..	..	..	..	..	..	..
1891	102.3	6.83	..	..	..	..	..	..	..	..
1892	104.6	6.80	..	..	..	..	..	..	..	..
1893	113.1	6.52	113.6	6.51	..	..	..	..	..	..
1894	120.9	6.16	122.9	6.06	..	..	..	..	..	..
1895	115.7	6.28	115.2	6.31	..	..	..	..	..	..
1896	112.2	6.38	112.0	6.39	..	..	..	..	..	..
1897	111.5	6.41	111.2	6.43	..	..	..	..	..	..
1898	110.7	6.46	110.6	6.47	..	..	..	..	..	..
1899	108.2	6.65	107.9	6.67	..	..	..	..	..	..
1900	96.0	7.34	96.5	7.31	..	..	..	..	..	..
1901	95.6	7.48	95.9	7.45	..	..	..	..	..	..
1902	103.8	6.90	104.0	6.88	108.3	5.50	..	..	..	..
1903	107.9	6.62	108.2	6.61	107.7	5.53	..	..	..	..
1904	107.8	6.63	108.0	6.62	106.3	5.61	..	..	..	..
1905	116.5	6.15	116.8	6.14	114.4	5.22	..	..	..	..
1906	119.0	6.02	119.3	6.01	117.6	5.08	..	..	..	..
1907	119.2	6.02	120.3	5.97	117.4	5.09	87.3	4.93	..	..
1908	..	..	120.7	5.94	118.4	5.04	87.3	4.92	..	..
1909	..	..	122.0	5.86	119.6	4.98	91.3	4.70	..	..
1910	..	..	121.3	5.90	120.4	4.95	93.2	4.60	91.4	4.70
1911	..	..	121.7	5.88	121.3	4.91	94.6	4.54	90.5	4.74
1912	..	..	119.5	6.00	119.4	5.01	93.2	4.62	87.9	4.90
1913	..	..	118.2	6.07	116.3	5.14	89.0	4.84	83.8	5.13
1914	..	..	118.3	6.06	114.8	5.20	85.2	5.05	81.1	5.30

TABLE BG 3\_A Exchange rates, 1886–1947

continue

Year	Pound sterling	French franc	Mark/ Reichsmark	US dollar	Agio
	BG3B_A	BG3A_A	BG3C_A	BG3D_A	BG3E_A (%)
1886	.	.	.	.	6.48
1887	.	.	.	.	4.60
1888	.	.	.	.	1.22
1889	.	.	.	.	1.53
1890	25.177	0.999	1.233	.	0.24
1891	25.168	1.000	1.235	.	0.68
1892	25.210	1.001	1.235	.	3.17
1893	25.228	1.000	1.231	.	2.72
1894	25.223	1.001	1.231	.	3.45
1895	25.257	1.001	1.230	.	5.26
1896	25.228	1.001	1.232	.	4.67
1897	25.202	1.001	1.233	.	2.78
1898	25.291	1.001	1.236	.	3.71
1899	25.291	1.002	1.236	.	5.76
1900	25.326	1.001	1.236	.	12.01
1901	25.354	1.006	1.238	.	13.15
1902	25.287	1.003	1.235	.	7.77
1903	25.188	1.001	1.232	.	2.76
1904	25.193	1.001	1.232	.	2.02
1905	25.136	0.999	1.229	.	0.88
1906	25.169	1.000	1.229	.	0.69
1907	25.228	1.003	1.231	.	.
1908	25.261	1.004	1.236	.	.
1909	25.460	1.011	1.244	.	.
1910	25.387	1.006	1.240	.	.
1911	25.365	1.004	1.239	.	.
1912	25.376	1.005	1.238	.	.
1913	25.822	1.035	1.279	5.400	..
1914	26.071	1.101	1.363	5.700	..
1915	32.979	1.237	1.417	6.800	..
1916	33.636	1.197	1.267	7.200	..
1917	39.600	1.441	1.251	8.300	..
1918	34.800	1.301	1.249	7.300	..
1919	107.633	3.377	1.500	24.166	..
1920	239.523	4.639	1.268	64.438	..
1921	436.268	8.416	1.245	112.755	..
1922	664.372	12.288	0.358	150.183	..
1923	580.445	7.719	0.003	124.132	..
1924	614.637	7.369	33.926	138.596	..
1925	670.864	6.710	33.703	139.000	..
1926	675.059	4.557	33.233	139.000	..
1927	674.932	5.462	33.038	139.000	..
1928	676.412	5.461	33.174	139.000	..
1929	674.401	5.449	33.068	138.778	..
1930	675.957	5.457	33.171	139.000	..
1931	636.349	5.450	32.842	139.000	..
1932	496.122	5.461	33.108	139.000	..
1933	472.374	5.480	33.199	113.307	..
1934	430.604	5.490	33.008	84.528	..

TABLE BG 3\_A Exchange rates, 1886–1947

Year	Pound sterling	French franc	Mark/ Reichsmark	US dollar	Agio
	BG3B_A	BG3A_A	BG3C_A	BG3D_A	BG3E_A (%)
1935	413.900	5.490	33.502	84.058	..
1936	416.980	5.103	33.500	84.028	..
1937	414.323	3.405	33.000	84.300	..
1938	412.263	2.452	33.000	84.370	..
1939	381.828	2.179	33.000	84.400	..
1940	322.750	1.782	33.000	83.767	..
1941	334.000	1.801	33.000	82.400	..
1942	334.000	1.850	33.000	82.400	..
1943	334.000	1.850	33.000	82.400	..
1944	334.000	1.850	33.000	82.400	..
1945	334.000	1.804	33.000	82.400	..
1946	334.000	1.740	33.000	82.400	..
1947	334.000	2.200	.	82.400	..

TABLE BG 4\_A Government finances, 1879–1947

continue

Year	Total government revenue	Total government expenditure	Foreign debt payment	Foreign public debt	Domestic public debt
	BG4A_A	BG4B_A	BG4C_As	BG4D_A	BG4E_A
1879	29032.0	19712.0	.	..	..
1880	33323.0	26937.0	.	..	..
1881	26551.0	26552.0	.	..	..
1882	36061.0	39278.0	.	..	..
1883	32905.0	33337.0	.	..	..
1884	31949.0	33785.0	.	..	..
1885	34328.0	45498.0	.	..	..
1886	50297.0	55169.0	.	..	..
1887	55696.0	48218.0	2951.0	..	..
1888	106093.0	119609.0	8531.8	35226.8	..
1889	79755.0	74052.0	8078.7	81504.3	..
1890	88146.0	83609.0	8287.6	110530.1	..
1891	89920.0	92532.0	18173.0	100859.6	..
1892	87388.0	104715.0	8853.4	99000.1	..
1893	96279.0	91787.0	11041.6	109638.1	..
1894	124987.0	102947.0	13968.1	128031.6	..
1895	96661.0	97233.0	14061.9	167035.6	..
1896	92185.0	104939.0	13769.3	165448.6	..
1897	91312.0	106976.0	15073.7	164442.8	..
1898	95521.0	132187.0	15770.5	160148.8	..
1899	108908.0	105429.0	17753.9	176471.2	1001.5
1900	120381.0	109768.0	18577.4	200335.0	992.7
1901	91882.0	103709.0	25535.6	220969.6	978.5



TABLE BG 4\_A Government finances, 1879–1947

Year	Total government revenue	Total government expenditure	Foreign debt payment	Foreign public debt	Domestic public debt
	BG4A_A	BG4B_A	BG4C_As	BG4D_A	BG4E_A
1902	182733.0	130709.0	23170.0	212156.7	3527.5
1903	100077.0	111949.0	45381.2	285204.8	18099.2
1904	115883.0	134018.0	23745.3	280578.6	2000.3
1905	169402.0	141079.0	28883.8	354764.9	11210.4
1906	144486.0	148423.0	29131.0	367974.3	15459.3
1907	241504.0	240045.0	83599.1	363440.3	24445.7
1908	230872.0	243155.0	33573.5	451446.1	42008.0
1909	199919.0	192048.0	31597.0	446598.8	40825.7
1910	265945.0	229203.0	36031.4	523840.5	311.8
1911	203840.0	202844.0	36682.3	614779.1	271.3
1912	251785.0	301600.0	33301.4	608856.1	7930.4
1913	248051.0	359246.0	37894.3	845013.1	146685.1
1914	351125.0	303832.0	46720.4	1027510.9	138194.0
1915	292370.0	323291.0	63055.1	1383887.2	169162.2
1916	963315.0	491461.0	72314.6	1462155.2	319992.0
1917	855465.0	973341.0	82577.1	1839712.9	688883.5
1918	672218.0	1293649.0	93128.3	5522785.3	919482.9
1919	846075.0	1313120.0	130156.9	14022839.0	1827087.3
1920	2008528.0	2019865.0	138772.9	34672171.2	2979853.8
1921	2845974.0	3888616.0	244679.1	62621526.3	3758216.0
1922	4453717.0	4512019.0	490419.7	90426449.1	713971.6
1923	5365522.0	5481441.0	596639.6	71463879.7	4480362.9
1924	7274610.0	8386809.0	675826.2	35146631.9	4160221.2
1925	6408073.0	7156891.0	625718.4	38027958.2	5266613.9
1926	6594527.0	6784803.0	1038112.4	38197145.6	4944402.8
1927	6940103.0	6695912.0	798298.3	38721353.4	5211750.1
1928	8228485.0	7726302.0	747482.0	33755762.4	4904878.1
1929	10205006.0	11599403.0	1256940.2	37828045.7	5532209.3
1930	6436007.0	9443312.0	986051.2	24903234.8	6011983.3
1931	5622572.0	7831748.0	946954.1	24552244.3	6227396.1
1932	4835612.0	6711884.0	807280.6	23779279.7	6785593.0
1933	5121477.0	6631774.0	660816.6	20729893.2	7147351.0
1934	4037189.0	5001013.0	286016.7	22283886.0	7164739.0
1935	5661939.0	7295765.0	277683.5	22166669.1	7871745.0
1936	6596281.0	7650679.0	265246.8	21910340.7	8422273.0
1937	7736877.0	8791752.0	299062.3	16912080.0	8446562.0
1938	7702652.0	9335654.0	439736.1	16647319.7	8815495.0
1939	8531650.0	10197154.0	219114.4	13771718.7	10172950.0
1940	9839938.0	12051729.0	164974.2	13467403.8	13390048.0
1941	19493342.0	19735438.0	165192.3	13474096.0	16966668.0
1942	26200891.0	29765099.0	369914.1	13451479.8	28321718.0
1943	36671211.0	44303590.0	262311.3	13158275.6	43742984.0
1944	43254102.0	52483510.0	249723.8	12926729.6	71070548.0
1945	81871248.0	88041527.0	148360.5	12731849.0	107242577.0

TABLE BG 5\_A Prices, 1887–1941

continue

Year	Cost-of-living index (1914=100)	Wholesale price index (1939=100)	Retail price index, 98 goods (1891/01=100)	General index of market prices (1908/12=100)
	BG5A_A	BG5B_A	BG5C_A	BG5D_A
1887	.	.	96.81	.
1888	.	.	91.61	.
1889	.	.	89.26	.
1890	.	.	94.82	.
1891	.	.	100.09	.
1892	.	.	101.14	.
1893	.	.	104.28	.
1894	.	.	101.98	.
1895	.	.	101.59	.
1896	.	.	98.84	.
1897	.	.	101.19	.
1898	.	.	100.17	.
1899	.	.	96.49	.
1900	.	.	94.66	.
1901	.	.	94.59	.
1902	.	.	98.02	.
1903	.	.	101.05	.
1904	.	.	105.10	.
1905	.	.	114.97	.
1906	.	.	120.65	.
1907	.	.	125.26	.
1908	.	.	127.81	.
1909	.	.	133.34	.
1910	.	.	135.66	.
1911	.	.	142.85	.
1912	.	.	152.73	114.0
1913	.	.	.	120.0
1914	.	.	.	123.0
1915	.	.	.	138.0
1916	.	.	.	221.0
1917	.	.	.	396.0
1918	.	.	.	767.0
1919	.	.	.	1444.0
1920	.	.	.	2707.0
1921	.	.	.	2464.0
1922	2268.58	.	.	3106.0
1923	2339.50	.	.	3377.0
1924	2642.50	.	.	3325.0
1925	2974.33	.	.	3561.0
1926	2759.08	135.20	.	3344.0
1927	2674.92	135.43	.	3235.0
1928	2801.42	145.79	.	3305.0
1929	2901.42	150.25	.	3664.0
1930	2700.42	121.96	.	3028.0
1931	2355.17	100.32	.	2480.0
1932	2160.67	87.59	.	2074.0
1933	2010.58	78.72	.	.

TABLE BG 5\_A Prices, 1887–1941

Year	Cost-of-living index (1914=100)	Wholesale price index (1939=100)	Retail price index, 98 goods (1891/01=100)	General index of market prices (1908/12=100)
	BG5A_A	BG5B_A	BG5C_A	BG5D_A
1934	1898.25	80.17	.	.
1935	1918.00	81.76	.	.
1936	1674.08	83.27	.	.
1937	1719.83	94.95	.	.
1938	1772.50	98.41	.	.
1939	1818.25	100.00	.	.
1940	1988.33	115.70	.	.
1941	2458.33	148.10	.	.
1942	.	187.70	.	.
1943	.	237.40	.	.
1944	.	345.20	.	.
1945	.	550.20	.	.

TABLE BG 6\_A National accounts and population, 1879–1947

continue

Year	GDP (at current prices)	GDP (at constant 1939 prices)	Exports	Imports	Population
	BG6A_A	BG6B_A	BG6C_A	BG6D_A	BG6E_A
1879	..	..	20093.0	32138.0	..
1880	..	..	33118.0	48224.0	2.01
1881	..	..	31820.0	58467.0	2.91
1882	..	..	34252.0	41565.0	2.97
1883	..	..	46126.0	48930.0	3.03
1884	..	..	35297.0	51194.0	3.09
1885	..	..	41875.0	44040.0	3.09
1886	..	..	50404.0	64285.0	3.12
1887	778039.7	23050176.1	45747.0	64742.0	3.15
1888	780158.2	24913840.9	64199.0	66362.0	3.19
1889	739630.6	23774297.7	80581.0	72869.0	3.22
1890	778650.9	23159063.6	71051.0	84530.0	3.25
1891	963456.2	25782400.8	71065.0	81348.0	3.28
1892	931585.5	25801060.5	74640.0	77303.0	3.31
1893	912023.1	24823303.5	91464.0	90868.0	3.36
1894	899796.4	24978572.0	72851.0	99229.0	3.41
1895	875276.7	25058814.6	77686.0	69020.0	3.47
1896	901891.2	26808857.3	108740.0	76530.0	3.52
1897	931336.2	25092966.6	59791.0	83994.0	3.58
1898	993857.1	28071369.4	66537.0	72730.0	3.63
1899	886587.9	26241492.3	53467.0	60178.0	3.69
1900	854760.0	26422016.4	53983.0	46342.0	3.74
1901	888854.3	27581774.1	82770.0	70044.0	3.80
1902	963877.7	28979321.9	103685.0	71246.0	3.86
1903	989950.7	29916036.5	108074.0	81803.0	3.92
1904	1056720.1	30417204.4	157619.0	129690.0	3.98

TABLE BG 6\_A National accounts and population, 1879–1947

Year	GDP (at current prices)	GDP (at constant 1939 prices)	Exports	Imports	Population
	BG6A_A	BG6B_A	BG6C_A	BG6D_A	BG6E_A
1905	1111358.9	29270195.2	147961.0	122250.0	4.04
1906	1210929.1	31487847.6	114573.0	108474.0	4.09
1907	1193124.0	28216166.1	125595.0	124661.0	4.15
1908	1406918.6	31861794.1	112357.0	130151.0	4.21
1909	1439767.7	31954482.3	111434.0	160430.0	4.28
1910	1484741.0	33015183.9	129052.0	177357.0	4.34
1911	1673002.9	35929173.4	184634.0	199345.0	4.40
1912	1720375.1	33651505.3	156407.0	213110.0	4.46
1913	1694538.5	31340803.9	93330.0	189298.0	4.53
1914	1813880.5	32627616.5	154425.0	241490.0	4.88
1915	2065284.3	31758680.2	109416.0	73495.0	4.98
1916	2474541.2	28106268.3	95796.0	89428.0	5.03
1917	3997593.9	27122858.5	288906.0	168685.0	5.08
1918	7283604.0	25903785.8	415476.0	567211.0	5.13
1919	15493999.3	28835663.4	552253.0	963941.0	4.80
1920	20983123.7	29138986.1	2055999.0	2255186.0	4.85
1921	25331821.2	32132732.3	2801327.0	2975665.0	4.95
1922	35835890.4	33788891.9	5925718.0	4065972.0	5.05
1923	40608034.5	36063529.7	4343135.0	5153536.0	5.15
1924	43542089.3	35928350.6	5876226.0	5678324.0	5.26
1925	49495000.0	38466203.2	6242246.0	7834016.0	5.37
1926	49419000.0	37936595.1	5617601.0	5630982.0	5.48
1927	52462000.0	38253812.3	6627145.0	6197210.0	5.55
1928	56529000.0	39094197.9	6231247.0	7108747.0	5.62
1929	56207000.0	39359645.7	6397061.0	8324633.0	5.70
1930	48641000.0	43851460.3	6191140.0	4589725.0	5.77
1931	44561000.0	44871996.9	5934174.0	4660063.0	5.85
1932	39273000.0	43269241.4	3381845.0	3471233.0	5.92
1933	35633000.0	43516668.8	2846349.0	2202256.0	6.00
1934	34564000.0	40885977.5	2534630.0	2247232.0	6.08
1935	36569000.0	44680693.7	3253284.0	3008954.0	6.13
1936	40188000.0	49695536.2	3910382.0	3181068.0	6.17
1937	46565000.0	52870613.9	5019499.0	4985914.0	6.22
1938	51295000.0	53972359.5	5578341.0	4934193.0	6.27
1939	59430000.0	59430993.9	6064754.0	5196747.0	6.32
1940	65410000.0	56768124.8	7019066.0	7028166.0	6.37
1941	88958000.0	61832185.1	9234141.0	10238995.0	6.74
1942	109932000.0	59406033.0	13437198.0	12928574.0	6.80
1943	146183000.0	65341230.9	16270980.0	15130816.0	6.86
1944	203471000.0	59292696.2	11356702.0	6478287.0	6.91
1945	242262000.0	50560928.5	12232444.0	5819637.0	6.97

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# VI

## Romania: from 1880 to 1947

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### I MAJOR MONETARY EVENTS

#### I.1 KEY EVENTS IN THE POLITICAL HISTORY OF ROMANIA

Modern Romania started to take shape in 1859 with the union of the Romanian Principalities, namely Moldavia and Wallachia, which had been under Ottoman suzerainty and the collective protectorate of Europe's Great Powers. The process continued with the proclamation of independence from the Ottoman Empire in 1877 and its international recognition by the Congress of Berlin one year later. From a political standpoint, the pinnacle of this process was the proclamation of the Kingdom of Romania in 1881 as the organisational structure of the Romanian state.

Romania's participation in World War I during 1916–1918 on the side of the Triple Entente brought the international recognition of the country's union with the territories inhabited by Romanians in Austria-Hungary (Bukovina and Transylvania) and Russia (Bessarabia), as stipulated in the treaties signed in Saint Germain, Neuilly, Trianon and Paris after the peace talks held at the Congress of Paris during 1919–1920.

The interwar period was a thriving period for the Romanian state overall. However, the outbreak of World War II and the sweeping changes to the balance of power in Central and Eastern Europe caused great territorial losses to Romania in 1940, as approximately one-third of its territories were incorporated into the neighbouring countries: the USSR (Bessarabia and Northern Bukovina), Bulgaria (Southern Dobrudja), and Hungary (Northern Transylvania). When the war was over, Northern Transylvania was again part of Romania, which however fell under the USSR's sphere of influence. In terms of domestic politics, this materialised into the Communist Party grabbing power after the victory of the left-wing forces in the November 1946 elections. The political changes came to an end on 30 December 1947 when the monarchy was abolished and the official name of the country became the People's Republic of Romania. The Romanian Communist Party thus turned into the most powerful political party, paving the way for the Soviet model being transposed into the Romanian society.

#### I.2 ROMANIA'S MONETARY AND FINANCIAL HISTORY (1867–1947)

The second half of the 19th century witnessed the creation/strengthening of modern Romania, along with the organisation of its institutional structures including the financial, monetary and credit

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<sup>2</sup> *Economics Department, Statistics Department, Secretariat, respectively. The chapter extends earlier data releases of the South-eastern European historical database edited by the OeNB, *Workshops 13* (2008) and the Bank of Greece, *Working Paper 94* (2009). The authors would like to thank all participants of the SEEMHN DCTF for their thoughtful suggestions and comments. Special thanks are due to Victor Axenciuc. The views expressed herein are strictly those of the authors and do not necessarily reflect the views of the National Bank of Romania. The authors alone are responsible for any errors.  
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system, against the background of the emancipation from the Ottoman Empire's domination and the switch to the models provided by Western Europe, in particular France.

On 22 April 1867, the leu became Romania's national currency (based on a bimetallic gold-silver standard). Leu 1 was the equivalent of 0.3226 grams of mint gold with a 900‰ fineness or 5 grams of mint silver with an 835‰ fineness. The monetary law did not include provisions on the free mintage of gold or silver coins, but set forth that the types and amounts of coins to be issued were established by the legislative councils at the request of the Ministry of Finance.<sup>3</sup> As a matter of fact, the currency issuance right was exercised by the Romanian government alone.

The exchange rates of the major currencies against the leu were established as follows: one French franc = 1 leu, one pound sterling = 25 lei, one German mark = 1.23 lei. The introduction of the bimetallic gold-silver standard and the equality between the leu and the French franc were aimed at adjusting the Romanian monetary system to the standards established by the member countries of the Latin Monetary Union. Nevertheless, Romania's request for membership of this international organisation was turned down.<sup>4</sup>

Although the law laid down the value of the leu in both silver and gold, the gold price on the market was soon to exceed the official silver price. What followed was the emergence of the phenomenon referred to as *agio*, namely the gold premium in relation to silver as well as to banknotes. A more accurate description of the *agio* is given by one of the contemporaries:

*'This is one of the most serious issues, as farmers, owners, retailers and industrialists are equally affected and fear that their fortune in silver or banknotes would diminish over night and that next day the worth of their money holdings would be 8 percent, 10 percent or 15 percent lower'.<sup>5</sup>*

Across the Romanian economy, the higher *agio* indicating the disruptions in the gold-silver standard caused major imbalances, such as the disappearance of gold from circulation as a result of hoarding and exports and the introduction of the gold payment clause for large-value transactions. In the absence of gold, payments were made generally in silver, to which was added the daily *agio*, although the contractual provisions stipulated that payments should be effected in gold. Another phenomenon related to the crisis of bimetalism was the price increase which included the gold premium.

The phenomenon was conducive to the hoarding of the gold currency and the depreciation of the silver coins and NBR's banknotes against gold. In this context, the Romanian authorities decided to relinquish the bimetallic gold-silver standard.<sup>6</sup>

The new Monetary Act of 1890 set forth the elimination of silver as a standard and the introduction of the monometallic gold standard, while silver coins were to become fractional coins. The silver coin ceased to be unlimited legal tender, as the coin served to make payments up to 50 lei. The government was entitled to retire from circulation 5 lei silver coins equivalent to 40,000,000 lei and replace them with gold coins. Silver coins worth 25,000,000 lei were devalued and replaced by 20 lei gold coins in the amount of 3,920,000 lei.<sup>7</sup> This process started by converting the 5 lei

<sup>3</sup> See Marinescu (1939), pp. 295–303.

<sup>4</sup> For further details on the relationship between Romania and the Latin Monetary Union, see Kirițescu (1968).

<sup>5</sup> Băicoianu (1939), volume II, part II, second volume of annexes, p. 96.

<sup>6</sup> See Băicoianu (1939), volume II, part I, pp. 199–235, as well as Stoenescu, Costache, Blejan and Iarovici Aloman (2008).

<sup>7</sup> *Anuarul statistic al României* (1912), pp. 436–437.

silver coins in the NBR metallic stock into gold. In view of the reservations expressed by the National Bank of Romania in relation with the resources of precious metal for covering its issue, the provisions of this law were included in the NBR Statute in 1892. Thus, one leu was worth 0.3226 grams of 900‰ fineness gold.<sup>8</sup>

The National Bank of Romania (*Banca Națională a României*) was established by virtue of the Law of 17 April 1880, having a capital of 30 million lei, with two thirds being subscribed by private investors and one third by the state. In 1901, the Romanian government withdrew its participating interest in the NBR's capital, which was thus subscribed exclusively by private investors (its value remaining unchanged from 1880).

According to the law, the NBR held the monopoly over banknote issuance for 20 years. On its establishment in 1880, the National Bank of Romania was bound by law to have a cover stock accounting for 33% of the amount of the issued banknotes; the gold/silver proportion was not specified.<sup>9</sup> Banknotes were converted into either silver or gold, at the option of the issuing bank.

After 1892 the banknotes became convertible into gold and gold foreign currencies at the central bank's headquarters. The NBR Act and Statute provided that notes in circulation should be covered by gold up to at least 40%, of which 30% at most could be bills of exchange denominated in British and German currencies. Starting 1901, under exceptional circumstances, the cover limit of the metallic stock could go down to 33%, while the bills of exchange included in its structure could also be expressed in both French and Belgian currencies.<sup>10</sup> The issuing privilege was renewed several times and is still in force.

World War I took a heavy toll on Romania's economy. Government institutions, the National Bank of Romania, etc., were relocated from Bucharest to Iași, which became the capital city. The Bucharest Stock Exchange ceased its activity during July 1914–October 1919.

From 1916 through 1920, the Chamber of Deputies neither debated nor adopted a general government budget, Romania's public finances being organised on the basis of the budget adopted for the 1915/1916 financial year. With a view to covering the war-related expenses, the government took several loans from the NBR, entailing an increase in currency issue. In order to ensure legal cover, the Ministry of Finance bestowed gold and foreign currencies deposited with foreign banks to the NBR. However, when these resources were depleted, they were replaced by Gold Treasury bonds, which were included in the cover stock of the issuing bank. The loss of the NBR's metallic stock in the amount of 315.2 million lei, which had been dispatched to Moscow in 1916–1917, led to the formal suspension of gold convertibility of the leu starting June 1917, given that gold exports had been banned ever since August 1914.<sup>11</sup>

The government continued to borrow from the issuing bank even after the Great War in order to cover the expenditures and the amounts required for accomplishing monetary unification – which implied the withdrawal from circulation of the Russian roubles, the Austro-Hungarian crowns and of the lei issued during 1916–1918 with the consent of the German administration in Bucharest by the Romanian General Bank.<sup>12</sup>

<sup>8</sup> Marinescu, *op. cit.*, pp. 312–317.

<sup>9</sup> *Ibid.*, pp. 1–91, 295–303.

<sup>10</sup> *Ibid.*, pp. 312–317.

<sup>11</sup> *Ibid.*, pp. 326–329, 367–370.

<sup>12</sup> *Ibid.*, pp. 321–412.

Gradually, the Romanian authorities tried to return to normalcy. Romania's first government budget for the 1920/1921 financial year was adopted in 1920. Starting 1922, the government stopped taking new loans from the issuing bank. Furthermore, during the first inter-war decade, the persons in charge of Romania's public finances succeeded, through the conclusion of arrangements with foreign holders of Romanian debt, to consolidate the external public debt and to resume debt servicing.

The agreements concluded in 1925 between the government and the NBR were yet another step towards restoring the monetary and financial equilibrium. At the same time, the NBR bank capital was increased threefold, from 30 million lei to 100 million lei, in which the government held one third of shares.<sup>13</sup>

These agreements were aimed at putting an end to the issue of the debt incurred by the government with the central bank and at adopting measures for ensuring the cover of money circulation. The government set up a fund for liquidating its debt with the NBR, to this adding the attendant withdrawal of the banknotes issued for the government and the containment of the NBR's issue at the level reached on 31 December 1924.

According to the Statute adopted in 1925, the NBR had to hold a metallic stock of at least 40% of the banknotes issued; only under exceptional circumstances, could the metallic stock be reduced to 33%. A proportion of 30% of the metallic stock could be accounted for by gold bills of exchange on the markets in France, Belgium, Germany, the United Kingdom and the USA. This percentage could be raised to 50% of the cover stock, including Romanians' rents, the payment of which was actually made in foreign currency.<sup>14</sup>

This set of measures was adopted and implemented against the background of a relative stabilisation of the Romanian economy. During 1923–1927, the government budget reported constant surpluses. Romania's trade balance saw a similar evolution during this period, except for 1925. The leu exchange rate on foreign markets started to go up in 1927 and stabilised one year later, after reaching historical lows in 1925–1926.<sup>15</sup>

Starting 1928, with a view to restoring monetary equilibrium, a decision was adopted to stabilise the national currency at the current value. A new agreement was signed with the Romanian government, by which the NBR was authorised to: conclude agreements with foreign issuing banks for opening credit lines in order to legally stabilise the leu; buy an unlimited amount of gold-based foreign exchange; increase the issuance of banknotes based on the gold or gold-based foreign exchange cover only. In addition, a credit agreement was concluded with 14 issuing banks, which were committed to obtaining a USD 25 million worth of stabilisation loan available with the NBR.<sup>16</sup>

Against the background of a poor harvest, in 1928, the trade balance recorded a worrisome 4.6 billion lei deficit, whereas the deficit reported by the government budget amounted to approximately 2.5 billion lei.

The new Monetary Act adopted as of 7 February 1929 provided for the resumption of the leu's convertibility and its devaluation from the pre-war parity. In line with the legal definition, leu 1 was the equivalent of 10 milligrams of mint gold 9/10. The NBR had to ensure for its sight commitments a cover

<sup>13</sup> *Ibid.*, pp. 7–8.

<sup>14</sup> *Ibid.*, pp. 31–32, 474–485.

<sup>15</sup> For details on the relationships between the government and the NBR, see Ionescu (1935).

<sup>16</sup> See Marinescu, *op. cit.*, pp. 485–492.



of at least 25% in gold, plus the remaining 10% to 35% in gold-convertible foreign currencies. From the NBR's cover stock the following were removed: the gold deposit in Moscow and the Gold Treasury bonds issued for the government debt. The leu convertibility was particularly manifest in the possibility to exchange into foreign currency at least 100,000 lei in a single transaction. The aforementioned changes in the cover stock were embedded in the bank's new statute that took effect on 7 February 1929. The newly-enacted law also provided for a capital increase to 600 million lei and a reduction in the state's participation from 33% to 10%, the remaining 90% being accounted for by private underwriters.<sup>17</sup>

The monetary reform was only a part of the Stabilisation Plan adopted in early 1929, which was also aimed at ensuring a durable equilibrium of the country's budget by repaying the overdue government debt, including that resulting from the loans extended by the NBR. The necessary resources were obtained by a foreign loan, namely the 7% 1929 Stabilisation Loan, taken by the Autonomous Monopolies Institute.<sup>18</sup>

Nevertheless, the equilibrium thus obtained could not be preserved, given that the outbreak of the Great Depression<sup>19</sup> brought to the fore all the weaknesses of the domestic financial and banking system in the interwar period. Concurrently, the Romanian economy faced the necessity to repay the external debt service, massive capital outflows, a fall in foreign exchange inflows owing to the disruptions in world trade, as well as a decline in budget revenue. The government and the NBR obtained repeatedly new loans from foreign markets in order to service the external debt and maintain the national currency's stability. Moreover, the resources obtained in 1931 following the 7½% Development Loan were earmarked for such purposes, after changing the initial purpose.

The depletion of foreign reserves brought about the *de facto* suspension of the leu's convertibility, starting 17 May 1932, by concentrating all trade operations in foreign currencies at the NBR and having their purchasing and selling rates set by the issuing bank.<sup>20</sup> In spite of the efforts made by the government to ensure the necessary means to repay the external debt, in the latter half of 1932, this proved to be too heavy a burden. Against this background, on 15 August 1933, the government in Bucharest suspended payments on its external debt. Payments were resumed after the completion of negotiations in mid-1934.<sup>21</sup>

The pressures on the national economy and the consequences of the economic crisis led to a lower exchange rate of the leu, in spite of the measures adopted by the NBR and the Romanian government. In this context, on 7 November 1936, a decision was adopted in order to revalue the NBR's gold reserve by adding a 38% premium to the stabilisation price (111,111.1 lei per kilogramme), which drove the price of gold to 153,333.33 lei per kilogramme and caused a devaluation of the leu from the exchange rate set in 1929.<sup>22</sup>

The territorial losses in the summer of 1940 and the entry into World War II in 1941 on the side of the Axis Powers weighed heavily on the financial and monetary balance of Romania. The war caused Romania's isolation in both political and financial terms. On 3 April 1941, a press release of the Romanian government stated that, due to the international context, external public debt servicing was suspended and was no longer included in the public budget starting with that date.<sup>23</sup>

<sup>17</sup> *Ibid.*, pp. 9–10.

<sup>18</sup> *Ibid.*, pp. 498–531.

<sup>19</sup> See Stoenescu, Costache, Blejan and Iarovici Aloman (2009).

<sup>20</sup> Marinescu, *op. cit.*, pp. 558–572, and Stoenescu, Costache, Blejan and Iarovici Aloman (2009).

<sup>21</sup> See Dobrovici (1934, 1944).

<sup>22</sup> See Marinescu, *op. cit.*, pp. 632–638.

<sup>23</sup> See Dobrovici (1934, 1944), p. 330 and p. 380.

The decline in budget revenues and the rise in public expenditures, due to the preparation and conduct of military operations, generated significant deficits covered with government loans from the NBR. The increase in banknote issue entailed a change in the price of gold, which was tantamount to a new devaluation of the national currency. On 19 May 1940, the NBR's gold reserve was revalued at 229,999.99 lei/kg and about one year later, on 1 April 1941, the gold price was of 211,111.1 lei/kg.<sup>24</sup>

It seemed that this operation was not enough to cover the banknote issue necessary for covering war expenses. For that reason, on 10 December 1941, the NBR was authorised, based on a decree-law, to include in its cover the Treasury bonds used by the Ministry of Finance when making public debt repayments. On 23 August 1944, Romania joined the Allied Powers, in an attempt to diminish territorial losses as much as possible. The armistice convention Romania signed with the Allied Powers on 12 September 1944 put additional pressure on the Romanian economy. The financial burden on the Romanian government rose substantially due to the obligations assumed to cover the expenses of the Soviet Army both via direct payments and the replacement by lei of roubles and other currencies (Soviet lei, Soviet pengö in Northern Transylvania) put into circulation by the Soviet troops. Adding to these were the expenses arising from other economic and military obligations assumed under the armistice convention, including the payment of war damages in the amount of USD 300 million.

At the same time, the fundamental structures of the Romanian economy underwent sweeping changes, reflecting Romania's entry under the control of the Soviets and the Communist Party seizing power. On 1 January 1947, the State became the sole shareholder of the National Bank of Romania, whose currency-issuing privilege was renewed for an unlimited period. In addition, the NBR, in its capacity as government agent, ensured credit management and control in Romania.<sup>25</sup>

After taking control over the central bank, the State regulated the situation of domestic public debt. On 1 May 1947, the law stipulated the repayment of all domestic loans of the Romanian State, the public debt being thus paid off.<sup>26</sup> The repayment of external debt was further suspended. Subsequently, Romania concluded agreements with the countries whose residents held Romanian debt securities in order to pay compensation to creditors.

The inflation recorded in the first post-war years required a new monetary system reform on 16 August 1947. All currency denominations and payment means in circulation were replaced by new banknotes and fractional coins. The official exchange rate was of 20,000 old lei for 1 new leu, whereas the amounts accepted for exchange were limited in terms of social category. The enterprises carrying out activity in industry and agriculture could exchange only an amount equal to the salaries paid in June 1947, whereas trading companies were not allowed to exchange their holdings. The amounts that were not exchanged as well as those held with public or private credit institutions were blocked and then sterilised.

The law also established the new gold content of the leu, namely 0.60 mg gold with 9/10 fineness, which did not however mark the return to convertibility. The exchange rates of foreign currencies were to be determined subsequently. Nevertheless, according to another law, gold and for-

<sup>24</sup> *Journal of the Council of Ministers* No. 1645 in *Official Gazette* No. 115/1940, Decree-Law No. 897 in *Official Gazette* No. 78 bis/1941.

<sup>25</sup> Law No. 1056 on the nationalisation and organisation of the National Bank of Romania published in *Official Gazette* No. 298/28 December 1946.

<sup>26</sup> Law No. 142 on the amortisation of domestic public debt published in *Official Gazette* No. 99/1 May 1947.

eign exchange owners were bound to surrender their holdings to the NBR within 15 days and accept the official price calculated by the NBR.<sup>27</sup>

The law concerning the change in ownership and structures in the Romanian economy was supplemented on 11 June 1948, as industrial, insurance and transport companies, as well as banking institutions and mining concerns came under state control. Only the National Society of Industrial Credit was subject to the above-mentioned law.<sup>28</sup> The other banks and credit institutions were dissolved and forced into bankruptcy as of 13 August 1948. The exceptions were the National Bank of Romania, the National Society of Industrial Credit, the Savings and Postal Cheques Bank, the Savings Bank, the Soviet-Romanian Bank. Those institutions would make up the banking system under the communist regime.<sup>29</sup> The following years saw the formation of the centrally planned economic structure, apart from the political structure specific to communist regimes, which governed Romania for more than four decades.

**TABLE I Timeline of major monetary and political events**

*continue*

Date	Major monetary/political events
1859	The Danubian Principalities of Wallachia and Moldavia unite to form a new country: Romania.
1864	Romania passes its first unified budget.
1867	Law on the establishment of a new monetary system and the manufacturing of the national currency, the gold and silver standard.
1878	Congress of Berlin recognises the independence of Romania, as proclaimed in 1877.
1880	The National Bank of Romania is set up.
1882	The Bucharest Stock Exchange starts operations.
1890	Law introducing the monometallic monetary system. The Government of Romania starts preparations to replace the silver coins with gold coins equivalent to 40,000,000 lei.
1892	The NBR Statute is amended; the gold standard is implemented.
1901	The NBR's note issuing privilege is renewed; the State relinquishes its issuing-bank shareholder status.
1916–1918	Romania fights in World War I on the side of the Triple Entente.
1916	The NBR's gold reserve is sent to Russia.
1917	The leu is no longer a convertible currency.
1919	Romania shifts to the Gregorian calendar.
1919–1920	At the Conference of Paris, the peace treaties signed in Saint Germain, Trianon, Neuilly and Paris recognise the unification of Romania with Bukovina, Transylvania and Bessarabia.
1920	Monetary unification and adoption of the first unified budget of Greater Romania.
1925	The Government of Romania and the NBR agree on restoring monetary and financial equilibrium. The NBR adopts a new Statute, its issuing privilege is renewed and the State is again a shareholder.
1929	The Government of Romania implements a monetary stabilisation and economic development programme. It enjoyed financial support from the 7% Stabilisation Loan mediated by the Banque de France, under the supervision of French advisors being seconded to the Romanian central bank. The Monetary Law. The leu becomes convertible again after being devalued and the gold foreign exchange standard is adopted. The NBR's issuing privilege is reaffirmed.
1932	Leu convertibility is suspended <i>de facto</i> and the NBR's monopoly on foreign exchange transactions is enacted.
1933	Public debt repayment is suspended.

<sup>27</sup> Law No. 287 on monetary reform published in *Official Gazette* No. 187/16 August 1947; Law No. 284 published in *Official Gazette* No. 186/15 August 1947.

<sup>28</sup> Law No. 119 on the nationalisation of main production means published in *Official Gazette* No. 133 bis/11 June 1948.

<sup>29</sup> Decree No. 197 published in *Official Gazette* No. 186/13 August 1948.

TABLE I Timeline of major monetary and political events

Date	Major monetary/political events
1934	Public debt repayment is resumed in part. The Banking Law is enacted, the Higher Banking Council is established, and oversight on the banking system is introduced.
1936	The NBR gold reserve is revalued.
1940	Romania faces sizeable territorial losses: North-Western Transylvania, Northern Bukovina and Bessarabia. Romania joins the Tripartite Pact signed by Germany, Italy and Japan. The NBR gold reserve is revalued.
1941	The NBR gold reserve is revalued.
1941–1944	Romania fights in World War II on the side of the Axis Powers.
1944	Romania signs an armistice convention with the Allied Powers and declares war against Germany.
1946	The election is won by the left-wing forces subordinate to the Communist Party. Law on the nationalisation of the National Bank of Romania was published in the Official Gazette on 28 December 1946 and came into force starting 1 January 1947.
1947	Law on monetary reform.
1948	Industrial, mining, insurance and transportation companies are nationalised. Banks are wound up.

Source: Authors' compilation.

### 1.3 ROMANIAN BIBLIOGRAPHIC REFERENCES ON THE NATIONAL BANK OF ROMANIA

The National Bank of Romania (established 1880) has been the subject of many research works focusing on the central bank activity and economic developments in Romania. Following is only part of the plethora of such studies.

Many Romanian authors deemed it necessary to look at central bank historical issues in the context of developments in the monetary and credit system in Romania. In this vein, highly relevant books published are: U.T. Mihaiu, *Politica monetară și a băncilor României* in 1907, C.I. Băicoianu, *Istoria politicii noastre monetare și a Băncii Naționale* (1932–1939), Kirițescu, Costin C., *Sistemul bănesc al leului și precursorii lui* (1964–1970), second edition in 1997, Mugur Isărescu, *Reflecții economice*, Volume 1, in 2001, George Virgil Stoenescu, *Aspecte de doctrină monetară în gândirea economică românească din a doua jumătate a secolului al XIX-lea*, in the book entitled *130 de ani de la crearea sistemului monetar românesc modern* in 1997. Among the monographs on central bank issues are: Victor Slăvescu, *Istoricul Băncii Naționale a României 1880–1924* in 1925, second edition in 2014, Lazăr Ionescu, *Relațiunile dintre Banca Națională a României și Stat, 1880–1935 in 1935*, the compendium of pieces of legislation compiled by G. C. Marinescu, *Banca Națională a României - Legi, statute, dispozițiuni monetare, convențiuni financiare etc.* in 1939, as well as the collective paper published in the period 2006–2009, *Istoria Băncii Naționale a României în date, 1880–1918*, by Cristian Păunescu, Mihaela Tone and Nadia Manea. Moreover, useful information on developments in central bank activity and the monetary system in Romania are gathered in books on broader issues penned by Virgil Madgearu, *Evoluția economiei românești după Războiul Mondial* (1940) second edition in 1995; Gheorghe Zane, *Economia de schimb în Principatele Române in 1930* as well as Gh. M. Dobrovici, *Istoricul dezvoltării economice și financiare a României și împrumuturile contractate 1823–1933* in 1934 and *Evoluția economică și financiară a României în perioada 1934–1943*, Victor Axenciuc, *Evoluția economică a României Cercetări statistico-istorice 1859–1947*, (1992–2000).

## 2 DEFINITION AND DESCRIPTION OF VARIABLES

The database included in this presentation covers the 1880–1947 period, the records being stored on hard copy (annual data) and CDs (monthly data), where possible. The database comprises the statistical and historical data series presented below and provides key information on the monetary and financial history of Romania.

## INDEX TABLE - Country: ROMANIA

continue

List of Variables	Time Span	Data Frequency	Unit of account	Series Code
<b>1. MONETARY VARIABLES</b>				
				<b>Table ROI</b>
<i>Metallic stock</i>	1881–1947	annual	in national currency (thous.), end-of-period	ROI1_A
	Jan. 1881–Dec. 1914	monthly		ROI1_M
<i>Mortgage notes</i>	1881–1888	annual	in national currency (thous.), end-of-period	ROI1B_A
	March 1881–June 1889	monthly		ROI1B_M
<i>Gold bills of exchange and gold foreign exchange on cover stock</i>	1892–1946	annual	in national currency (thous.), end-of-period	ROI1C_A
	Sept. 1892–Dec. 1914	monthly		ROI1C_M
<i>Gold foreign currencies out of the stock</i>	1929–1947	annual	in national currency (thous.), end-of-period	ROI1D_A
	Dec. 1929–Dec. 1947	monthly		ROI1D_M
<i>Commercial bills denominated in foreign currency in the NBR portfolio</i>	1881–1932	annual	in national currency (thous.), end-of-period	ROI1E_A
	March 1881–March 1884	monthly		ROI1E_M
<i>Foreign exchange provision for the Autonomous Monopolies Institute</i>	1929–1933	annual	in national currency (thous.), end-of-period	ROI1F_A
	Dec. 1929–Dec. 1933	monthly		ROI1F_M
<i>Foreign exchange provision for exceptional circumstances</i>	1937–1944	annual	in national currency (thous.), end-of-period	ROI1G_A
	June 1937–June 1947	monthly		ROI1G_M
<i>International reserves of the NBR</i>	1881–1947	annual	in national currency (thous.), end-of-period	ROI1H_A
	Jan. 1881–Dec. 1914	monthly		ROI1H_M
<i>of which: Gold Treasury bonds in the NBR's metallic stock</i>	1920–1928; 1942–1946	annual	in national currency (thous.), end-of-period	ROI1I_A
	Dec. 1920–Dec. 1928; June 1942–Dec. 1946	monthly		ROI1I_M
<i>Banknotes in circulation</i>	1881–1947	annual	in national currency (thous.), end-of-period	ROI1J_A
	Jan. 1881–Aug. 1947	monthly		ROI1J_M
<i>Metallic and fractional coins</i>	1881–1946	annual	in national currency (thous.), end-of-period	ROI1K_A
<i>Paper money</i>	1917–1920, 1941–1946	annual	in national currency (thous.), end-of-period	ROI1L_A
<i>Notes issued by Romanian General Bank</i>	1917–1919	annual	in national currency (thous.), end-of-period	ROI1M_A
<i>Narrow money (Monetary base)</i>	1881–1946	annual	in national currency (thous.), end-of-period	ROI1N_A
<i>Broad money (Money supply)</i>	1882–1946	annual	in national currency (thous.), end-of-period	ROI1O_A
<b>2. INTEREST RATES</b>				
				<b>Table RO2</b>
<i>Discount rate</i>	1880–1947	date of change	per cent	RO2A_D
	Dec. 1880–Aug. 1947	monthly	per cent, end-of-period	RO2A_M
<i>Lombard rate</i>	1880–1947	date of change	per cent	RO2B_D
	Dec. 1880–Aug. 1947	monthly	per cent, end-of-period	RO2B_M
<i>Price for 5% 1875 Perpetual Bond</i>	May 1883–June 1898	monthly	in national currency	RO2C_M
<i>Price for 4% 1898 Redeemable Bond</i>	July 1898–Oct. 1928	monthly	in national currency	RO2D_M
<i>Price for 7% 1929 Stabilisation Loan, American tranche</i>	Nov. 1929–March 1942	monthly	in national currency	RO2E_M

## INDEX TABLE - Country: ROMANIA

List of Variables	Time Span	Data Frequency	Unit of account	Series Code
<b>3. EXCHANGE RATES</b>				<b>Table RO3</b>
<i>French franc.</i>				
<i>without premium</i>	1882–1947	annual	in national currency, period average	RO3A_A
	July 1882–Aug. 1947	monthly		RO3A_M
<i>with premium</i>	1936–1947	annual	in national currency, period average	RO3B_A
	Dec. 1935–Aug. 1947	monthly		RO3B_M
<i>Pound sterling</i>				
<i>without premium</i>	1882–1947	annual	in national currency, period average	RO3C_A
	July 1882–Aug. 1947	monthly		RO3C_M
<i>with premium</i>	1936–1947	annual	in national currency, period average	RO3D_A
	Dec. 1935–Aug. 1947	monthly		RO3D_M
<i>Mark/Reichsmark</i>				
<i>without premium</i>	1882–1944	annual	in national currency, period average	RO3E_A
	July 1882–Aug. 1944	monthly		RO3E_M
<i>US dollar</i>				
<i>without premium</i>	1920–1947	annual	in national currency, period average	RO3F_A
	Jan. 1920–Aug. 1947	monthly		RO3F_M
<i>with premium</i>	1936–1947	annual	in national currency, period average	RO3G_A
	Dec. 1935–Aug. 1947	monthly		RO3G_M
<i>Swiss franc</i>				
<i>without premium</i>	1920–1947	annual	in national currency, period average	RO3H_A
	Jan. 1920–Aug. 1947	monthly		RO3H_M
<i>with premium</i>	1936–1947	annual	in national currency, period average	RO3I_A
	Dec. 1935–Aug. 1947	monthly		RO3I_M
<i>Agio</i>	1880–1890	annual	per cent, period average	RO3J_A
	Jan. 1880–Dec. 1890	monthly		RO3J_M
<b>4. GOVERNMENT FINANCES</b>				<b>Table RO4</b>
<i>Ordinary budget revenue</i>	1880–1946	annual	in national currency (thous.)	RO4A_A
<i>Direct taxes</i>	1880–1943	annual	in national currency (thous.)	RO4B_A
<i>Indirect taxes</i>	1880–1943	annual	in national currency (thous.)	RO4C_A
<i>Extraordinary budget revenue</i>	1932–1943	annual	in national currency (thous.)	RO4D_A
<i>Ordinary budget expenditure</i>	1880–1946	annual	in national currency (thous.)	RO4E_A
<i>Extraordinary budget expenditure</i>	1921–1942	annual	in national currency (thous.)	RO4F_A
<i>Public debt service</i>	1880–1946	annual	in national currency (thous.)	RO4G_A
<i>Domestic and public foreign debt</i>	1888–1947	annual	in national currency (thous.)	RO4H_A
<i>Domestic public debt</i>	1916–1947	annual	in national currency (thous.)	RO4I_A
<i>Foreign public debt</i>	1916–1947	annual	in national currency (thous.)	RO4J_A
<b>5. PRICES, PRODUCTION AND LABOUR</b>				<b>Table RO5</b>
<i>Retail price index (1929=100)</i>	1921–1940	annual	index number	RO5A_A
	Jan. 1921–Dec. 1940	monthly	index number	RO5A_M
<i>Industrial production general index (1929=100)</i>	1919–1947	annual	index number	RO5B_A
<i>Unemployment</i>	1928–1938	annual	number of people	RO5C_A
	Jan. 1928–Dec. 1938	monthly	number of people	RO5C_M
<b>6. NATIONAL ACCOUNTS AND POPULATION</b>				<b>Table RO6</b>
<i>GDP, at current prices</i>	1880–1947	annual	in national currency (millions)	RO6A_A
<i>Imports</i>	1880–1947	annual	in national currency (thous.)	RO6B_A
	1880–1947	annual	in tons	RO6C_A
<i>Exports</i>	1880–1947	annual	in national currency (thous.)	RO6D_A
	1880–1947	annual	in tons	RO6E_A
<i>Population</i>	1880–1946	annual	in million inhabitants	RO6F_A

Note: Entries of value terms are denominated in lei. The code of each variable consists of a country prefix (RO), a number of the variable group (1, 2,...) and a letter identifying the respective time series within the group (A, B, C,...); at the end, A stands for annual and M for monthly time series. Monthly time series are in the volume's CD. Correction on CD: GDP at current prices unit of account in national currency (mill.)

## 2.1 MONETARY VARIABLES

### 2.1.1 *International reserves*

The international reserves of the NBR (*rezerva internațională a BNR*) during 1881–1947 disclose data recorded in the NBR's balance sheets. The data are recorded on an annual basis, (RO1H\_A); for the period 1881–1914 they are recorded on a monthly basis (RO1H\_M), but starting with 1915 they are recorded on a half-yearly basis. The day of valuation is the end of period day. It comprises the metallic stock (RO1A\_A, RO1A\_M), gold bills of exchange and gold foreign exchange included in the cover stock in compliance with legal provisions (RO1C\_A, RO1C\_M), the gold foreign currencies out of the stock (RO1D\_A, RO1D\_M), commercial bills denominated in foreign currencies in the NBR portfolio (RO1E\_A, RO1E\_M) and others: mortgage notes (RO1B\_A, RO1B\_M) as well as the provisions on foreign currency the NBR held for the Autonomous Monopolies Institute and for exceptional circumstances (RO1F\_A, RO1F\_M, RO1G\_A, RO1G\_M). In addition, we highlighted, where appropriate (RO1I\_A, RO1I\_M), the Gold Treasury bonds (*bonuri de tezaur aur*) in the NBR's metallic stock throughout different time periods.

The metallic stock (*stocul metalic*), (RO1A\_A) is the pivotal item in the National Bank of Romania's international reserves. In 1881–1891, the metallic stock consisted of both gold and silver, yet the proportion of the two metals could not be determined. Starting 1890, after the new monetary law had come into force, the Romanian government was granted the right to retire from circulation 5 lei silver coins equivalent to 40,000,000 lei and replace them with gold coins. This process started therefore by converting into gold all the 5 lei silver coins in the NBR's metallic stock. As from 1892, when the new provisions were inserted into the NBR Statute, the metallic stock comprised gold only. During World War I, Romania incurred heavy losses, including the NBR's gold stock sent to Moscow in 1916 and subsequently seized by the Soviet authorities. By 1929, the issuing bank included the gold stock sent to Moscow in its metal reserve. Thus, the currency issue was fictitiously covered, which prevented, among other things, the return to the leu convertibility.

The monetary system law of 1929 provided for the replacement of the gold standard by the gold-foreign exchange standard, the fixing of the new gold content of the national currency (one leu = 10 mg 900‰ gold) and the return to convertibility. The domestic currency was convertible until May 1932, when the NBR took over the monopoly on trading in gold and foreign exchange. Consequently, the gold stock would be revalued several times in 1936, 1940 and 1941 by adding some premiums to the official gold price. The aforementioned changes revealed the devaluation of the leu and materialised into the increase in the value of gold in stock.

Concurrently, the authorities in Bucharest relied on the gold stock build-up the more so as the Great Depression had questioned the convertibility of many gold foreign exchanges. That trend, which became manifest ever since the second interwar decade, grew stronger during World War II, when the government in Bucharest made unceasing efforts to increase the gold stock via purchases from both domestic and foreign markets.

The NBR metallic stock was assessed pursuant to the definition of the gold-leu provided for in the monetary regulations in force at the time.

The foreign exchange convertible into gold are the second most important item of the reserves. Depending upon their being used as a means to cover the NBR currency issue, they were included in the following categories: gold bills of exchange and gold foreign exchange on cover stock (*trate*

TABLE 2 Gold-leu valuation in the monetary regulations

Date	Gold price	Piece of legislation
1890	One leu = 0.3226 gold with fineness 900‰ Lei 3,100.0 = 1 kg with fineness 900‰	Law of 17 March 1890 amending the law of 22 April 1867 on the establishment of a new monetary system and the manufacturing of the national currency. The provisions of this law were inserted into the NBR Statute in 1892, whereupon the NBR's metallic stock comprised gold only, <i>Official Gazette</i> No. 275/1890.
1929	One leu = 10 mg gold with fineness 900‰ Lei 111,111.10 = 1 kg fine gold	The Monetary Law, <i>Official Gazette</i> No. 30 bis of 7 February 1929.
1936	Lei 153,333.33 = 1 kg fine gold	Royal Decree No. 2504 of 6 November 1936 on the revaluation of the NBR's metallic stock by adding a 38% premium to the 1929 gold price, <i>Official Gazette</i> No. 260 of 7 November 1936.
1940	Lei 229,999.99 = 1 kg fine gold	Decree No. 1645 on the revaluation of the NBR's metallic stock by adding a 50% premium to the 1936 gold price. As a result, the premium relating to the 1929 gold price stood at 107%, <i>Official Gazette</i> No. 115 of 19 May 1940.
1941	Lei 211,111.10 = 1 kg fine gold	Decree Law No. 897 on the revaluation of the NBR's metallic stock by adding a 90% premium to the 1929 gold price, <i>Official Gazette</i> No. 78 bis of 1 April 1941.

Source: Authors' compilation.

și devize aur în stocul de acoperire) (RO1C\_A), gold foreign currencies outside the stock (*devize aur în afara stocului*), (RO1D\_A) and commercial bills denominated in foreign currency in the NBR portfolio (*efecte de comerț în valută în portofoliul BNR*), (RO1E\_A), outside the stock.

Gold bills of exchange and gold foreign exchange on cover stock (RO1C\_A), were included in the international reserves starting in 1892. Subsequently, according to the new monetary system law, the cover stock could also include bills of exchange denominated in foreign currencies (30%), first British and German currencies and later French and Belgian currencies.

During World War I, the National Bank of Romania granted several loans to the Romanian State for the purpose of covering defence spending. In order to ensure the legal coverage of banknote issue, the NBR received from the Romanian State gold and foreign currencies held with foreign banks. When such resources were exhausted, they were replaced by Gold Treasury bonds (RO1I\_A), included in the NBR cover stock.<sup>30</sup> That situation remained unchanged in the first inter-war decade, the agreements concluded by the NBR and the State in 1925 authorising the issuing bank to also include in the stock for economic purposes gold drafts and remittances, apart from gold and bonds, whereas the banknotes issued for government loans were covered by Gold Treasury bonds.

In 1929, by way of the Stabilisation Loan, gold foreign exchange reserves were replenished, with Gold Treasury bonds being removed from the NBR's cover stock. Following the major currency devaluations in the period 1931–1936, the National Bank of Romania gradually relinquished the idea of including foreign currencies in its cover stock, along with increasing the gold amount underlying the banknote issue. This process ended in 1936, and at year-end the NBR announced that the metallic stock ensuring its issue cover comprised gold alone, which meant that the central bank gave up the gold-exchange standard.

<sup>30</sup> See Tone, Manea and Păunescu (2009), volume II, pp. 21–89.



Considering the expenses necessary for waging war, the Romanian State had to obtain several loans from the National Bank of Romania since 1942. Once more, the additional banknote issue was covered with Gold Treasury bonds included in the cover stock.<sup>31</sup> Their amount saw considerable increases and, at end-1946, they accounted for about 45% of the NBR's cover stock. As of 30 June 1947, Treasury bonds were eliminated from the NBR's balance sheet.

The second category (RO1D\_A), that can subsume foreign currencies convertible into gold encompasses those currencies convertible into gold, but not included in the stock for covering banknote issue and demand commitments. We were able to collect data, consistent with existing information, on gold foreign currencies not included in the stock for the period 1929–1947.

A series of methodological notes need to be formulated in this context. For the period 1929–1936, RO1D\_A also covered all gold foreign currencies owned by the Romanian central bank, without being part of its cover stock, given that such currencies could not account for more than 10% of the bank's total demand commitments. 1936 saw the completion of the process that had started in 1931, resulting in the removal of all gold foreign currencies from the cover stock, but this change was never embedded in a piece of legislation. Starting in 1936, RO1D\_A covers all foreign currencies that could be traded on the international markets on a free basis as part of the NBR's international reserves, thus eliminating the foreign currencies from the clearing accounts.

The outbreak of World War II brought about additional restrictions on determining the liquidity of the NBR's reserves. The issuing house gradually lowered the number of free convertible currencies. As of 12 March 1940, this category also included currencies such as the pound sterling, the US dollar and the Swiss franc, whereas starting 1 April 1941 it comprised solely the US dollar and the Swiss franc.<sup>32</sup> In 1941, due to the war between Romania, on the one hand, and the USA and the United Kingdom, on the other hand, the enemy nations blocked Romania's holdings.

The NBR's international reserves comprised holdings in Swiss francs, US dollars and pounds sterling held with banks in neutral countries or states under German occupation, apart from the gold holdings in the cover stock and those deposited abroad in free deposits. Commercial bills denominated in foreign currencies in the NBR's portfolio (RO1E\_A) were another component of the NBR reserves. Commercial paper was not part of the issue cover stock, but was included in the bank's international reserves in the form of foreign currency holdings. Available sources provide information for the periods 1881–1893, 1900–1912 and 1929–1932. The reasons why these funds were not included in the NBR's cover stock differ from time to time. For the period 1881–1892, it should be reiterated that the cover stock was in fact the metallic stock. From 1900 to 1912, the above-mentioned funds were not included in the cover stock considering that the NBR Statute provided for commercial bills denominated in foreign currencies to be no more than 30% of the cover stock. The same holds true for the period 1929–1932, when only 10% of the cover stock consists of gold foreign currencies.

Other assets included in the international reserves are mortgage notes and the gold foreign currency provisions set up to secure the free Treasury service of the State. The mortgage notes (biletele ipotecare), (RO1B\_A) were added to the cover stock and, implicitly, the international reserves in 1881–1889. The Romanian government put mortgage notes into circulation via the Savings House. The notes were backed by the real estate of the State and were to be gradually removed

<sup>31</sup> Decree-Law No. 3366 published in *Official Gazette* No. 293/10 December 1941.

<sup>32</sup> See Dobrovici (1944), p. 330 and p. 378.

from circulation through the sale of the above-mentioned property. On its establishment, in line with an agreement signed with the Romanian government, the National Bank of Romania committed to withdraw the mortgage notes from circulation and replace them with its own banknotes. Subsequently, the government had to redeem the mortgage notes. In the meantime, mortgage notes were included in the issuing bank's cover stock to back the banknotes that replaced them.

Romania's external public debt and the need to cover interest and amortisation from the NBR's reserves, owing to the fact that the bank was entitled by law to ensure the Treasury service of the State, require additional clarification. The state of affairs assumed the allocation of provisions in convertible foreign currencies for the public debt in the bank's balance sheets. Similarly, such amounts were considered to be part of the bank's international reserves (RO1F\_A and RO1G\_A).

### 2.1.2 Monetary base

The monetary base (*baza monetară*), (RO1N\_A), was reconstructed by considering the currency in circulation, namely: banknotes in circulation (*bancnotele în circulație*), (RO1J\_A), metallic and fractional coins (*moneda metalică și divizionară*), (RO1K\_A), paper money (*moneda de hârtie*), (RO1L\_A) and notes issued by the Romanian General Bank (*bilete Banca Generală Română*), (RO1M\_A).

Regarding another possible component of the monetary base – the reserve requirements – the sources available proved insufficient for identifying commercial banks' deposits with the NBR. The information is not registered in detail under the NBR's liabilities, given the absence of a reserve requirements regime in Romania back then, as note issuance was instrumental in keeping inflation under control and maintaining price stability. In this context, even though information on the deposits of the Savings Bank and other banks with the central bank was found, data were not enough to make a successful series of commercial banks' deposits with the central bank.

The monetary base series, (RO1N\_A), covers the period 1881–1946 with data recorded on an annual basis. The components of the monetary base are discussed in detail below.

#### *Banknotes in circulation*

Data on *banknotes in circulation* (*bancnotele în circulație*), refer to the month-end (RO1J\_M), and year-end (RO1J\_A) volume of banknotes that the National Bank of Romania put into circulation during 1881–1947. This series comprises neither the metallic and fractional coins issued by the Ministry of Finance, (RO1K\_A), nor paper money put into circulation by the aforementioned ministry during World War II, (RO1L\_A). Figures are the result of subtracting the volume of banknotes in the central bank's vaults from its note issue.

In 1880, when the National Bank of Romania was established, the country's monetary circulation comprised the coins issued in compliance with the 1867 law, 5 lei silver coins issued according to the 1879 regulatory acts and the mortgage notes launched in 1878. Notwithstanding the pieces of legislation providing for the leu coverage in gold and silver, gold coins virtually vanished from circulation as a result of hoarding or exports, and the market was flooded mostly with silver coins and various bills.

As provided for in its establishing act, the National Bank of Romania was granted the sole prerogative to issue banknotes for two decades and was compelled to retire from circulation any mortgage notes, which were to be replaced by NBR banknotes at parity. In 1885, consistent with the

convention concluded between the central bank and the Romanian government regulating the latter's redemption of mortgage notes the issuing privilege was extended until 1912. In January 1901, in the context of the Romanian government exiting the NBR shareholding, the note issuing privilege was extended until 1920, so that in June 1901, according to the convention whereby the NBR granted the government a 15 million lei loan, the note issuing privilege was extended until 1930.<sup>33</sup>

After the Great War, the NBR organisational chart underwent in-depth changes. The conventions signed in 1925 between the government and the central bank specify the extension of the note issuing privilege until 1960, and subsequently this right could be renewed automatically, in the absence of any changes, on a five-year basis.<sup>34</sup>

#### *Metallic and fractional coins and paper money*

Metallic and fractional coins as well as paper fractional notes (RO1K\_A and RO1L\_A) were issued by the Ministry of Finance. A few clarifications are needed regarding this issue. The 1867 monetary law laid down the possibility for the Romanian government to issue gold, silver and bronze coins. At that time, gold and silver coins were free legal tender, but since 1890 only gold coins could be used as free means of payment. As regards the value of coins that were to be issued, the Monetary Law of 1867 set a ceiling of less than 4 million lei for the brass fractional coins. The subsequent issues were to be launched upon Parliament approval at the recommendation of the Ministry of Finance.<sup>35</sup> Early on, only fractional bronze coins were minted. By the time World War I broke out, several 20 lei gold coin issues and silver coin issues worth between 0.50 and 5 lei were put into circulation. During 1890, following the shift to the gold standard, the silver coins became fractional coins. The Ministry of Finance retired from circulation and devalued 25 million lei worth of 5 lei silver coins. Some of the devalued silver currency was replaced that same year with gold coins in the amount of 3.9 million lei. These changes are reflected in the year-on-year decline in the volume of metallic coins in circulation in 1890.<sup>36</sup>

A fundamental change in the structure of currency issues in Romania was made following World War I. As of result of metallic coin hoarding, these coins had to be replaced in circulation by banknotes issued either by the NBR (1916) or the Ministry of Finance (1917). The paper money issued by the Government was withdrawn from circulation in 1920 and replaced by metallic coins.<sup>37</sup>

The new regulations regarding the issue of metallic fractional coins were adopted by the Monetary Law of 1929 which authorised the Government to put into circulation currency worth less than 3 billion lei.<sup>38</sup> Thereafter, this ceiling was revised several times so that the volume of fractional currency in circulation could be increased. During World War II, the issue of paper fractional coins was resumed.

#### *Notes put into circulation by the Romanian General Bank*

The two major armed conflicts of the 20th century brought in additional means of payment, some of them put into circulation by the Romanian authorities, other resulting from the currency issues

<sup>33</sup> See Marinescu, *op. cit.*, pp. 175–181.

<sup>34</sup> See Marinescu, *op. cit.*, pp. 201–211.

<sup>35</sup> See Marinescu, *op. cit.*, pp. 295–302.

<sup>36</sup> See *Anuarul Statistic al României 1912*, pp. 436–437.

<sup>37</sup> See Marinescu, *op. cit.*, pp. 357–358, 372–374, 439–440.

<sup>38</sup> See Marinescu (1934), pp. 498–499.

of foreign governments or of occupation authorities (RO1M\_A). Unfortunately, not in all cases information concerning the mentioned currency value is available, hence it cannot always be found in monetary base data. One exception is the money put into circulation by the German authorities in Bucharest through the Romanian General Bank in the period 1917–1918, which was withdrawn from circulation in 1920 at 1:1 parity. Data regard the volume of banknotes issued by the Romanian General Bank and put into circulation in the period 1917–1919 at the end of every year. This information was taken from a report drafted by the Ministry of Justice at the end of 1918, a source cited by Dobrovici (1934) in his book entitled *Istoricul dezvoltării economice și financiare a României și împrumuturile contractate, 1823–1933*.

The other means of payment put into circulation by both domestic and foreign authorities in World War I and World War II for which data are available are briefly described below in order to illustrate as accurately as possible the developments in monetary base in Romania.

During World War I, the Romanian authorities put into circulation requisition notes, whose value as of 31 December 1918 amounted to 1 billion lei. They could be used for payment of public taxes and were accepted by the Farmers' Mortgage Funds for Lombard loan purposes. Between 1918 and 1920, Austrian-Hungarian crowns and Russian roubles circulated in Romania, as they came from the territories that belonged to Russia (Bessarabia) and Austria-Hungary (Bukovina and Transylvania). The amount of those currencies is known only as to the time of the monetary unification of 1920. As of that date, 8.7 billion crowns were withdrawn from circulation to be replaced by 4.4 billion lei and 640 million Romanov rouble and 1.2 billion Lwov roubles were withdrawn and replaced by 1.2 billion lei.<sup>39</sup>

Similar facts occurred during World War II. Thus, the Romanian state issued cash receipts, payment certificates, treasury bills, army supply notes, tax notes. They were government securities for lending purposes, as well as means of payment for tax and duties, and banks were forced to accept them as cash and keep them in their liquid reserves. They were withdrawn from circulation upon the monetary reform of August 1947. Unfortunately, the data available about the amount of such payment instruments are only partial. Thus, for 1945–1946 fiscal year, the cash receipts that were put into circulation amounted to 260.8 billion lei, the Treasury bills amounted to 49.4 billion lei and the payment certificates to 19.9 billion lei, and, just prior to August 1947 monetary reform, Treasury bills in circulation alone that amounted to 3 trillion lei.<sup>40</sup> Concurrently and for short periods of time, foreign currencies also circulated on the Romanian territory: Soviet roubles (1941 and 1944), Soviet lei (1944), Soviet pengö (1945), which were withdrawn from circulation and replaced by lei before the end of the calendar year during which they circulated in Romania, therefore they cannot be identified in the monetary base, but increased the volume of the Romanian notes and coins.

### 2.1.3 Monetary aggregates

The broad money indicator, (*masa monetară in sens larg*), (something similar to M2 in our days), RO1O\_A, that we were able to reconstruct comprises end-of-year data for the period 1882–1946 on the currency in circulation (except petty cash), and all the deposits with the banking system. The latter includes deposits with the Savings Bank, Agricultural Credit Institution, Agricultural Bank, banking institutions, credit cooperatives, the National Society of Industrial Credit, etc. Tak-

<sup>39</sup> See Kirițescu (1997), p. 288.

<sup>40</sup> *Ibidem*, p. 57.

ing into account the lack of information on deposits maturity or securities held by the banks, it was not possible to reconstruct the data series for other monetary aggregates.

Several methodological specifications are needed to restore the conditions in which broad money was compiled. For most of the banks under review, data regarding the 'vault cash' account under balance sheet assets comprised current deposits with other banks as well. In the absence of any information on the actual weight of vault cash and taking into account the methodology we use to compile broad money, this information was excluded from broad money calculation. As for the Savings Bank and Agricultural Credit institution, no data on the 'vault cash' account in the reported period were found. Moreover, broad money included only deposit-taking institutions, which is why other credit institutions such as *Creditul Viticol* (Winery Credit), *Casa Rurală* (Rural Home), *Creditul Funciar Urban* (Urban Real-Estate Credit), *Creditul Funciar Rural* (Rural Real-Estate Credit), as well as other 'Credit Unions' with various specialisations, were left out of account. The first four institutions granted loans based on landed property, without taking deposits.

Special mention deserves the fact that preparing aggregate reports for the data in banks' balance sheets failed to lead to consolidation of such data. Therefore, the items included in broad money calculation were overrated because of double entry bookkeeping. At the same time, the calculations to compile broad money do not include any item in the central bank's balance sheet. This state of affairs is attributable to the fact that, in the period under review, even though the National Bank of Romania performed also commercial banking functions, whose importance declined once the banking system had expanded, its liabilities do not allow identification of the deposits of commercial banks, companies or households. Demand deposits and time deposits comprised separate registration of the accounts of the Treasury and of the Autonomous Monopolies Institute. Furthermore, for the missing information, certain annual figures were supplemented by interpolation.

In addition to the general comments, considering the territorial changes and the diversity of sources employed, clarifications about the manner in which data for the reference period are still necessary. The banking system was in an early stage in the period from 1882 through 1897, when only data concerning the Savings Bank and the Agricultural Credit Institution (starting 1883) were available. For the other banks established in the said period, namely Banca României (established 1865, Bank of Romania since 1903) and the Agricultural Bank (1894), data are available starting 1898, and for the Romanian General Bank (established 1897) as from 1899.

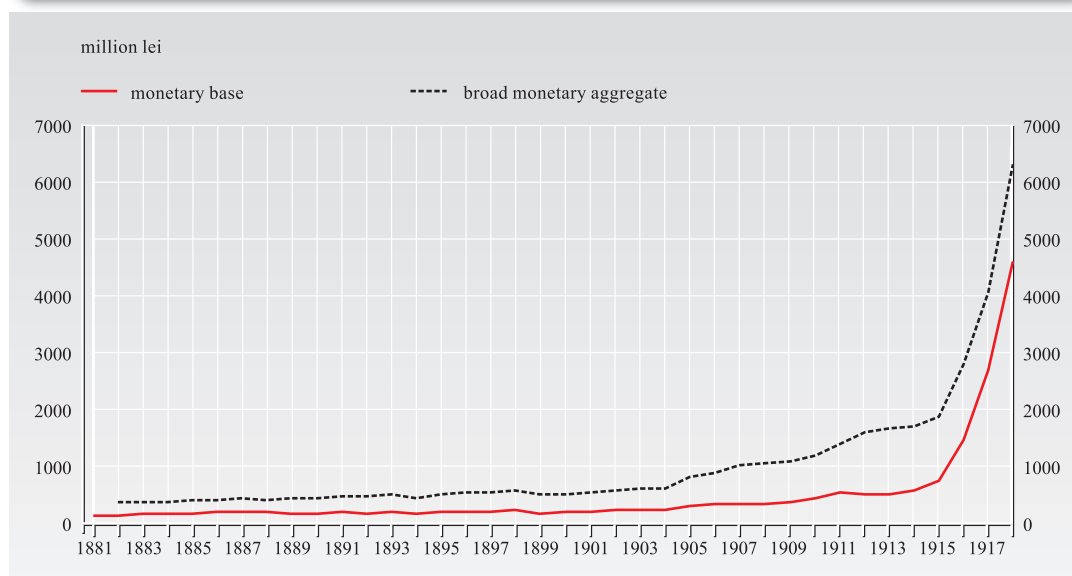
In the period 1898–1918, large banks such as the Bank of Commerce in Craiova (1898), the Romanian Bank, the Discount Bank (1910), the Romanian Commercial Bank were established. In the absence of aggregate figures, the information available was collected from the major banks, namely the Romanian Bank (starting 1911), the Agricultural Bank, the Discount Bank (for 1902, 1903 and since 1907), Craiova Bank of Commerce (since 1907), 'Marmorosch Blank' Bank (starting 1905), the Romanian Commercial Bank (starting 1907) and credit cooperatives (starting 1906). Given the absence of banking supervision and unitary rules on balance sheet preparation, account composition might well differ among banks. For example, it should be pointed out that the Romanian General Bank and the Bank of Romania recorded aggregate data on interest-bearing deposits, accounts payable and rediscounting under a single item referred to as 'accounts receivable', while the Romanian Bank recognised only interest-bearing deposits under 'accounts receivable'. Under the circumstances, the data used to compile broad money in this period contain, in part or in full, banks' deposits with the National Bank of Romania. This applies mainly to Romanian-owned banks, which were financed primarily by the central bank through

discounting, whereas foreign banks preferred external financing, at a lower interest rate than the discount rate.<sup>41</sup>

For the first part of the interwar period, namely from 1919 to 1933, data on the banks incorporated as joint-stock companies are taken from aggregate balance sheets, which are better prepared. Information on ‘vault cash’ was used, but data refer only to petty cash, interest-bearing deposits, checks and accounts payable and sundry creditors. The data in ‘accounts receivable’, ‘discounted securities’, ‘accounts of order’ and ‘miscellaneous’ were not taken into account. According to the information in *Statistica societăților anonime* (Joint-stock Companies Statistics), ‘accounts receivable’ included inter-bank deposits, which caused its being left out of account when calculating broad money. Since the data set does not include information on the Savings House, the Industrial Credit National Company (since 1924) and credit cooperatives, it was added insofar as the necessary data were identified.

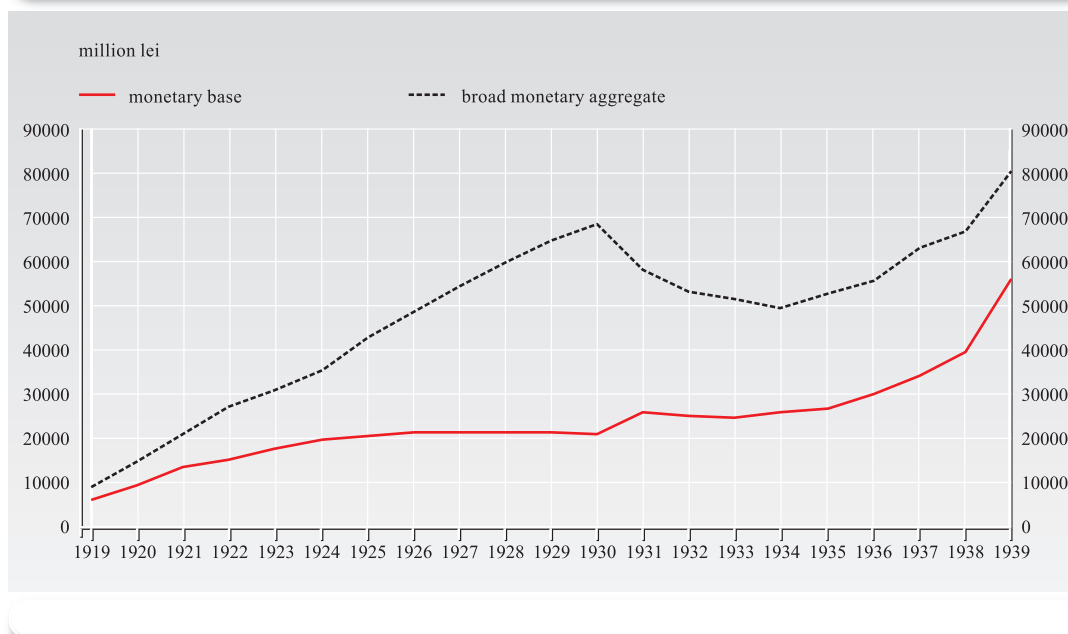
In 1934, once the Law governing banking business had been passed and the Higher Banking Council had been established, credit institutions had no other option but to comply with balance sheet standardisation, thereby ensuring smoother information collection. Even though *Statistica societăților anonime* released an aggregate balance sheet of credit institutions until 1939, the data collected by the Higher Banking Court were used for broad money compilation, as their breakdown fitted the requirements most. Similarly to the previous period, data on ‘petty cash’, ‘interest-bearing deposits’, ‘checks and accounts payable’ and ‘sundry creditors’ were included in the calculation.

FIGURE 1 Monetary base and money supply, 1881–1918



Prior to World War I, from 1905 in particular, base money and broad money alike saw significant rises. Against this background, the latter surged also as a result of banking system expansion, whereas the former indicator went up abruptly after the war broke out (see Figure 2).

<sup>41</sup> See Slăvescu (1915), p. 135.

**FIGURE 2 Monetary base and money supply, 1919–1939**

The broad money series shows an increase during the interwar period except for the Great Depression. For the period 1930–1934, we can notice a decrease caused by some bank bankruptcies and deposit withdrawals. For example, the banks' balance sheets in 1931 showed that total redemptions lei time deposits amounted to 17,746 million lei, to which were added more than 5,000 million lei withdrawn from current accounts.<sup>42</sup>

## 2.2 INTEREST RATES

Another historical series covering the 1880–1947 period is the discount rate (*taxa scontului*), (RO2A\_D; RO2A\_M), applied by the NBR for the advance payment of 3-month commercial paper. The discount rate was set on a weekly basis by the NBR Discount Committee but the statistical series we present reflects mainly the instances moments when the discount rate changed. It should be mentioned that the discount rate applied by the NBR remained at low levels for a long time, ranging between 4% and 6%.

The discounting of commercial paper was, along with note issuance, one the key operations conducted by the NBR and therefore strictly regulated. Eligible for performing discount operations were all the NBR customers holding a current account with a discount facility attached. Such an account could only be opened by merchants, industrial company owners, as well as commercial or industrial companies set up and incorporated according to the laws in force that had to provide proof of their creditworthiness and enjoyed wide recognition across business circles. According to the solvency and creditworthiness of the accountholder, as well as the turnover, a ceiling on the discount facility was set. In charge of approving the current account with the discount facility and setting the ceiling on the discount facility for the accountholder was the NBR Board, based on the recommendations made by bank inspectors or the branch/agency managers.

<sup>42</sup> *Ibidem*.

The application procedure for a discount loan implied several stages, starting with the submission of the application and the commercial paper to be discounted, before their being scored by loan officers at the NBR head office or discount committees in branches/agencies. Admitted to discounting was the franchised commercial paper maturing in 100 days at most, backed by three signatures of solvent persons in Bucharest or any other location where the bank opened branches/agencies. One of the signatures could be substituted, according to the customer's creditworthiness, by a pledge on government securities, solvent warrants or commercial paper that should cover one-third of the discount portfolio. The decision to grant the discount loans was taken by the Discount Committee in the bank's head office, which had to review both the applications submitted in Bucharest and those coming from the countryside. Ultimately, the account was credited with the borrowed amount, of which the bank deducted the discount rate, mailing fees, and a quarterly commission of 1–2% of the nominal value of the discount loan portfolio.<sup>43</sup>

Another issue worth mentioning relative to the NBR's discount loan portfolio is the large weight of agricultural loans in total NBR banknote circulation in the period 1883–1892. This portfolio originated in the activity of *Case de credit agricol* (agricultural lending institutions) that used to extend loans collateralised by agricultural products, tools, seeds, and livestock. The commercial paper thus issued was accepted for re-discounting by the central bank in the 1880s, with the agricultural loan portfolio exceeding the commercial loan portfolio.<sup>44</sup> Furthermore, from 1885 to 1887, these types of loans were upwards of 10% of the total amount of banknotes in circulation, thereby approaching the loans extended at Lombard rate.

Certainly, the agricultural loans granted at the discount rate were not entirely compliant with the laws in force and the NBR Statute, but since the agricultural sector accounted for a considerable share of GDP, it is easy to understand why the monetary authority could not refrain from supporting this particular sector.<sup>45</sup>

Starting in 1929, the National Bank of Romania Statute accepted as eligible commercial paper for discounting the securities maturing between 100 days and nine months, provided they were used for 'operations of an economic nature performed by farmers in the discharge of their duties'. The agricultural bills discounted by the NBR could not exceed however 25% of its portfolio.<sup>46</sup> As from 1940, the National Bank of Romania introduced a different discount rate for discounting the agricultural portfolio that was between 0.5 and 1 percentage points lower than the discount rate used in commercial transactions. In the period 1940–1947, the discount rate for agriculture-related transactions moved from 2.5 % on 12 September 1940 to 3.5% on 8 May 1944 and to 6% on 15 August 1947.

Closely related to the above-mentioned series for the said period is the Lombard rate (*taxa lombardului*), (RO2B\_D; RO2B\_M), i.e. the interest charged by the National Bank of Romania on loans collateralised by government securities, Treasury bonds and warrants. Lombard loans should not be higher than 20% of the NBR's capital. As with the discount rate, the Lombard rate was set on a weekly basis by the NBR's Discount Committee, but the data series presented herein reflects only the points in time when this rate underwent changes. Moreover, the Lombard rate was most frequently one percentage point above the discount rate, ranging between 5% and 7%, and reaching almost 9–10% in exceptional cases. The procedures governing Lombard loans unfolded in a

<sup>43</sup> See Tone, Manea and Păunescu (2009), volume II, pp. 486–517.

<sup>44</sup> See Slăvescu (1925), pp. 52–53.

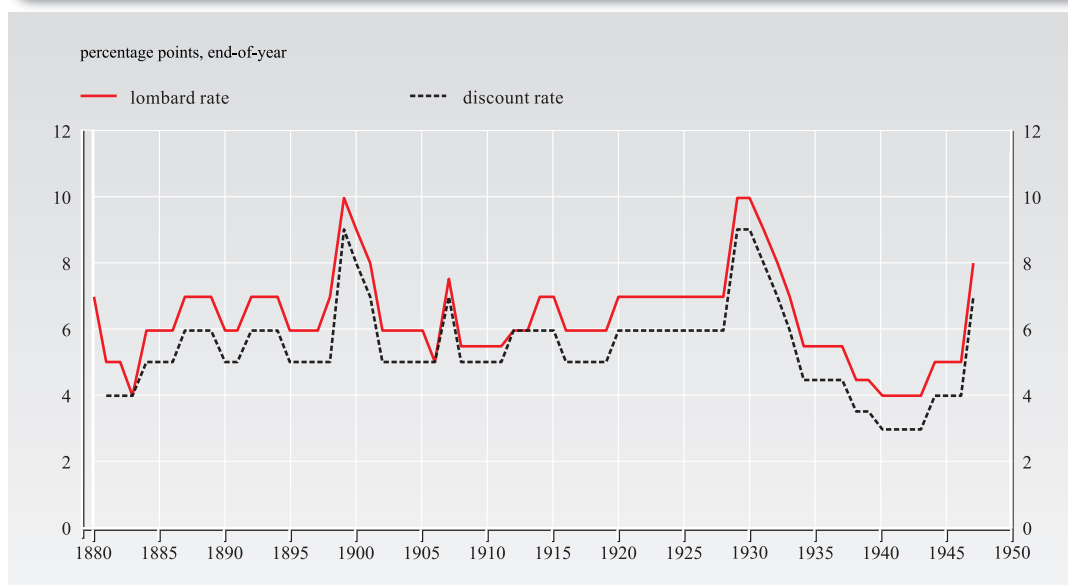
<sup>45</sup> Ibid.

<sup>46</sup> See Marinescu (1939), *op. cit.*, p. 27.



similar manner as those governing commercial bill discounting. Figure 3 depicts the trend behaviour of the discount and the Lombard rates.

**FIGURE 3 Lombard and Discount Rate, 1880–1947**



Source: NBR, Reports of the Board of Directors to the General Shareholders' Meeting, 1882–1947.

### Return on fixed-income securities

The series on the return on fixed-income securities includes the annual averages of the current return in the period 1926–1947 for 13 loans (5% 1916 National Loan, 5% 1919 Unification Loan, 5% 1920 Restoration Loan, 5% 1922 Expropriation Loan, 7% 1929 Stabilisation Loan, 7.5% 1931 Development Loan, 4.5% 1934 Endowment Loan, 3% 1935 Consolidation Loan, 4% 1941 Unified Loan, 4.5% 1941 Unified Loan, 4.5% 1941 Reunification Loan, 4.5% 1944 National Defence Loan, 5% 1945 Restoration Loan) obtained by the Romanian government in lei or foreign currency. For 1947, data represent monthly averages for the period January–14 August. Figures were calculated based on the coupon rate and the market price of each borrowing in the *Official Quota* of the Bucharest Stock Exchange and were published in the period 1929–1947 in Banque Nationale de Roumanie, *Bulletin d'Information et de Documentation*. Key information on these loans is given in Table 3.

**TABLE 3 Key information on loans**

*continue*

Name	Year of issue	Interest (%)	Nominal capital	Currency	Amortisation period	Subscription rate (%)	Origin of underwriter	Comments
<i>Perpetual Bond</i>	1875	5	44,600,000	lei		0.65	foreign	Coupon was paid in lei and French francs in Romania, the UK and France.
<i>Redeemable Bond</i>	1898	4	180,000,000	lei	60	0.915	foreign	Coupon was paid in lei, German marks and French francs in Romania, Germany and France.

TABLE 3 Key information on loans

Name	Year of issue	Interest (%)	Nominal capital	Currency	Amortisation period	Subscription rate (%)	Origin of underwriter	Comments
<i>National Loan</i>	1916	5	400,000,000	lei	40	85	local	
<i>Unification Loan</i>	1919	5	11,431,438,000	lei	40	90	local	
<i>Restoration Loan</i>	1920	5	2,730,911,000	lei	40	87-88	local	
<i>Expropriation Loan</i>	1922	5	10,100,000,000	lei			local	
<i>Stabilisation Loan</i>	1929	7	69,000,000	US dollar	30	88-100		
			561,638,000	French franc				
			2,000,000	pound sterling			foreign	
<i>Development Loan</i>	1931	7.50	1,325,000,000	French franc	40	86.50	foreign	
<i>National Endowment Loan</i>	1934	4.50	3,738,620,000	lei	40	88	local	
<i>Consolidation Loan</i>	1935	3	8,000,000,000	lei	50	100	local	Issued to repay public debt incurred prior to 1934.
<i>Unified Loan</i>	1941	4	4,355,078,300	lei	40	100	local	Includes all redeemable domestic bonds issued by Romania up to 1920.
<i>Unified Loan</i>	1941	4.50	7,550,000,000	lei	40	100	local	Includes foreign bonds issued by Romania, which were nationalised and stamped only for payments in lei, in Romania.
<i>Reunification Loan</i>	1941	4.50	20,000,000,000	lei	30	90	local	
<i>National Defence Loan</i>	1944	4.50	13,500,000,000	lei	10	100	local	
<i>Restoration Loan</i>	1945	5	50,000,000,000	lei	6	100	local	Underwriters could purchase a gold medal ('Ardealul nostru') worth 15,000 lei for every amount of 50,000 lei. Medals represented insurance premiums in case of local currency depreciation. They marked the reintegration of Northern Transylvania within Romania's borders.

A few clarifications are needed in order to identify the determinants behind the changes illustrated by this data series. The economic conditions triggered by the Great Depression caused a sweeping change in the attitude of the authorities in Bucharest towards foreign debt repayment, which was suspended in August 1933. Following negotiations with the foreign debt holders, at mid-1934 several agreements on the resumption of payments were concluded. The lenders agreed on the suspension of government debt repayment until 31 March 1937 and a cut in the annual coupon by 25%, 35% and 45%, respectively, for the March 1934–March 1937 period. Payments overdue in the period 1 October 1933–31 March 1937 were cancelled. The agreement was extended on an annual basis in 1937, 1938 and 1939 under the same conditions. No agreement with the foreign bondholders was concluded for the fiscal year 1939/1940, yet the Romanian government was set to maintain, without their approval, the suspension of principal repayment and the cut in interest payments.

Romania's public external debt repayment was suspended in 1941 after the war broke out. When the war was over, although the authorities in Bucharest acknowledged the debt, neither principal repayment nor interest payments were resumed. From 1937 onwards, coupons on the 7% 1929 Stabilisation Loan and the 7½% 1931 Development Loan held by Romanian citizens were paid only provided that the respective securities were stamped with the mention 'payable in Romania, in lei'. In 1941, the said securities were converted into the 4.5% Unified Loan. The leu-denominated bonds and loans were eligible for payment and liquidated in 1947.

TABLE 4 Yield on fixed interest securities

Year	5% 1916 National Loan	5% 1919 Unifi- cation Loan	5% 1920 Resto- ration Loan	5% 1922 Expro- piation Loan	7% 1929 Stabilisation Loan based on the interest		7.5 % 1931 Development Loan based on the interest		4.5% 1934 Endow- ment Loan	3 % 1935 Conso- lidation Loan	4% 1941 Unified Loan	4.5% 1941 Unified Loan	4.5% 1941 Reuni- fication Loan	4.5% 1944 National Defence Loan	5% 1945 Resto- ration Loan
					accord- ing to loan agree- ment	nego- tiated with credi- tors	accord- ing to loan agree- ment	nego- tiated with credi- tors							
1926	9.3	9.4	9.4	12.3	..	..	..	..	..	..	..	..	..	..	..
1927	8.4	9.1	9.1	10.6	..	..	..	..	..	..	..	..	..	..	..
1928	6.6	7.5	7.5	8.2	..	..	..	..	..	..	..	..	..	..	..
1929	7.6	8.3	8.3	9.1	..	..	..	..	..	..	..	..	..	..	..
1930	8.1	8.3	8.6	10.4	8.3	..	..	..	..	..	..	..	..	..	..
1931	8.2	8.5	8.8	11.9	9.6	..	11.1	..	..	..	..	..	..	..	..
1932	11.3	13.5	14.0	18.0	15.7	..	16.3	..	..	..	..	..	..	..	..
1933	12.7	13.7	13.8	16.1	18.5	..	19.3	..	..	..	..	..	..	..	..
1934	10.3	10.9	11.1	12.5	17.0	8.5	20.0	10.0	..	..	..	..	..	..	..
1935	10.0	10.4	10.6	12.3	12.2	6.4	17.7	9.3	7.8	12.9	..	..	..	..	..
1936	9.5	10.1	10.4	12.2	15.2	8.3	21.3	11.7	7.7	11.7	..	..	..	..	..
1937	8.4	8.6	8.8	9.2	19.8	12.3	20.6	12.8	6.2	9.2	..	..	..	..	..
1938	7.6	7.7	7.5	8.0	13.0	8.5	14.0	9.1	5.5	7.3	..	..	..	..	..
1939	7.5	7.7	7.6	8.7	11.5	7.8	12.2	8.3	5.5	7.0	..	..	..	..	..
1940	8.8	8.9	8.9	9.9	14.0	8.1	15.1	8.7	6.2	8.4	..	..	..	..	..
1941	8.8	8.9	8.8	9.3	16.5	9.9	17.5	10.0	6.3	8.4	7.5	8.5	..	..	..
1942	..	..	..	7.1	..	..	..	..	5.8	7.0	7.5	7.8	6.8	..	..
1943	..	..	..	7.3	..	..	..	..	6.4	6.7	7.7	8.0	7.3	..	..
1944	..	..	..	8.0	..	..	..	..	7.0	7.9	8.8	9.1	8.2	..	..
1945	..	..	..	8.3	..	..	..	..	5.9	8.4	8.5	8.8	7.4	6.1	8.0
1946	..	..	..	7.4	..	..	..	..	4.9	6.2	7.3	7.2	6.3	4.7	8.2
1947	..	..	..	4.5	..	..	..	..	1.5	3.4	4.8	5.2	4.8	4.3	5.4

### *Market prices*

Since the data concerning the return on fixed-income securities is available from 1926, we found it useful, for the purpose of making an overview of the Romanian loans on the Bucharest market, to add the price series at which three of the above-mentioned loans were quoted on the Bucharest Stock Exchange: the 5% 1875 Perpetual Bond (RO2C\_M), the 4% 1898 Redeemable Bond (RO2D\_M) and the 7% 1929 Stabilisation Loan, the American tranche, (RO2E\_M). Key information on these loans is given in table 3. Data on an annual basis are given in the following text, while on CD there are available data on a monthly basis.

Data represent the average for monthly data; when a loan matures, there is a new loan quoted to continue; in some years there are data on both loans. In 1898, the 5% 1875 Perpetual Bond was converted into the 4% Redeemable Bond and the latter, together with the other foreign loans at 4%, was converted into the '4% Unified Loan' under the Paris Agreement of 1928. For the 5% 1875 Perpetual Bond and the 4% 1898 Redeemable Bond, entries are made on a monthly basis. The price is as of the last day of the month or the day nearest to the month-end on the Bucharest Stock Exchange.

The prices for the 5% 1875 Perpetual Bond cover the period 1883-1898. Since the published data do not provide the entire information flow for the reviewed period, only available data were used in calculating annual averages. For 1883 data is the average for May, June and October, for 1884 data is the average for March, July and December, for 1885 data is the average for the period April-December, for 1889 data is the April figure, for 1891 data is the average for June and December, for 1892 data is the March figure, for 1893 data is the average for January, October and December, for 1894 data is the May figure, for 1895 data is the average for January, October, November and December, for 1896 data is the average for February, March, June, July and December, for 1897 data is the average for April, July and November, and for 1898 data is the average for February, May and June.

The prices for the 4% 1898 Redeemable Bond cover the period 1898-1928. As was the case for the 5% 1875 Perpetual Bond, the available data set is incomplete, the 4% 1898 Redeemable Bond is quoted on the Stock Exchange Bulletin, starting with 21 March 1898. Between 17 July 1914 and December 1915, there are no quotations for securities, as only goods were quoted. From 1916 until 1918 the Stock Exchange was closed and for the years 1921, 1922, 1923 the Stock Exchange Bulletins are missing. Thus, annual averages were calculated on the basis of data for the following periods: for 1898 data is the average for July, October and November, for 1899 data is the average for March, April, August and December, for 1900 is the January figure, for 1901 is the average for February-June and October, for 1902 data is the average for March, May-July, and September-October, for 1903 is the average for February-April, July, September, November and December, for 1904 is the average for January, April, June, August, October and November, for 1905 is the average for January, February, May, June, September-December, for 1906 is the average for March, April, July, September and October, for 1907 is the average for February-April, June, July, September-December, for 1908 is the average for February-May, August, September and November, for 1909 is the average for February, May, August and October, for 1910 is the February figure, for 1911 is the average for February, April, July-September, for 1912 is the average for January, March, May, and June, for 1919, securities started to be quoted as from 6 May, for 1920 is the average for January and June, for 1924 January and February are quoted only goods, and for 1928 data is the October figure.

As to the 1929 Loan (the American tranche), the period covered is 1929–1942, the entries being monthly averages of the prices recorded on the Bucharest Stock Exchange. Starting with January 1937, the price was obtained according to the new exchange rate 1 French franc = 6.55 lei instead of 1 French franc = 4.6 lei and 1 US dollar = 167.18 lei, instead of 1 US dollar = 102.5 lei. For 1929, the data refer to the November figure and for 1942 the average for March.

TABLE 5 Romanian bond market prices

Year	1875 Perpetual Bond	4% 1898 Redeemable Bond	7% Stabilisation Loan American tranche	Year	1875 Perpetual Bond	4% 1898 Redeemable Bond	7% Stabilisation Loan American tranche
1880	..	..	..	1908	..	90.91	..
1881	..	..	..	1909	..	91.13	..
1882	..	..	..	1910	..	93.40	..
1883	92.13	..	..	1911	..	93.96	..
1884	91.67	..	..	1912	..	92.83	..
1885	88.44	..	..	1913	..	..	..
1886	93.19	..	..	1914	..	..	..
1887	91.38	..	..	1915	..	..	..
1888	92.58	..	..	1916	..	..	..
1889	98.50	..	..	1917	..	..	..
1890	..	..	..	1918	..	..	..
1891	100.32	..	..	1919	..	..	..
1892	98.75	..	..	1920	..	97.00	..
1893	100.77	..	..	1921	..	..	..
1894	100.00	..	..	1922	..	..	..
1895	100.45	..	..	1923	..	..	..
1896	101.64	..	..	1924	..	..	..
1897	102.54	..	..	1925	..	..	..
1898	101.29	92.32	..	1926	..	..	..
1899	..	90.41	..	1927	..	..	..
1900	..	87.25	..	1928	..	70.00	..
1901	..	79.28	..	1929	..	..	81.75
1902	..	85.94	..	1930	..	..	84.32
1903	..	86.90	..	1931	..	..	73.76
1904	..	88.13	..	1932	..	..	45.42
1905	..	92.24	..	1933	..	..	38.61
1906	..	92.97	..	1934	..	..	41.33
1907	..	90.37	..				

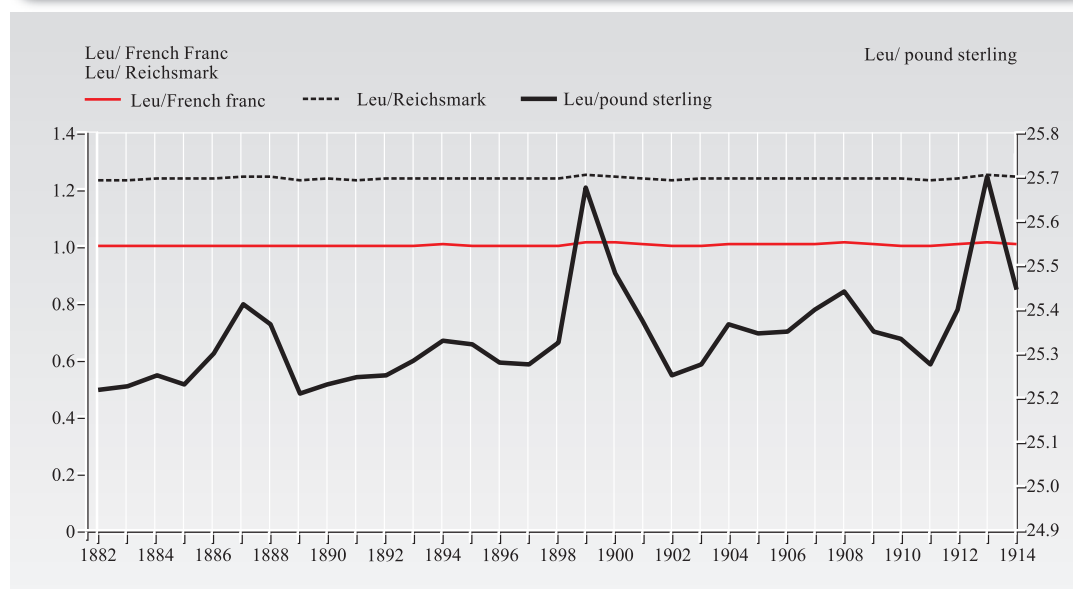
### 2.3 EXCHANGE RATES

Data on exchange rates (*cursuri de schimb*), include annual and monthly averages of the exchange rate of the leu against the main currencies quoted in Bucharest. For the 1882–1914 period, we collected data on the leu exchange rate of the French franc (RO3A\_A; RO3A\_M), with premium (RO3B\_A; RO3B\_M), pound sterling (RO3C\_A; RO3C\_M), with premium (RO3D\_A; RO3D\_M)

and the Reichsmark (RO3E\_A; RO3E\_M). Data are not available for 1915–1919. The series could not be resumed sooner than 1920, when were added the US dollar (RO3F\_A; RO3F\_M), with premium (RO3G\_A; RO3G\_M) and the Swiss franc (RO3H\_A; RO3H\_M), with premium (RO3I\_A; RO3I\_M). Figures are available until 1947, but it should be mentioned that during December 1941–April 1945, given the political and military conditions, the US dollar and the pound sterling were no longer officially quoted in Bucharest. For the exchange rate of the Romanian leu to the mark, the series was resumed in 1924 and lasted until 1944. From August 1944 onwards, once Romania declared war to the Axis Powers, the German currency was no longer quoted in Bucharest.

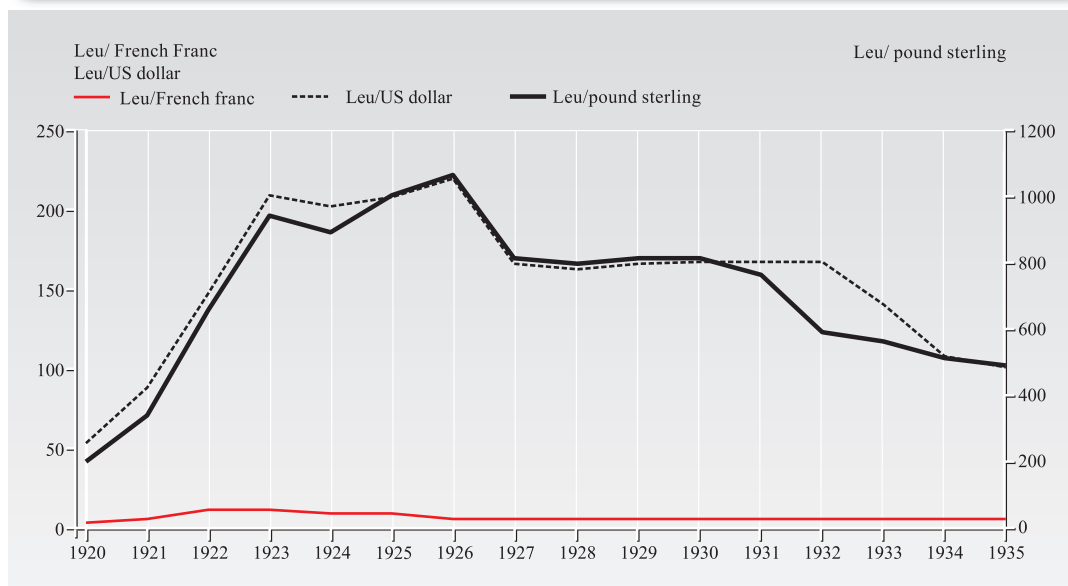
Up to and including 1928, the annual averages were calculated based on monthly averages between the minimum and maximum exchange rate levels on record. For the period 1882–1890, the information published in the *Official Quota* of the Bucharest Stock Exchange on the three-month rates on foreign currency-denominated cheques or commercial stocks were used. For the periods<sup>47</sup> in which the Official Quota Office of the BSE released no exchange rate data, the calculation base included data provided by the exchange offices in Bucharest. The stock exchange and the exchange offices worked with negotiable exchange rates expressed in gold lei, to which was added the daily *agio* whenever foreign currencies were bought in exchange for silver coins or banknotes issued by the NBR.

**FIGURE 4** The Exchange Rate of the Romanian Leu against the French Franc, the Pound Sterling and the Reichsmark, 1882–1914



The monthly average for the period 1929–1932 was calculated based on the records available in one month. Currency trading was performed on the Bucharest Stock Exchange (BSE) and was published in its daily bulletin. Starting with 1932, the NBR held the monopoly on the gold and currency trade, with the issuing bank setting the official exchange rate published on a daily basis in

<sup>47</sup> 1882 (July–November), 1884 (June–December), 1885 (January–April).

**FIGURE 5** The Exchange Rate of the Romanian Leu against the French Franc, the Pound Sterling and the US Dollar, 1920–1935

the Official Quota of the BSE. The monthly averages were calculated based on all the data released during the respective period. As from 1935, following the change in Romania's currency regime, apart from the official exchange rate we collected data on the official exchange rate premium. The way the premium is applied and its changes in time are described in Table 6.

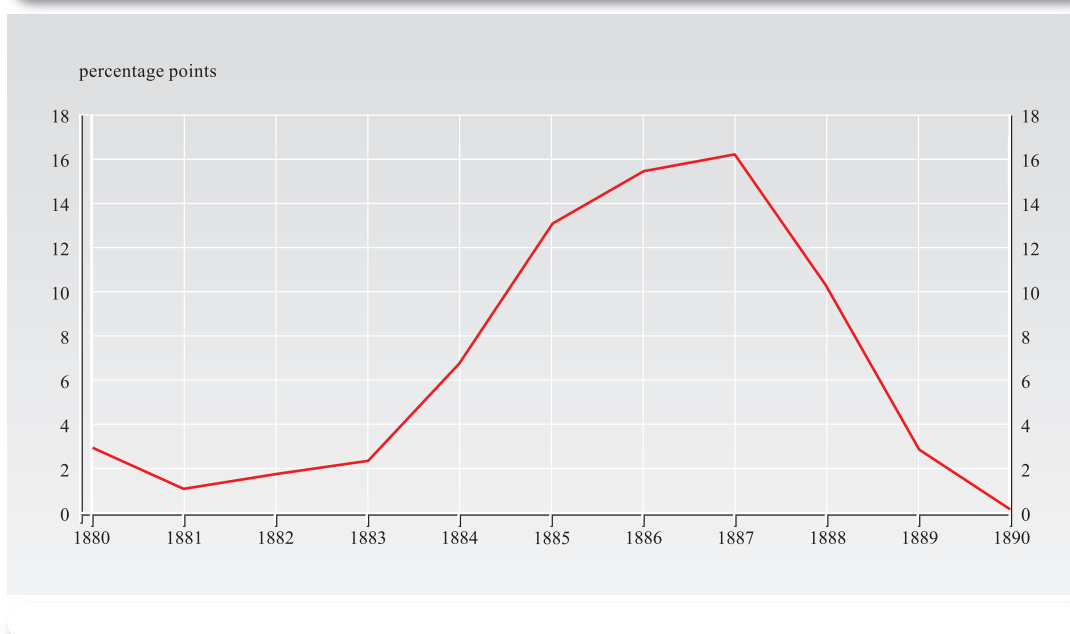
**TABLE 6** The evolution of the premium

Date	Premium (%)	Legal basis (%)
1 December 1935	38% premium charged for the sale/purchase of convertible currencies.	<i>Journal of the Council of Ministers</i> No. 2234 of 25 November 1935, <i>Official Gazette</i> No. 272 of 26 November 1935, and <i>Journal of Council of Ministers</i> No. 1173, <i>Official Gazette</i> No. 147 of 27 June 1936.
10 March 1940	Additional 50% premium charged for the exchange rate +38% premium. The total premium charged in relation to official exchange rates stood at 107%.	Decree Law No. 688 of 3 March 1940 and <i>Journal of the Council of Ministers</i> No. 554 of 3 March 1940, <i>Official Gazette</i> No. 53 of 3 March 1940.
1 April 1941	The single 90% premium charged for the official exchange rates of convertible currencies, as laid down in the 1929 monetary law.	Decree Law No 895, <i>Official Gazette</i> No 78 bis of 1 April 1941.
1945	In addition to the 90% exchange rate premium, a variable supplement was added, which was established by the Commissariat General of Foreign Trade.	Decree Law No. 1456, <i>Official Gazette</i> No. 101 of 3 May 1945.

The rise in money circulation reported as early as 1940–1944, particularly during August 1944–August 1947, when inflation saw unprecedented levels in Romania, had an impact on exchange rates as well. As a result of this state of affairs, as of 1 May 1945, apart from the already men-

tioned premiums, variable supplements were added to the official exchange rates, whose level rose several times during May 1945–August 1947.<sup>48</sup> Besides the exchange rate of the leu against the main foreign currencies, we included, for the 1880–1890 period, a series of annual and monthly averages recorded in the *agio* of gold against silver and NBR banknotes (RO3J\_A; RO3J\_M). This illustrates the shortcomings in the functioning of gold-silver standard in the context of lower market prices for silver. The differences between the official price and the market prices of the gold coin in silver and NBR banknotes is expressed in percentage terms by the *agio* of gold against silver and NBR banknotes or the *disagio* of silver and NBR banknotes against gold.

**FIGURE 6** *Agio*, 1880–1890



## 2.4 GOVERNMENT FINANCES

### 2.4.1 Revenue and expenditure

The series on the budget of Romania includes data for the period 1880–1946. Records were made on an annual basis, in lei, and reflect effective revenue and expenditure of the ordinary and extraordinary government budget at the end of the fiscal year. For most of the years, the ordinary revenue (RO4A\_A) of the public budget encompasses revenue from direct and indirect taxation (RO4B\_A; RO4C\_A). Figures are the same as those registered in the revenue and expenditure budgets released by the Romanian Ministry of Finance for those years. No other revenue categories were added; hence the data series we reconstructed are different from those published in other dedicated papers in Romania.<sup>49</sup> There is no information on revenue sources for the periods 1887–1888, 1900, 1915–1920, and 1944–1947. For the period 1932–1943, apart from the two above-mentioned sources, figures include extraordinary revenue as well (RO4D\_A).

<sup>48</sup> See Kirițescu, *op. cit.*, pp. 366–368.

<sup>49</sup> See Axenciuc, *op. cit.*, pp. 626–628, 633–634, 640–642.



Throughout the years, the revenue and expenditure budget included various items. In the early years, the budget comprised the sources of direct and indirect taxes, as well as the income from state-owned property, chiefly farmland, but later, insofar as public assets become more diverse, new income sources and expenses emerge. Starting 1888, the railways administration budget was incorporated into the government budget, with all its revenue and expenditure items. For the other state-owned enterprises (sea and river shipping companies, administration of ports, metallurgic works, mining, explosives, tobacco, matches companies, etc.), only surpluses were recognised in the general government budget.

Besides, in the period 1884–1908 a number of special budgets of various institutions took shape, so that the end of the aforementioned time span saw 36 budgets, each recognised separately in the general government budget. In 1908, these budgets were merged into the ordinary budget, thereby leading to an increase in revenue.

From 1919 to 1926, the ordinary budget included the budgets of various state-controlled institutions and enterprises. In 1926–1927 the budgets of the latter entities were separated from the ordinary budget, with those of the Romanian Railways, the Pension House and the Romanian Post being recorded separately. In 1929, the budget was once again overhauled. State-controlled institutions and enterprises were reorganised into *régies autonomes* or self-governed institutions, with the general government budget including only their surpluses. Similarly to revenue, costs were detailed in ordinary expenditure (RO4E\_A) and extraordinary expenditure, (RO4F\_A) but only for certain periods, i.e. 1921–1929 and 1932–1942.

During 1880–1923, the fiscal year started on 1 April and ended on 31 March, while during 1924–1928, it overlapped with the calendar year, fiscal year 1923 covering only nine months. From 1929 to 1933, fiscal years varied in length, lasting between 12 and 18 months, with budget revenue posting declines that posed a threat to the country's financial stability. Starting with 1933, the fiscal year began on 1 April and ended on 31 March of the following year.

In the period prior to 1916, the drafting and the approval of government budget followed a usual pattern. Between 1916–1919, against the background of World War I and the post-war drawbacks, the general government budget draft was no longer submitted for approval to the Chamber of Deputies, the budgets in the said period representing successive repetitions of the 1915/1916 fiscal year. The 1920/1921 budget is the first budget of post-war Romania.

#### *2.4.2 Public debt*

##### *Public debt service and public debt stock*

On the expenditure side, the public debt service played a major role in the period under review. This item is presented in a separate column (RO4G\_A) for the period 1880–1946, except for the period 1915–1920. Data regarding the stock of public debt are also available (RO4H\_A) and include both the domestic public debt (RO4I\_A) and the foreign public debt (RO4J\_A).

Data on debt service are expressed in lei and show the amount of public debt payable until the end of the fiscal year. During 1915–1920, public debt repayment was suspended due to the war. The first interwar years witnessed the conclusion of several agreements with foreign lenders and the partial takeover by Romania of the public debt of Austria-Hungary. As regards the domestic loan-foreign loan difference, it should be pointed out that, in those years, this was a matter

of the currency in which public debt servicing was conducted rather than the place of residence of the creditors.

During 1871–1914, all borrowing by the Romanian government was expressed in gold lei. Principal and interest payments were calculated in gold lei and repaid also in gold lei in the case of domestic borrowing or in the currency of the lending country. At the end of 1914, Romania's foreign debt in terms of country breakdown presented the following picture: Germany (55.4%), France (29.7%), Romania (10.9%), Belgium, the Netherlands and Switzerland (4%).<sup>50</sup> During World War I and in the interwar period, Romania's foreign debt in terms of currency breakdown encompassed not only local currency, but also gold-convertible currencies such as French franc, Swiss franc, pound sterling, or US dollar. The explanation for this state of affairs lies with the steep devaluation of the country's currency unit, i.e. the leu, after it was no longer convertible into gold during World War I and due to the rampant inflation that weighed on currency circulation in Romania in the 1920s. According to the data in *Enciclopedia României* issued in 1943, the country breakdown of Romania's foreign public debt (denominated in foreign currency) was as follows: France (30.0%), the United Kingdom (16.3%), Romania (15.5%), Germany (11.1%), Switzerland (5.3%), Belgium (4.1%), and other countries such as Czechoslovakia, the Netherlands, Italy, Sweden, USA, etc., the shares of which were around 3%.<sup>51</sup>

Worth noting is the interest rate on the Romanian government's borrowings in those years. This is a good indication of Romania's creditworthiness on the international markets, along with the currency of denomination and the exchange rate. Thus, in the period 1864–1881 the Romanian government borrowed at interest rates ranging from 6% to 10%. Later, in the period 1882–1916, interest rates hovered between 4% and 5%, hinting at the stable and prosperous state of the country. After World War I, the interest rate on most sovereign borrowing was lower than 5%, but the most significant loans in that period were obtained at far higher rates: 7% on the 1929 Stabilisation Loan and 7.5% on the 1931 Development Loan.

The main instruments used in contracting debt in the period under review were primarily Treasury bonds, along with perpetual bonds, redeemable bonds, relief bonds and tax bonds. The annual financial statements released by the Romanian Ministry of Finance do not provide consistent data on the stock of public debt, so that information on this indicator could only be collected for the following years: 1888, 1891–1900, 1902–1904, 1911–1914, 1916, 1921, 1924, 1927, 1929, 1931, 1933 and 1935–1947. Furthermore, the sources do not provide consistent and separate, information regarding the stock of both domestic and foreign public debt. Such data were available only for the following years: 1916, 1921, 1924, 1927, 1929, 1931, 1933, and 1935–1947.

The developments in the data series on Romania's public debt require a brief overview of the borrowed amount destination and of the changes in public debt management by the Romanian government. Over the period 1864–1914, most of the loans obtained from foreign markets and the local market were intended for social and economic development, with just a small part being allotted for covering the budget deficits.<sup>52</sup>

During World War I and over the following years, the Romanian government obtained several loans from the National Bank of Romania. Originally, the government made available to the central bank the gold equivalent to cover the currency issue, in compliance with the agreements concluded pre-

<sup>50</sup> Tutuc (1943), p. 802.

<sup>51</sup> *Ibid.*, p. 818.

<sup>52</sup> Banu (2012), p. 82.

viously with the latter. Subsequently, gold coverage could no longer be ensured and gold Treasury bonds were issued. The borrowed money amounted to 1.6<sup>53</sup> billion lei at end-1918 and 12.363<sup>54</sup> billion lei at end-1921, being recognised in the data on public debt stock. In the 1920s, debt saw unprecedented growth. This was caused by the need to settle pre-war debts and to cover war expenses and the debt burden arising from the peace treaties, as well as to implement land reform, thereby shelving the increase in investment that could have put the economy onto the right track. The funds drawn from the two foreign loans in 1929 and 1931 were mostly channelled to restoring leu convertibility, financing state-owned credit institutions, repairing railroads and motorways, making investments in the agricultural sector, etc.

Against the background of the Great Depression, the Romanian government defaulted on its foreign debt. In September 1932, talks started to reduce the service of the external public debt. This objective was achieved in 1933, but repayment was conditional on government revenue. Since they fell short of the target, on 15 August 1933 the government could no longer ensure the coupon payment for foreign debt servicing due in August without jeopardising the functioning of the public sector and therefore defaulted. Following the negotiations held via the Financial Committee of the League of Nations, several agreements concerning the resumption of payments were signed in 1934. Accordingly, debt service payment for the period 1 August 1933–31 March 1934 was converted into new borrowing with a 15-year maturity and an interest rate of 4.5%. Amortisation was discontinued for the lifetime of the agreement (1934–1937) and annual interest rates were sizeably lowered to various proportions.<sup>55</sup> At the time of the agreement reaching maturity, it was extended on an annual basis and under the same conditions. For the fiscal year 1939–1940, an agreement with foreign holders was no longer concluded, but the government opted, without their consent, for retaining amortisation discontinuance and reducing coupon payments.

At the same time, the government sought to convert all its foreign borrowing into loans that could be repaid either in local currency or in the currency of the country where the holder resided and, if possible, bear lower interest rates. Foreign debt repayment was discontinued in 1941 after World War II broke out. When the armed conflict was over, although the communist authorities in Bucharest acknowledged the debt, neither principal repayment nor interest payments were resumed. Settlement of Romania's financial obligations arising from foreign public debt was made in the post-war years via agreements signed by the government with the governments of the countries where the holders of Romanian bonds resided. The leu-denominated loans falling under domestic public debt were repaid in 1947.

## 2.5 PRICES, PRODUCTION AND LABOUR

### 2.5.1 Consumer price index

The series includes yearly and monthly averages of the retail price index for commodities including foodstuffs items and fuel on the Bucharest market (RO5A\_A; RO5A\_M). Available figures cover the period 1921–1940, with 1929 as the base year. Considering the calculation method employed herein, it should be pointed out that this index runs higher than it would normally, since it reflects the movements in prices in Bucharest, where prices were approximately 10 to 15 per-

<sup>53</sup> Banca Națională a României (1919), *Raportul Consiliului de administrație către Adunarea generală a acționarilor din 17 februarie*, București, Imprimeria Băncii Naționale, p. 8.

<sup>54</sup> Banca Națională a României (1922), *Raportul Consiliului de administrație către Adunarea generală a acționarilor din 19 februarie*, București, Imprimeria Băncii Naționale, p. 24.

<sup>55</sup> Dobrovici (1944), pp. 80–84.

centage points higher than anywhere else in the country. Mention should also be made of the decline in this index in 1933 versus 1932. It was not the result of a decline in prices, but of a change in data collection: prices of goods were standardised, and account was taken of average quality goods, thereby disregarding higher-quality goods. The index was calculated by Romania's statistics office and published in *Buletinul prețurilor 1937–1940*.

### 2.5.2 Industrial production general index

The data concerning the industrial production general index (1919–1947, 1929=100), (RO5B\_A), were drawn from Axenciuc (1992), *Evoluția economică a României, Cercetări statistico-istorice 1859–1947*, volume 1, *Industria*, p. 585. It includes the index of industrial production in mining and quarrying, manufacturing and electricity.

### 2.5.3 Unemployment

The data series on unemployment includes annual official figures and monthly averages for the unemployed (RO5C\_A; RO5C\_M). In terms of breakdown, most of the jobless came from the mining, manufacturing and transport sub-sectors, whereas data also include out-of-work persons from forestry, construction, as well as from trade and administrative or local sub-sectors. The figures were calculated by the Ministry of Labour for the period 1928–1938, then published in the Labour Newsletter and, finally, in the Statistical Yearbooks. In his paper entitled *Evoluția economică a României Cercetări statistico-istorice*, volume I *Industria*, Axenciuc (1992) held that the series included understated data values and chose to rely on the records of job centres in Romania for the period 1922–1938 instead.

## 2.6 NATIONAL ACCOUNTS AND POPULATION

### 2.6.1 GDP

The series concerning GDP at current prices for the period 1880–1947 (RO6A\_A) was calculated using the GDP at constant prices and the GDP deflator, as published by Axenciuc (2012) in *Produsul intern brut al României 1862–2000 Serii statistice seculare și argumente metodologice*, volume I-II.

### 2.6.2 Foreign trade

The series on Romania's *foreign trade* cover the period 1880–1947. The basic information was first disclosed by the periodical titled *Statistica comerțului exterior* (1860–1944), and data were subsequently published in *Statistical Yearbook of Romania* and in *Bulletin d'information et de Documentation* released by the National Bank of Romania in the interwar period, as well as in Axenciuc (2000) *Evoluția economică a României Cercetări statistico-istorice 1859–1947*, volume III *Monedă - credit - comerț - finanțe publice*. The government had displayed a steady interest in institutionalising and regulating foreign trade by putting in place government departments, expanding and strengthening the customs system, drafting and enacting laws, norms, regulations, customs notes and tariffs. Apart from the foreign trade revenues to the public budget, the government also sought to protect the country's local market and industrial sector. To this end, starting in 1886, free trade was abandoned and subsequently Romania promoted protectionism of its locally manufactured products until the end of the period covered by the data series.

The records comprise end-of-year amounts in thousands of lei and in tonnes for imports (RO6B\_A; RO6C\_A) and exports (RO6D\_A; RO6E\_A). No statistical records are available for the World War I period. For the period 1879–1915, the value of exports and imports was calculated in gold lei, for the period 1919–1928 in paper lei, after 1929 in stabilisation lei, and for 1947 in lei stabilised on August 1947.

### 2.6.3 Population

The series referring to the households in Romania covers the 1880–1946 period, (RO6F\_A). The data figures are estimates based on household sample surveys at end-December for the 1880–1898 period and estimates at 1 July for the 1900–1946 period. Data relative to years 1899, 1912 and 1930 are census data. No statistical records are available for the World War I period and therefore no data are available on the households in Romania during 1916–1918. The twofold increase in the number of inhabitants in 1919 compared with the last pre-war record (1915) was due to the country's territorial gains in 1918. Moreover, the decline in this indicator starting 1940 can be put down on the territorial losses that same year. Authors used data from *Statistical Yearbook of Romania* and from Axenciuc (1992), *Evoluția economică a României Cercetări statistico-istorice*, volume II, *Agricultura*.

## 3 DATA SOURCES

In collecting data on the international reserves, the main sources were the NBR Board's Reports to the General Meeting of Shareholders for the period 1881–1947. Moreover, the authors resorted to the weekly press releases published by the NBR in the *Official Gazette* of Romania (1881–1947) and to *Bulletin d'Information et de Documentation* that the NBR published in the period 1929–1947. For further information on how the NBR balance sheets were prepared, the authors drew on the documents in the NBR Archives, the protocols of the NBR Boards, General Accounting, External Accounting, Secretariat, and Research Divisions.

Information on the notes in circulation were taken from the NBR Board's Reports to the General Meeting of Shareholders for the period 1881–1947 and from the weekly press releases published by the NBR in the *Official Gazette* of Romania (1881–1947).

The monetary base data series was reconstructed relying on the following: (i) the balance sheet in the NBR Board's Reports to the General Meeting of Shareholders during 1881–1947 for the currency issue and petty cash of the central bank, (ii) Banque Nationale de Roumanie, *Bulletin d'Information et de Documentation*, NBR Board's Reports to the General Meeting of Shareholders of 20 February 1938, Bucharest, 1938, p. 45, for the metallic and fractional coins, and (iii) Dobrovici (1934), *Istoricul dezvoltării economice și financiare a României și împrumuturile contractate*, 1823–1933, p. 316, for paper notes and bills of the Romanian General Bank. For the period 1882–1897, for monetary aggregates, data were collected primarily from the balance sheets disclosed by banks in the NBR Archives, as well as from the Higher Banking Council Fund. For the Savings Bank, the authors resorted to the *Statistical Yearbook* of Romania for the year 1926.

For the period 1898–1918, data were gathered chiefly from the balance sheets disclosed by banks in the NBR Archives and, in the absence of any balance sheets, from the *Bulletin d'Information et de Documentation* (1929, NBR, Economic Research Division). For the Savings Bank and credit cooperatives, the authors resorted to the *Statistical Yearbook* of Romania for the year 1926 as well as for the period 1935–1936. Furthermore, data were cross-checked with the information avail-

able in Slăvescu (1925), *Marile bănci comerciale din România* and Dobrovici (1934), *Istoricul dezvoltării economice și financiare a României și împrumuturile contractate, 1823–1933*.

For the period 1919–1933, data on banks' aggregate balance sheets were taken from *Statistica societăților anonime din România* (1937–1941), those concerning the Agricultural Bank from the balance sheet in the NBR Archives, figures regarding the Industrial Credit National Society were drawn from the *Statistical Yearbook* of Romania. For the Savings Bank and credit cooperatives, information was taken from the *Statistical Yearbook* of Romania for the year 1934 and for the period 1935–1936. For the period 1934–1945, data on banks' aggregate balance sheets were gathered from the NBR Archives, the Higher Banking Council Fund, while those on the Savings Bank originated in *Statistical Yearbook* of Romania for the year 1934.

Data series on the discount and the Lombard rates were drawn from the NBR Board's Reports to the General Meeting of Shareholders during 1881–1947.

In compiling data on the return on fixed-income securities for the period 1926–1947, the source used was: Banque Nationale de Roumanie, *Bulletin d'Information et de Documentation* Nos. 4/1929; 1/1930; 1/1931; 1/1932; 1/1933; 1/1934; 1/1935; 1/1936; 1/1937; 1/1938; 1/1939; 1/1940; 2/1941; 3/1942; 7–12/1944; 1–3/1945; 10–12/1946; 9–12/1947. For the three loans, data on bond market prices was taken from the Bucharest Stock Exchange as follows: the 5% 1875 Perpetual Bond for the period 1883–1898, the 4% 1898 Redeemable Bond for the period 1898–1928, and the 7% 1929 Stabilisation Loan (the American tranche) for the period 1929–1942.

Data on the exchange rates of the leu against the major currencies were taken from various sources, due to the peculiarities of those years. For the period 1882–1892, information was collected from the *Official Quota* of the Bucharest Stock Exchange and the figures that bankers published in newspapers. Adding to the above-mentioned data are those regarding the gold premium relative to silver. Most frequently the authors used the data in the *Official Quota*, lacking which the information inserted in the bankers' market reports published on a daily basis. The resulting figures are monthly averages of daily entries concerning the agio, which formed the basis for the yearly averages. The period 1892–1915 is covered by the information drawn from the NBR Board's Report to the General Meeting of Shareholders 1915, as well as from the *Official Quota*. The time span between the end of World War I and the year 1947 was covered from data in *Bulletin d'Information et de Documentation* disseminated by the NBR in the period 1929–1947, the *Official Quota*, the NBR Archives and the bank's Research Division.

Data on the government's actual revenue and expenditure were taken from the periodicals of the Romanian Ministry of Finance titled *Proiectul de buget general al statului, Expunere de motive and Bugetul general de venituri și cheltuieli al României* for the period 1880–1947. The resulting series were compared to those published by Axenciuc (2000) in his paper entitled *Evoluția economică a României Cercetări statistico-istorice 1859–1947, volume III Monedă - credit - comerț - finanțe publice* and Banu (2012) in *Datoria publică a României (1864–1949)*. Data on public debt service were taken from *Bugetul general de venituri și cheltuieli al României 1880–1947* published by the Romanian Ministry of Finance, Axenciuc (2000), *Evoluția economică a României Cercetări statistico-istorice 1859–1947, volume III Monedă - credit - comerț - finanțe publice*, and Banu (2012), *Datoria publică a României (1864–1949)*.

The data series on the public debt stock has drawn on several sources. For the period 1892–1913, data were taken from the publication issued by the Romanian Ministry of Finance titled *Expunerea*

*situațiunii tezaurului public*. For the period 1916–1947, data were taken from *Bugetul general de venituri și cheltuieli al României* published by the Romanian Ministry of Finance. Furthermore, the data series published by Banu (2012) in *Datoria publică a României (1864–1949)* and Dobrovici (1934) in *Istoricul dezvoltării economice și financiare a României și împrumuturile contractate 1823–1933* and in *Evoluția economică și financiară a României în perioada 1934–1943* (1944) were used as well.

The data on the retail price index were taken from *Buletinul prețurilor 1940*, published by Romania's statistics office. The data for the industrial production general index were taken from Axenciuc (1992), *Evoluția economică a României, Cercetări statistico-istorice 1859–1947*, volume 1, *Industria*, p. 585.

GDP data series was taken from Axenciuc (2012), *Produsul intern brut al României 1862–2000 Serii statistice seculare și argumente metodologice*, volume I-II.

For the period 1879–1939, data on foreign trade were collected from the *Statistical Yearbook of Romania* for 1912 and 1939–1940, as well as from Banque Nationale de Roumanie *Bulletin d'Information et de Documentation* No. 11/1932. The time span from 1940 to 1947 includes information taken from Banque Nationale de Roumanie *Bulletin d'Information et de Documentation*/1941 and Axenciuc (2000), *Evoluția economică a României Cercetări statistico-istorice 1859–1947*, volume III, *Monedă - credit - comerț - finanțe publice*.

In collecting data for population, for the period 1880–1940, the *Statistical Yearbook of Romania* was used. The information for the period 1941–1946 was drawn from Axenciuc (1992), *Evoluția economică a României Cercetări statistico-istorice*, volume II, *Agricultura*. The author also employed data published in the journal *Comunicări statistice* No. 5/1945 and the final figures of the 1948 census.

Data for unemployment were taken from the *Statistical Yearbook of Romania* for 1939–1940, which in turn reveals as a source *Buletinul Muncii* (Labour Newsletter), a periodical issued by the Ministry of Labour.

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*Note: In the following tables “..” indicates that the item did not exist; in case of reconstructed data, that the entry was not calculated for that point in time; “.” indicates a missing value. An absolute zero is coded as “-“, while “0.0” codes a rounded zero. For details on the unit of the series, see index table in section 2.*

TABLE ROI.I\_A International reserves, 1881–1947

continue

(NBR; thousands of LMU lei, end-of-year)

Year	Metallic stock	Mortgage notes	Gold bills of exchange and gold foreign exchange on cover stock	Gold foreign currencies out of the stock	Commercial bills denominated in foreign currency in the NBR portfolio	Foreign exchange provision for the Autonomous Monopolies Institute	Foreign exchange provision for exceptional circumstances	International reserves of the NBR	of which Gold Treasury bonds in the NBR's metallic stock
	ROI1A_A	ROI1B_A	ROI1C_A	ROI1D_A	ROI1E_A	ROI1F_A	ROI1G_A	ROI1H_A	ROI1I_A
1881	21336.3	14168.3	..	..	2748.8	..	..	38253.5	..
1882	23838.2	24338.9	..	..	5788.3	..	..	53965.3	..
1883	34519.9	25531.2	..	..	2754.4	..	..	62805.5	..
1884	33981.9	25812.7	..	..	2.0	..	..	59796.6	..
1885	34120.3	25902.6	..	..	15.0	..	..	60037.9	..
1886	33180.3	25956.5	..	..	65.8	..	..	59202.6	..
1887	31890.6	25877.4	..	..	139.5	..	..	57907.5	..
1888	32430.9	25744.3	..	..	..	..	..	58175.2	..
1889	39523.9	..	..	..	23192.0	..	..	62715.9	..
1890	45616.3	..	..	..	15732.7	..	..	61349.0	..
1891	60652.3	..	..	..	14482.6	..	..	75134.9	..
1892	53160.7	..	13954.3	..	315.6	..	..	67430.6	..
1893	59614.6	..	8185.4	..	..	..	..	67800.0	..
1894	44501.4	..	1610.6	..	..	..	..	46111.9	..
1895	60996.2	..	3208.3	..	..	..	..	64204.5	..
1896	62265.0	..	14110.7	..	..	..	..	76375.7	..
1897	57781.3	..	15115.6	..	..	..	..	72896.9	..
1898	59828.1	..	20942.5	..	..	..	..	80770.7	..
1899	34737.6	..	14587.6	..	..	..	..	49325.2	..
1900	39902.7	..	10182.9	..	11117.1	..	..	61202.7	..
1901	49107.4	..	20275.1	..	17924.9	..	..	87307.4	..
1902	72168.2	..	28731.2	..	36668.8	..	..	137568.2	..
1903	73462.4	..	30871.9	..	55428.1	..	..	159762.4	..
1904	53922.7	..	20183.4	..	42516.6	..	..	116622.7	..
1905	77780.9	..	31407.9	..	60892.1	..	..	170080.9	..
1906	82861.0	..	34547.2	..	54852.8	..	..	172261.0	..
1907	96222.8	..	39384.7	..	60485.3	..	..	196092.8	..
1908	90394.5	..	33688.7	..	35071.3	..	..	159154.5	..
1909	93841.6	..	38046.2	..	51483.8	..	..	183371.6	..
1910	120023.2	..	48889.2	..	74810.8	..	..	243723.2	..
1911	157799.8	..	61366.7	..	113633.3	..	..	332799.8	..
1912	155504.9	..	63430.3	..	54399.7	..	..	273334.9	..
1913	151510.8	..	56534.2	..	..	..	..	208044.9	..
1914	153956.7	..	62941.1	..	..	..	..	216897.8	..
1915	220969.6	..	80980.2	..	..	..	..	301949.8	..
1916	493268.2	..	80980.2	..	..	..	..	574248.3	..
1917	493732.7	..	196257.8	..	..	..	..	689990.5	..
1918	493736.9	..	348796.3	..	..	..	..	842533.2	..
1919	495102.7	..	915763.1	..	..	..	..	1410865.8	..
1920	495459.0	..	2704763.1	..	..	..	..	3200222.1	2263000.0
1921	495459.0	..	4086131.1	..	..	..	..	4581590.1	3676000.0
1922	533055.3	..	4637049.1	..	..	..	..	5170104.4	4069000.0
1923	555407.8	..	5456251.1	..	..	..	..	6011658.9	4679900.0
1924	562959.4	..	5936841.3	..	..	..	..	6499800.7	5107800.0
1925	566664.6	..	6333815.4	..	..	..	..	6900480.0	5679833.3
1926	572113.9	..	6454673.3	..	..	..	..	7026787.2	5679833.3
1927	578427.9	..	6454673.3	..	..	..	..	7033101.2	6123713.3
1928	570747.7	..	6627638.3	..	..	..	..	7198386.1	6623713.3

TABLE ROI.1\_A International reserves, 1881–1947

(NBR; thousands of LMU lei, end-of-year)

Year	Metallic stock	Mortgage notes	Gold bills of exchange and gold foreign cover stock	Gold foreign currencies out of the stock	Commercial bills denominated in foreign currency in the NBR portfolio	Foreign exchange provision for the Autonomous Monopolies Institute	Foreign exchange provision for exceptional circumstances	International reserves of the NBR	of which Treasury bonds in the NBR's metallic stock
	ROI A	ROI B	ROI C	ROI D	ROI E	ROI F	ROI G	ROI H	ROI I
1929	9185360.3	..	6745413.7	45746.9	74302.1	988375.1	..	17039198.2	..
1930	9275434.9	..	1745517.5	1912722.1	21861.2	452470.2	..	13408005.8	..
1931	9675034.4	..	277594.0	126927.9	14839.1	229013.9	..	10323409.4	..
1932	9526877.9	..	494515.0	719199.6	3607.5	229013.9	..	10973214.0	..
1933	9895475.0	..	257435.3	184313.1	.	57219.9	..	10394443.3	..
1934	10285131.7	..	91005.4	355341.3	.	.	..	10731478.4	..
1935	10801939.4	..	91836.0	205044.8	.	.	..	11098820.3	..
1936	15568160.3	..	..	1802044.6	.	.	..	17370204.9	..
1937	16457784.3	..	..	775360.6	.	.	2425322.1	19658467.0	..
1938	18190487.5	..	..	306258.6	.	.	2639609.0	21136355.1	..
1939	20767950.3	..	..	163571.4	.	.	1017155.4	21948677.1	..
1940	32155991.5	..	..	1058307.1	.	.	4977458.9	38191757.5	..
1941	34291592.9	..	..	380726.3	.	.	.	34672319.3	..
1942	38091008.9	..	7415000.0	2730782.2	.	.	1042620.8	49279411.9	7415000.0
1943	48814004.5	..	10786000.1	165798.5	.	.	441504.9	60207308.0	10786000.1
1944	50168700.3	..	40500000.0	507095.5	.	.	1055.4	91176851.2	40500000.0
1945	50403405.4	..	40500000.0	138358.7	.	.	.	91041764.1	40500000.0
1946	50280868.9	..	40795470.9	131516.0	.	.	.	91207855.8	40795470.9
1947	32189998.9	..	..	948733.5	.	.	.	33138732.3	..

TABLE ROI.2\_A Monetary base and money supply, 1881–1947

continue

(thousands of LMU lei; end-of-period)

Year	Banknotes in circulation	Metallic and fractional coins	Paper money	Notes issued by Romanian General Bank	Monetary base	Money supply
	ROI J	ROI K	ROI L	ROI M	ROI N	ROI O
1881	58536.5	63345.0	..	..	121881.5	..
1882	84405.9	69195.0	..	..	153600.9	367777.8
1883	88546.2	83845.0	..	..	172391.2	373249.5
1884	85962.0	87970.8	..	..	173932.8	381614.7
1885	98318.6	88850.8	..	..	187169.4	402503.7
1886	104513.0	88850.8	..	..	193363.8	414535.8
1887	105029.6	88850.8	..	..	193880.4	428142.8
1888	103850.4	88850.8	..	..	192701.2	420381.7
1889	97187.2	88850.8	..	..	186038.0	434182.1
1890	108429.3	67770.8	..	..	176200.1	452289.0
1891	125872.7	67770.8	..	..	193643.5	494926.2
1892	114968.7	67770.8	..	..	182739.5	481721.0
1893	128461.0	67770.8	..	..	196231.8	510093.2
1894	103117.2	70770.8	..	..	173888.0	453416.9
1895	124348.3	70770.8	..	..	195119.1	501587.3
1896	142617.8	70770.8	..	..	213388.6	538131.8
1897	145633.2	70770.8	..	..	216404.0	544183.9
1898	162334.0	70770.8	..	..	233104.8	590660.3

TABLE ROI.2\_A Monetary base and money supply, 1881–1947

(thousands of LMU lei; end-of-period)

Year	Banknotes in circulation ROIJ_A	Metallic and fractional coins ROIK_A	Paper money ROIL_A	Notes issued by Romanian General Bank ROI1M_A	Monetary base ROI1N_A	Money supply ROI0_A
1899	108718.9	70770.8	..	..	179489.7	496032.6
1900	120622.2	74370.8	..	..	194993.0	497396.4
1901	144965.4	74370.8	..	..	219336.2	534044.3
1902	167324.2	74370.8	..	..	241695.0	574755.3
1903	177635.7	74370.8	..	..	252006.5	615972.6
1904	167144.8	74370.8	..	..	241515.6	622552.4
1905	237614.2	76620.8	..	..	314235.0	830134.1
1906	249337.2	81799.8	..	..	331137.0	878100.6
1907	271005.8	81799.8	..	..	352805.6	1031308.9
1908	259063.7	81799.8	..	..	340863.5	1051911.3
1909	282630.2	81799.8	..	..	364430.0	1078192.4
1910	339804.3	87480.9	..	..	427285.2	1209502.9
1911	443357.9	87480.9	..	..	530838.8	1398802.8
1912	425180.7	87480.9	..	..	512661.6	1611216.0
1913	437182.4	90097.9	..	..	527280.3	1663801.2
1914	578243.6	.	..	..	578243.6	1695274.5
1915	762210.2	.	..	..	762210.2	1861449.5
1916	1451712.4	.	..	..	1451712.4	2797187.2
1917	1961322.4	.	10000.0	710119.3	2681441.7	4075550.3
1918	2489145.3	.	10000.0	2114728.0	4613873.3	6324423.0
1919	4215031.9	.	10000.0	2114728.0	6339759.8	9104113.6
1920	9485557.8	.	10000.0	..	9495557.8	14883916.4
1921	13722231.5	20000.0	..	..	13742231.5	21025458.2
1922	15162053.2	20000.0	..	..	15182053.2	27070957.2
1923	17916829.4	20000.0	..	..	17936829.4	30839776.4
1924	19356437.9	420000.0	..	..	19776437.9	35393544.2
1925	20126370.0	420000.0	..	..	20546370.0	43105161.6
1926	20950547.3	420000.0	..	..	21370547.3	48742972.7
1927	21026262.8	420000.0	..	..	21446262.8	54600840.7
1928	21211480.6	420000.0	..	..	21631480.6	59757663.6
1929	21144156.4	417800.0	..	..	21561956.4	64784456.0
1930	19604584.3	1414000.0	..	..	21018584.3	68562422.7
1931	23750390.5	2232000.0	..	..	25982390.5	58308613.3
1932	21593949.9	3682000.0	..	..	25275949.9	53394508.7
1933	21218861.0	3653000.0	..	..	24871861.0	51664778.6
1934	22306939.0	3599000.0	..	..	25905939.0	49474733.3
1935	23127215.5	3567000.0	..	..	26694215.5	52831563.6
1936	25662512.9	4475000.0	..	..	30137512.9	55613081.2
1937	29390893.6	4748000.0	..	..	34138893.6	63052270.2
1938	34901649.0	4565000.0	..	..	39466649.0	67064584.6
1939	48799991.5	7146000.0	..	..	55945991.5	80652622.7
1940	64348700.7	8434000.0	..	..	72782700.7	101326273.7
1941	96650376.6	6372000.0	2793000.0	..	105815376.6	147009482.6
1942	117351047.6	8984000.0	4249000.0	..	130584047.6	195098497.6
1943	160015607.2	14126000.0	103000.0	..	174244607.2	248274607.2
1944	356892920.5	16666000.0	117000.0	..	373675920.5	445174920.5
1945	1212924519.0	18031000.0	1491000.0	..	1232446519.0	1375820519.0
1946	6117602630.0	270875000.0	8768000.0	..	6397245630.0	6821247630.0
1947 (14 August)	48451600000.0	.	..	..	.	.

TABLE R02.1\_D Discount rate, 1880–1947

Discount rate				Discount rate			
Year	Date	Month	RO2A_D	Year	Date	Month	RO2A_D
1880	1	Dec.	5	1907	27	Oct.	8
1881	6	Feb.	4		29	Dec.	7
1884	29	Nov.	5	1908	10	Jan.	6
1887	30	Sept.	6		28	Feb.	5
1890	1	April	5	1912	19	Oct.	6
1892	25	Feb.	6	1914	1	May	5.5
1893	13	March	5		18	July	6
	20	Nov.	6		25	July	7
1894	6	Aug.	7		25	Aug.	6
	1	Oct.	6	1916	1	May	5
1895	15	April	5	1920	1	June	6
1898	8	Oct.	5	1929	3	May	8
1899	1	Jan.	5		14	May	9.5
	25	June	6		26	Nov.	9
	1	July	7	1931	1	April	8
	1	Oct.	8	1932	4	March	7
	10	Dec.	9	1933	5	April	6
1900	19	Feb.	8	1934	15	Dec.	4.5
1901	1	April	7	1938	5	May	3.5
1902	1	Feb.	6	1940	12	Sept.	3
	14	Aug.	5	1944	8	May	4
1907	30	Aug.	6	1947	15	Aug.	7
	19	Sept.	7				

TABLE R02.2\_D Lombard rate, 1880–1947

continue

Lombard rate				Lombard rate			
Year	Date	Month	RO2B_D	Year	Date	Month	RO2B_D
1880	1	Dec.	6	1899	30	June	8
	17	Dec.	7		30	Sept.	9
1881	17	Jan.	6		10	Dec.	10
	5	Feb.	5	1900	18	Feb.	9
1883	15	June	4	1901	29	March	8
1884	7	Nov.	5	1902	31	Jan.	7
	28	Nov.	6		14	Aug.	6
1887	29	Sept.	7	1906	23	March	5
	31	March	6	1907	30	Aug.	6
1890	12	Oct.	5.5		19	Sept.	7
	13	Dec.	6		27	Oct.	8.5
1892	24	Feb.	7		29	Dec.	7.5
1893	12	March	6	1908	10	Jan.	6.5
	19	Nov.	7		28	Feb.	5.5
1894	5	Aug.	8	1912	13	Jan.	5
	30	Sept.	7		19	Oct.	6
1895	14	April	6	1914	18	July	7
1898	7	Oct.	7		25	July	8
	21	Jan.	6		25	Aug.	7
1899	25	June	7	1916	30	April	6

TABLE R02.2\_D Lombard rate, 1880–1947

Lombard rate				Lombard rate			
Year	Date	Month	RO2B_D	Year	Date	Month	RO2B_D
1920	1	June	7	1934	15	Dec.	5.5
	3	May	9	1937	18	Nov.	5
1929	14	May	10.5	1938	5	May	4.5
	26	Nov.	10	1940	12	Sept.	4
1931	1	April	9	1944	8	May	5
1932	4	March	8	1947	14	Aug.	8
1933	5	April	7				

TABLE R03\_A Exchange rates, 1880–1947

continue

Year	Leu/French franc		Leu/Pound sterling		Leu/Mark (Reichsmark)	Leu/US dollar		Leu/Swiss franc		Agio RO3J_A
	without premium	with premium	without premium	with premium	without premium	without premium	with premium	without premium	with premium	
	RO3A_A	RO3B_A	RO3C_A	RO3D_A	RO3E_A	RO3F_A	RO3G_A	RO3H_A	RO3I_A	
1880	.	..	.	..	.	..	..	..	..	2.938
1881	.	..	.	..	.	..	..	..	..	1.063
1882	1.000	..	25.218	..	1.234	..	..	..	..	1.767
1883	1.000	..	25.227	..	1.233	..	..	..	..	2.348
1884	1.002	..	25.251	..	1.237	..	..	..	..	6.783
1885	1.004	..	25.228	..	1.240	..	..	..	..	13.095
1886	1.002	..	25.302	..	1.239	..	..	..	..	15.483
1887	1.004	..	25.413	..	1.246	..	..	..	..	16.208
1888	1.002	..	25.368	..	1.243	..	..	..	..	10.350
1889	1.000	..	25.211	..	1.233	..	..	..	..	2.908
1890	1.001	..	25.230	..	1.237	..	..	..	..	0.178
1891	1.001	..	25.249	..	1.235	..	..	..	..	..
1892	1.003	..	25.251	..	1.238	..	..	..	..	..
1893	1.003	..	25.284	..	1.239	..	..	..	..	..
1894	1.007	..	25.331	..	1.241	..	..	..	..	..
1895	1.004	..	25.323	..	1.238	..	..	..	..	..
1896	1.003	..	25.280	..	1.238	..	..	..	..	..
1897	1.004	..	25.277	..	1.240	..	..	..	..	..
1898	1.002	..	25.327	..	1.239	..	..	..	..	..
1899	1.018	..	25.677	..	1.255	..	..	..	..	..
1900	1.013	..	25.483	..	1.245	..	..	..	..	..
1901	1.009	..	25.373	..	1.243	..	..	..	..	..
1902	1.004	..	25.251	..	1.235	..	..	..	..	..
1903	1.005	..	25.274	..	1.237	..	..	..	..	..
1904	1.008	..	25.367	..	1.242	..	..	..	..	..
1905	1.007	..	25.347	..	1.239	..	..	..	..	..
1906	1.007	..	25.350	..	1.238	..	..	..	..	..
1907	1.008	..	25.400	..	1.239	..	..	..	..	..
1908	1.013	..	25.442	..	1.242	..	..	..	..	..
1909	1.007	..	25.351	..	1.239	..	..	..	..	..
1910	1.004	..	25.335	..	1.238	..	..	..	..	..
1911	1.001	..	25.274	..	1.236	..	..	..	..	..
1912	1.006	..	25.402	..	1.240	..	..	..	..	..

TABLE RO3\_A Exchange rates, 1880–1947

Year	Leu/French franc		Leu/Pound sterling		Leu/Mark (Reichsmark)	Leu/US dollar		Leu/Swiss franc		Agio
	without premium	with premium	without premium	with premium	without premium	without premium	with premium	without premium	with premium	
	RO3A_A	RO3B_A	RO3C_A	RO3D_A	RO3E_A	RO3F_A	RO3G_A	RO3H_A	RO3I_A	
1913	1.017	..	25.703	..	1.255	..	..	..	..	..
1914	1.010	..	25.446	..	1.244	..	..	..	..	..
1915	..	..	..	..	..	..	..	..	..	..
1916	..	..	..	..	..	..	..	..	..	..
1917	..	..	..	..	..	..	..	..	..	..
1918	..	..	..	..	..	..	..	..	..	..
1919	..	..	..	..	..	..	..	..	..	..
1920	4.168	..	203.497	..	..	54.810	..	9.690	..	..
1921	6.623	..	342.498	..	..	88.908	..	15.584	..	..
1922	12.218	..	660.987	..	..	148.095	..	28.564	..	..
1923	12.535	..	944.021	..	..	209.567	..	37.967	..	..
1924	10.666	..	897.103	..	47.084	203.118	..	37.136	..	..
1925	9.993	..	1007.020	..	49.515	208.380	..	40.423	..	..
1926	7.122	..	1065.789	..	52.342	220.079	..	42.604	..	..
1927	6.607	..	816.897	..	39.204	167.179	..	32.397	..	..
1928	6.440	..	797.786	..	39.126	163.741	..	31.616	..	..
1929	6.580	..	815.563	..	40.015	166.771	..	32.397	..	..
1930	6.631	..	817.152	..	40.145	168.053	..	32.621	..	..
1931	6.596	..	768.783	..	39.968	168.016	..	32.599	..	..
1932	6.590	..	592.952	..	40.014	167.781	..	32.684	..	..
1933	6.590	..	564.105	..	40.554	141.177	..	32.800	..	..
1934	6.628	..	514.006	..	40.686	109.212	..	32.817	..	..
1935	6.638	..	492.985	..	41.170	102.387	..	32.773	..	..
1936	6.164	8.508	501.843	692.538	40.565	102.360	141.258	30.445	41.998	..
1937	4.143	5.719	502.427	693.376	39.274	102.017	140.776	23.085	31.856	..
1938	2.964	4.093	496.518	685.195	39.115	101.540	140.123	23.227	32.067	..
1939	2.653	3.658	466.840	643.739	41.500	103.978	143.491	23.483	32.406	..
1940	2.394	3.303	422.243	826.268	50.000	104.911	205.288	23.735	45.345	..
1941	2.380	3.283	416.941	813.803	57.500	103.365	201.265	23.564	45.992	..
1942	2.895	3.270	..	..	60.000	..	..	23.463	44.570	..
1943	3.000	..	..	..	60.000	..	..	23.460	44.570	..
1944	3.000	..	..	..	60.000	..	..	23.460	44.570	..
1945	3.000	..	423.573	14683.710	..	102.640	3643.600	23.910	570.693	..
1946	3.000	137.063	423.850	61103.694	..	102.640	16314.206	23.910	3730.836	..
1947	3.000	1705.954	423.850	818450.830	..	108.935	203089.535	27.411	46443.817	..

TABLE RO4\_A Government finances, 1880–1947

continue

(thousands of LMU lei; end-of-year)

Year	Ordinary budget revenue	Direct taxes	Indirect taxes	Extra- ordinary budget revenue	Ordinary budget expenditure	Extra- ordinary budget expenditure	Public debt service	Domestic and foreign public debt	Domestic public debt	Foreign public debt
	RO4A_A	RO4B_A	RO4C_A	RO4D_A	RO4E_A	RO4F_A	RO4G_A	RO4H_A	RO4I_A	RO4J_A
1880	145045.0	23439.1	44267.5	..	149560.0	..	43575.0	..	..	..
1881	123182.0	28153.3	51343.9	..	135974.9	..	44516.0	..	..	..

TABLE RO4\_A Government finances, 1880–1947

continue

(thousands of LMU lei; end-of-year)

Year	Ordinary budget revenue	Direct taxes	Indirect taxes	Extra-ordinary budget revenue	Ordinary budget expenditure	Extra-ordinary budget expenditure	Public debt service	Domestic and foreign public debt	Domestic public debt	Foreign public debt
	RO4A_A	RO4B_A	RO4C_A	RO4D_A	RO4E_A	RO4F_A	RO4G_A	RO4H_A	RO4I_At	RO4J_A
1882	141815.9	27077.6	53170.7	..	136854.2	..	42238.0	.	.	.
1883	134696.0	24532.8	57274.8	..	135557.9	..	45800.0	.	.	.
1884	115243.4	24621.1	51267.8	..	130364.0	..	48564.0	.	.	.
1885	124478.4	24692.1	55226.9	..	129971.6	..	50521.0	.	.	.
1886	136769.6	27620.8	60924.5	..	129418.9	..	54330.0	.	.	.
1887	139569.6	.	.	..	140093.0	..	61411.0	.	.	.
1888	161802.2	.	.	..	161173.5	..	66015.0	765890.0	.	.
1889	159849.9	27989.0	38521.3	..	158770.9	..	62780.0	.	.	.
1890	170353.8	28936.4	43306.2	..	162116.9	..	61578.0	.	.	.
1891	180147.1	29467.0	51317.5	..	168404.9	..	61441.0	968804.7	.	.
1892	182095.6	29363.9	52827.5	..	178532.0	..	65330.0	1043779.7	.	.
1893	207071.2	29991.3	65219.0	..	186735.0	..	68135.0	1032119.1	.	.
1894	192721.7	32408.1	56064.9	..	203087.2	..	70263.0	1069640.8	.	.
1895	194750.8	32813.4	55624.6	..	211406.0	..	73975.0	1275569.0	.	.
1896	211828.4	33576.2	57718.8	..	208610.4	..	76477.0	1164532.5	.	.
1897	210591.4	33591.1	63928.9	..	217088.1	..	79215.0	1238230.2	.	.
1898	236339.6	33568.2	79444.3	..	224773.4	..	81807.0	1222123.5	.	.
1899	193957.9	34039.2	55663.7	..	229362.8	..	85757.0	1469369.0	.	.
1900	209549.3	.	.	..	236793.4	..	92772.0	1448941.3	.	.
1901	237242.5	45307.6	63555.1	..	216025.3	..	86240.0	.	.	.
1902	248469.8	47882.6	52942.5	..	216140.0	..	86441.0	1413339.4	.	.
1903	246759.3	44534.2	46994.2	..	218090.5	..	86411.0	1403839.6	.	.
1904	231504.0	42402.1	42358.6	..	225028.3	..	86732.0	1382734.1	.	.
1905	278727.5	44326.6	60590.5	..	233281.1	..	87235.0	.	.	.
1906	292356.2	47271.1	66125.7	..	239435.8	..	83350.0	.	.	.
1907	331517.1	44412.0	79931.4	..	269180.2	..	84950.0	.	.	.
1908	446317.4	39164.4	78767.5	..	394779.8	..	84950.0	.	.	.
1909	458886.9	39958.6	77868.5	..	417966.1	..	87953.0	.	.	.
1910	506656.0	47347.5	83865.3	..	448007.0	..	97758.0	.	.	.
1911	575056.5	48305.9	110730.7	..	464664.9	..	99419.0	1576616.9	.	.
1912	587071.4	47487.1	108952.3	..	487591.0	..	99405.0	1585684.5	.	.
1913	608502.9	48197.0	114987.8	..	512253.7	..	106288.0	1630592.2	.	.
1914	567798.0	52616.5	83758.1	..	539703.3	..	116369.0	1866523.0	.	.
1915	662437.0	.	.	..	542558.0	..	.	.	.	.
1916	363556.5	.	.	..	831063.0	..	.	2698950.3	814477.7	1884472.6
1917	104928.3	.	.	..	820519.0	..	.	.	.	.
1918	421038.7	.	.	..	1694210.0	..	.	.	.	.
1919	2002784.2	.	.	..	5205000.0	..	.	.	.	.
1920	4099570.0	.	.	..	7406000.0	..	.	.	.	.
1921	6678100.2	689975.4	2973023.2	..	6818271.4	2301387.6	.	20451808.0	15924408.0	4527399.9
1922	14194000.0	1163887.9	6247728.2	..	10468108.2	3813366.7	408100.0	.	.	.
1923	17767754.1	2235512.0	8192932.6	..	13639002.5	6688580.4	2659900.0	.	.	.
1924	27426439.5	3206926.1	11240648.1	..	21403638.9	7912646.3	3365600.0	31485626.1	31453252.7	32373.3
1925	33978447.4	4223923.5	10667680.4	..	29439951.4	13045953.1	3674400.0	.	.	.
1926	31224228.5	4900940.5	12907449.9	..	28499342.8	6539589.2	4654500.0	.	.	.
1927	36007521.5	7499758.6	14887795.5	..	33136742.9	2952358.0	5955500.0	126068147.2	26488244.8	99579902.4



TABLE RO4\_A Government finances, 1880–1947

(thousands of LMU lei; end-of-year)

Year	Ordinary budget revenue	Direct taxes	Indirect taxes	Extra-ordinary budget revenue	Ordinary budget expenditure	Extra-ordinary budget expenditure	Public debt service	Domestic and foreign public debt	Domestic public debt	Foreign public debt
	RO4A_A	RO4B_A	RO4C_A	RO4D_A	RO4E_A	RO4F_A	RO4G_A	RO4H_A	RO4I_A	RO4J_A
1928	32767839.8	7553612.2	10973911.1	..	35223580.4	2100000.0	5816000.0	.	.	.
1929	36018491.3	8885013.2	10855843.7	..	34607024.8	400000.0	6403200.0	160221278.3	21677783.3	138543495.0
1930	31155000.0	8661000.0	9409000.0	..	31578538.2	.	6851600.0	.	.	.
1931	27713132.4	8418232.5	7156732.1	..	34702492.1	.	6447000.0	185526481.3	12978613.2	172547868.1
1932	23007621.8	5454945.4	8051230.4	1854615.4	24891097.4	1038628.0	6863000.0	.	.	.
1933	18364335.1	3456641.0	7516654.9	1441298.7	20741147.4	1207387.1	4540000.0	97000000.0	13500000.0	83500000.0
1934	18801614.3	3610494.3	7206219.7	3541686.5	19863780.6	4227083.5	2248700.0	.	.	.
1935	21167770.3	3939520.6	6959977.0	8760274.5	20699200.0	6189657.2	2954000.0	99390760.0	19005037.6	80385722.5
1936	24503768.5	4266382.5	9071794.9	2679244.7	23059900.0	3452205.4	3509900.0	108042535.0	28653308.6	79389226.3
1937	27387045.2	4992915.2	10371807.6	3061323.4	26762400.0	4059204.7	3702000.0	108449171.1	29970783.6	78478387.5
1938	31648651.9	7520047.2	12269593.1	3794494.6	30287000.0	4502965.6	3931000.0	112267290.1	33869211.2	78398079.0
1939	35109343.3	7060224.9	13960262.4	9438618.9	31649928.8	8389661.2	4025000.0	104127428.1	35228147.8	68899280.2
1940	40977050.3	7642736.0	15318576.0	63937906.5	36310610.2	59581017.5	7123000.0	97772168.5	34441457.7	63330710.8
1941	66762591.4	11051711.3	26359758.0	90687433.8	42318803.1	74042988.0	2260300.0	94600162.2	31442665.7	63157496.5
1942	112819920.9	16726983.6	46261571.0	158360013.7	68872886.7	131171113.2	4779000.0	91170928.5	36734438.2	54436490.3
1943	214448160.6	32124015.9	76825724.2	41432000.0	166938098.4	.	4287700.0	99769399.8	54135892.4	45633507.4
1944	222501000.0	.	.	.	191297000.0	.	4528500.0	100009462.3	54694160.1	45315302.2
1945	1060769000.0	.	.	.	1423269000.0	.	14932000.0	98936752.5	53640721.0	45296031.5
1946	6359890000.0	.	.	.	7782866000.0	.	19700000.0	129013246.4	83785652.5	45227593.9
1947	.	.	.	.	.	.	.	124960495.5	79734196.3	45226299.2

TABLE RO5\_A Prices, production and unemployment, 1919–1947

Year	Retail price index (1929=100)	Industrial production general index (1929=100)	Unemployment (number of people)	Year	Retail price index (1929=100)	Industrial production general index (1929=100)	Unemployment (number of people)
	RO5A_A	RO5B_A	RO5C_A		RO5A_A	RO5B_A	RO5C_A
1919	.	27.90	.	1934	52.79	123.30	17253.0
1920	.	33.30	.	1935	56.86	128.90	13778.0
1921	31.14	43.20	.	1936	61.12	133.50	13549.0
1922	39.60	58.00	.	1937	67.22	138.80	10851.0
1923	62.42	64.40	.	1938	74.58	141.20	7268.0
1924	75.28	70.40	.	1939	77.85	138.90	.
1925	83.47	74.50	.	1940	110.51	112.60	.
1926	94.22	83.50	.	1941	.	107.50	.
1927	100.20	88.70	.	1942	.	110.20	.
1928	99.86	97.40	10535.0	1943	.	119.90	.
1929	99.98	100.00	7449.0	1944	.	80.90	.
1930	88.36	98.10	23367.0	1945	.	89.70	.
1931	72.70	90.90	35737.0	1946	.	89.90	.
1932	62.20	96.90	38958.0	1947	.	89.50	.
1933	56.10	110.40	29060.0				

TABLE RO6\_A GDP, foreign trade and population 1880–1947

continue

Year	GDP at current prices (millions)	Imports		Exports		Population
	RO6A_A	value	in tons	value	in tons	
	RO6A_A	RO6B_A	RO6C_A	RO6D_A	RO6E_A	RO6F_A
1880	1779.9	255336	310975	218919	1324090	4.55
1881	1328.7	274758	398839	206518	1556226	4.62
1882	1730.3	268852	407703	244730	1809542	4.69
1883	1562.6	359907	592919	220650	1603481	4.78
1884	1273.8	294986	575386	184116	1323783	4.86
1885	1503.8	268539	571183	247968	1797170	4.96
1886	1658.8	296497	571664	255547	1704930	5.05
1887	1529.3	314681	414243	265727	1805216	5.11
1888	1614.3	310378	453243	256789	1951905	5.18
1889	1654.9	367944	485439	274167	2236943	5.26
1890	1692.2	362791	553938	275958	2220944	5.32
1891	1711.2	436683	702604	274663	2054606	5.39
1892	1727.0	380747	653370	285384	1959301	5.42
1893	1577.3	430490	727125	370652	2895490	5.49
1894	1633.0	422142	718272	294198	2071161	5.54
1895	1605.6	304575	617229	265048	2040729	5.64
1896	1720.2	337923	656077	324057	2660467	5.71
1897	1539.4	355783	693819	224180	2082245	5.80
1898	1936.3	389908	882902	283182	2644192	5.86
1899	1397.0	333268	789789	149120	1300864	5.96
1900	1879.9	216986	412105	280000	2047223	6.05
1901	1956.0	292436	484368	353831	2984859	6.13
1902	1958.3	283345	462333	374819	3318260	6.19
1903	2076.6	269924	470075	355630	3238186	6.29
1904	1653.5	311372	525294	261872	2269108	6.49
1905	2392.5	337538	731039	457101	3463945	6.48
1906	2689.1	422114	734352	491360	4213331	6.58
1907	2241.4	430509	934792	554019	4199963	6.68
1908	2514.3	414058	871190	379431	2822725	6.77
1909	2548.6	368300	716020	465057	3297254	6.86
1910	3265.9	409716	771516	616505	4488628	6.97
1911	3236.6	569745	986300	691720	5390280	7.09
1912	3353.7	637906	1213957	642104	4326735	7.16
1913	3508.0	590013	1374116	670705	4569076	7.35
1914	3085.7	504241	1145298	451891	3127449	7.77
1915	.	332942	290607	570182	1412683	7.90
1916	.	.	.	.	.	.
1917	.	.	.	.	.	.
1918	.	.	.	.	.	.
1919	.	3762300	413939	104385	109140	14.67
1920	4864.3	6980290	304485	3447848	1467118	15.54
1921	70140.6	12145405	615451	8263009	2713138	15.73
1922	108935.5	12325366	583668	14039296	4069963	15.97
1923	169830.2	19516026	699124	24594129	4900734	16.21
1924	198341.9	26264582	825754	28361044	4833419	16.45
1925	234955.4	29912645	899925	29126824	4663892	16.69
1926	265749.7	37195415	924442	38264805	6117781	16.93
1927	272816.3	33852131	1008069	38110810	7337087	17.15
1928	272082.2	31640956	952808	27029728	5886405	17.39
1929	284466.8	29628038	1101992	28960005	7064619	17.64
1930	286823.5	23044163	805233	28522028	9214754	18.06

TABLE RO6\_A GDP, foreign trade and population 1880–1947

Year	GDP at current prices (millions)	Imports		Exports		Population
	RO6A_A	value	in tons	value	in tons	
	RO6A_A	RO6B_A	RO6C_A	RO6D_A	RO6E_A	RO6F_A
1931	232170.5	15754569	560366	22196914	10047003	18.17
1932	173778.5	12011325	449980	16721593	9056959	18.43
1933	164242.9	11741850	466962	14170828	8777730	18.65
1934	163880.3	13208543	635868	13655734	8854096	18.91
1935	188626.0	10847530	533268	16756223	9276009	19.09
1936	213202.7	12637698	630443	21703391	10548913	19.32
1937	254973.7	20284748	709415	31568357	9637497	19.54
1938	255073.2	18767830	820603	21532580	7409084	19.75
1939	295972.5	22890474	739040	26809349	7564146	19.93
1940	259134.7	27410762	522035	36779900	5374348	15.91
1941	470854.4	30576100	392000	41286400	4821000	.
1942	715028.0	44906600	911000	52816300	3975000	.
1943	1100452.9	94883600	1259000	71132400	3652000	.
1944	1311893.2	42337200	694000	53040100	2204000	.
1945	6972992.0	4325600	831000	2917300	222000	.
1946	39933440.8	117852800	3099000	74566400	846000	15.79
1947	492409114.8	408800	723000	228600	751000	.



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# VII

## Serbia/Yugoslavia: from 1884 to 1940

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### I MAJOR MONETARY EVENTS

#### SERBIA<sup>2</sup>

Serbia introduced national coinage, with a view to re-establishing a national monetary system, while still formally under the monetary sovereignty of the Ottoman Empire. National coinage started in 1868, when the government minted copper coins of low denominations with the aim of withdrawing foreign copper coins from circulation.<sup>3</sup> A further step in monetary reform was the re-introduction of the national currency minting. The first issue to be resolved was the choice of a monetary standard.

Although the initial intention was to introduce the gold standard, the current state of the Serbian economy did not support such a move. Serbia at the time was a developing country mainly engaged in agricultural production. Trade and industry were still in their early stages of development. Almost all industrial products were imported from the neighbouring Austro-Hungarian Empire, which at the same time imported most of Serbia's exports, primarily cattle and agricultural products. Besides, the country had tiny gold reserves which would constrain money supply. It was therefore more realistic to consider either bimetallism or silver monometallism as the country's new monetary standard.<sup>4</sup>

The introduction of the coinage legislation indicated that Serbia decided to follow the bimetallic system of France and other member countries of the Latin Monetary Union (LMU). It was expected that reliance on this system would provide both monetary stability and flexibility of money supply. The 1873 Law on Minting Serbian Silver Coins set the dinar silver coin at par with the French franc as the national monetary unit. The fineness and weight of silver, the dimensions of the currency and the metric system, as well as the government's exclusive right of minting were determined in accordance with the provisions of the LMU.<sup>5</sup> Soon after putting silver coins into circu-

<sup>1</sup> *Directorate for Economic Research and Statistics*. The chapter extends earlier data releases of the South-eastern European historical database edited by the OeNB, *Proceedings of OeNB Workshops no. 13* (2008) and the Bank of Greece, *Working Paper no. 94* (2009). We are grateful to Sophia Lazaretou, Matthias Morys, Thomas Scheiber, Jobst Clemens, Dragana Gnjatović and other members of the SEEMHN for their thoughtful comments and suggestions. Special thanks are due to Dragan Stankov, Miodrag Jović, Olivera Jovanović and Marija Nenadović from the Directorate for Economic Research and Statistics of the NBS for their contribution to the preparation of the database. Finally, we wish to thank the *Archive* and the *Library* of the National Bank of Serbia for kindly providing their material. The views expressed here are those of the authors and do not necessarily reflect those of the National Bank of Serbia. We are responsible for the remaining errors.  
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<sup>2</sup> Serbia refers to the Principality of Serbia until 1882 and the Kingdom of Serbia from 1882 to 1918.

<sup>3</sup> About 43 foreign currencies were in circulation in the internal money market: 10 types of gold, 28 types of silver and 5 types of copper coins. All foreign currencies were divided into two main groups: the Caesarean (European) and Turkish group. The Caesarean money, especially Austrian money, was deemed better and 'cleaner', which is why the Austrian ducats and florins circulated widely.

<sup>4</sup> See Gnjatović (2006).

<sup>5</sup> The law prescribed that the minted silver dinar coin should be of fineness of 835/1000 (tolerance 3/1000) and weight of 5 grams. According to the letter of the 1875 law, silver coins in denominations of 2, 1 and 0.5 dinars were minted in Vienna and were put into circulation considering 1875 as the year of coinage.

lation, foreign silver coins of lower value started being withdrawn and thus circulation was reduced by one third on average, based on the dinar exchange rates as last modified in April 1866.

The coinage reform gained momentum once Serbia was recognised as a sovereign state. The 1878 Law on Serbian National Currency prescribed minting of 20- and 10-dinar gold coins, as well as minting of silver and copper coins of small value. The legislation adopted the bimetallic ratio between gold and silver of 1:15.5 and again confirmed the intention of the Serbian authorities to develop a monetary system similar to that of the LMU. By the time the law was passed, all member countries of the LMU had already restricted free coinage of silver and moved to a ‘limping gold standard’ (or ‘incomplete bimetallicism’<sup>6</sup>). A similar provision was included in the Serbian Law as well. However, contrary to the LMU coinage system, it was envisaged that the government alone should have the right to mint not only silver and copper, but also gold coins. Although Serbia adopted the LMU coinage system, it had never joined formally the LMU. It applied for membership three times in 1874, 1879 and 1880, but was rejected on all occasions.

At that time, domestically-minted coins amounted to 24.7 million dinars: in gold (40.4%), silver (38.8%), nickel (12.9%) and copper (7.8%). However, the quantity of money that circulated in specie was greater. The circulation of foreign coins and their evaluation by official tariffs continued even after Serbia had started to mint its own coins. There were still a substantial number of Austrian ducats, florins, thalers and other foreign coins in circulation. Foreign currency inflows mainly occurred during autumn, as payment for Serbian [agricultural] exports. The disproportion between gold coins and coins made of other metals, which were used for domestic payments only, caused the appearance of an agio (*ажуја*)<sup>7</sup> on gold and complicated money transactions. It is well-known that in the metallic monetary systems, with a fixed exchange rate within the margins of 1% around the mint parity, the agio was an indicator of the depreciation rate of the national currency. The agio equalled 5–6% in 1866, 5% in 1875 and 3–4% in 1880.<sup>8</sup>

Meanwhile, bank credit was hard to get, and banks in Belgrade charged borrowers 11% and 12% per annum, while in provincial Serbia they charged much higher rates. Most households were unable to borrow from banks, and usurers often charged rates as much as 50% higher. It was thus necessary to make credit easier and provide greater flexibility of money supply. On the eve of the First Serbian-Turkish War, the budget was in difficulty and paper money issue was deemed necessary. Even though a decision was enacted in January 1876, the money printed in July was never put into circulation.

A roadmap for further reform called for the establishment of a bank of note issue that would address all matters related to the currency and provide credit for the development of trade and production. The issue of convertible banknotes was the main instrument for achieving this goal. In late 1882, the Assembly of the Kingdom of Serbia adopted the Law on the National Bank of Serbia (NBS), under which the bank of note issue was established as a privileged private institution in the form of a joint-stock company under strict government control. The government’s representative in the management of the NBS could veto any decision of the bank. The prevalent view was that the bank should be established with private capital, but the issue of whether the capital should be domestic, foreign or mixed remained outstanding. This was resolved at the Conference of May 1883, which was attended by approximately 150 most reputable merchants and entrepreneurs from

<sup>6</sup> Contrary to ‘complete’ or ‘full-fledged bimetallicism’, which implies the free minting of both silver and gold coins, ‘incomplete bimetallicism’ implies only the free minting of gold coins.

<sup>7</sup> See the Section on the exchange rates.

<sup>8</sup> For details, see the Monograph of the National Bank 1884–1934 (1935), p. 38.

across Serbia. After a long debate, it was decided that the bank would be established with domestic capital only.<sup>9</sup> The Privileged National Bank of the Kingdom of Serbia (NBS; *Привилегована народна банка Краљевине Србије*) started operations in 1884.

The bank was designated as: the issuer of the currency, the main provider of credit to the economy and the banker to the government. The NBS's issue activity was dominated by a metallic monetary standard in which two precious metals, namely gold and silver, were used to back paper notes: silver-backed banknotes were redeemable on demand at the bank's cash desk for silver, and gold-backed banknotes for gold, at full face value without any discount. At first, the idea was to issue only banknotes redeemable in gold. The first gold-backed banknote was issued right after the establishment of the NBS in 1884. When founded, the NBS was vested with the authority to issue the 100-dinar gold-backed banknotes, and later 50, 500 and 1000-dinar gold-backed banknotes. However, the 100-dinar gold-backed banknotes were not very well received and did not remain in circulation for long, but rather were immediately converted into gold. Non-acceptance was due to several reasons: their denomination was too high; domestic trade was based on barter; public had low confidence in domestic money; and the agio on gold was high (4% in that year).<sup>10</sup> It was thus expected that a banknote of a lower denomination such as the 50-dinar would manage to remain in circulation. However, such a banknote, placed into circulation in February 1885, was not received any better; it was exchanged for coins immediately and therefore it was soon taken out of circulation and returned to the bank.

As it became apparent, neither of the two gold-backed banknotes could remain in circulation, and the NBS requested permission to issue 10-dinar gold-backed banknotes. This met with more opposition than expected, because the government had intended to issue by itself a gold-backed note of the same denomination. Therefore, in 1885 the NBS issued a silver-backed 10-dinar banknote.

The quantity of the silver-backed notes in circulation kept rising and gained prevalence over gold-backed ones. On average, silver-backed notes made up 95% of total note circulation. They were rarely converted into silver, and when they were, it was mainly due to the shortage of small change. Therefore, demand for money was satisfied mainly with the silver-backed notes and silver coins (used exclusively as change money), whereas gold coins, of which only a small quantity was in circulation, were used in foreign payments.

The increase in banknote circulation was usually followed by a rise in the agio on gold. As the agio was charged on gold purchased in exchange for silver-backed banknotes, the rise in the agio was attributed to the large amount of silver-backed banknotes in circulation, which remained unlimited until 1893, when the government came to interpret the law as setting an upper limit on their issue. It had been proven, however, increasingly restrictive and was raised several times in the following years. The NBS dismissed the allegations concerning the rise in the agio and opposed the limitation of silver-backed note circulation. It pointed out that 'agio was not so much a consequence of the issue of silver-backed notes as of the deficit on the country's external account balance and poor government finances; for the agio to be eliminated and the currency exchange rate to return to normal overall economic circumstances need to improve'.<sup>11</sup>

<sup>9</sup> The principle proposal was the establishment of the bank with foreign capital. Common belief was that domestic capital was inadequate. Truly, some of the more affluent merchants endeavoured to convince the government against the feasibility of establishing the bank with domestic capital only. However, protests against foreign capital were voiced in the domestic press throughout 1882; this came as a result of the bad experience and rather costly repercussions of the bankruptcy the same year of the General Union, which was building the Belgrade-Nis railway.

<sup>10</sup> See the Monograph of the National Bank 1884–1934 (1935), p. 38.

<sup>11</sup> See the Monograph of the Privileged National Bank of the Kingdom of Serbia 1884–1909 (1909), p. 155.

During the export season, gold flowed into the country but it quickly flowed back out since almost all industrial products were imported. After 1888, Serbia began to enjoy gold inflows as trade was growing. Significant inflows also arose from the transit of foreign goods through Serbia, which picked up in the second half of the 1880s when the new railway system was built. However, ever larger repayments on the foreign public debt resulted in a deficit on the balance of payments and a gold outflow, which was reflected on the agio rates.

Over the whole period under review, the NBS's interest rates were lower than the market interest rates and were not used as an instrument to contain pressure on gold reserves. Instead, the bank directly intervened in the market by purchasing or selling gold. It purchased gold during the autumn season, when there was enough of it in circulation, and sold gold usually in March, when it was scarce and the agio went up. The agio peaked between 1893 and 1903 primarily as a result of the high budget deficits, unprecedented over a span of 25 years (1878–1903). Deficit financing through borrowing both foreign and domestic, notably from the NBS, resulted in the emergence of serious vulnerabilities which adversely affected currency stability.

The growing foreign debt service was a severe burden on the country's budget. In the mid-1890s, it seemed that Serbia would not be able to avoid a default on its foreign debt obligations. The government chose an aggressive stance towards with foreign bondholders. In June 1895, an agreement was concluded between Serbia and three banks (the Ottoman Bank, Viennese Länderbank and Berliner Handels-Gesellschaft) in Carlsbad (the so-called Carlsbad arrangement). It stipulated the replacement of the outstanding 5% bonds with a new 4% bond with a longer maturity. The three banks which participated in the agreement, held only one seventh of the 5% bonds, which were converted. The other foreign bondholders stood against this agreement, but eventually were forced to accept it. The Independent Monopoly Administration (*Самостална управа монопола*) was established in order to ensure debt service payments and was in charge of collecting public revenues that guaranteed the new bonds. Four representatives of the Serbian government (the governor and the vice governor of the NBS among them) and two representatives of the foreign creditors participated in the board of directors. The debt conversion brought relief to the state Treasury, but the forced exchange of bonds harmed the reputation of Serbia as a borrower and raised serious concerns about the country's future access to foreign capital markets. Therefore, the budget crisis was prolonged until 1903, when public finances were brought under control and consequently the country's creditworthiness started to improve. Until WWI, government bonds were issued on more favourable conditions but still below par. Ultimately, Serbia successfully repaid its debt while at war (the Balkan wars and World War I).

The extension of the NBS's privilege of note issue in 1908 was of particular significance, as the Annexation Crisis and fears of war depleted the reserves of the banks. The NBS suspended lending in gold, but continued to lend in silver. In particular, to avoid a financial breakdown, the bank was allowed to issue silver-backed banknotes up to 10% of total circulation and lend 2.5 million dinars to the economy from the amount earmarked for discounting state coupons. Furthermore, in order to suppress the agio, it directly intervened in the foreign exchange market.

The agio persisted well until WWI, but it was significantly lower from 1903 onwards, as the budget gap closed, government borrowing from the NBS was reduced and goods exports and foreign capital inflows gathered pace. The ensuing period from 1909 to 1911 was marked by considerable economic progress. The economic upswing reached its peak in 1911. The country received substantial foreign capital inflows through newly founded branches of foreign banks in Belgrade, while the circulation of silver-backed banknotes hit a record of 59.2 million dinars in October and gold-



backed notes reached as much as 19.5 million. Economic progress was however abruptly interrupted once again with the outbreak of WWI in 1914.

Looking at Serbia's history from 1884 to 1914, a chain of political and war events can easily be noticed, which to a great extent determined the country's economic development process: the war with Bulgaria in 1885; the customs war against the Austro-Hungarian Empire in 1906–1911, which, albeit not an armed conflict, did have a negative effect on the economy; the Balkan Wars in 1912–1913 and finally WWI in 1914–1918. On the eve of WWI, the government suspended convertibility of banknotes into specie for the first time ever, since the inception of the NBS. The NBS was evacuated to Marseille. During the war, the bank was forced to cover the huge government expenditures by issuing banknotes on behalf of the government. Initially, the government's floating debt to the bank was gold-covered; later on, state claims abroad and letters with the French Treasury were used for cover.

**TABLE I Serbia: A Chronology of the major monetary events, 1868–1920**

Major monetary events	Dates
<b>The coinage reform aimed at re-establishing a national monetary system according to the LMU</b>	<b>1868–1878</b>
– Serbian copper coins and demonetisation of foreign copper coins.	1868
– The dinar became legal tender; it was a 5 gram silver coin at par with the French franc (towards a 'limping gold standard of the LMU').	1873
– Dinar gold coins in circulation; government alone had the right to mint ('incomplete bimetallism').	1878
<b>'Bimetallistic' paper money system</b>	<b>1884–1914</b>
– Foundation of the NBS with domestic private capital and under strict state control; it was granted the privilege of note issue control.	1884
– Gold-backed dinar notes were issued.	1884–1885
– Silver-backed dinar notes were issued.	1885
An upper limit on the issue of the silver-backed notes was set to remove the agio.	1893–1914
Sovereign debt crisis and debt restructuring with no default.	1893–1895
Public finances under control.	1903
Austria-Hungary's annexation of Bosnia and Herzegovina caused a banking crisis. In response, the NBS stopped providing credit in gold.	1908
A new banking crisis erupted at the outbreak of the Balkan wars. The NBS stopped providing credit in gold and redeemed the gold-backed banknotes up to 25% for silver until the end of the year.	1912
First-time suspension of banknote convertibility both in gold and silver at the outbreak of WWI; ban on gold outflows.	1914
The NBS in exile.	1915–1919
The NBS was renamed National Bank of the Kingdom of Serbs, Croats and Slovenians.	1920

## YUGOSLAVIA<sup>12</sup>

Following WWI, when the part of South Slavs united into a single state, the monetary system of Serbia became the base for the monetary system of the newly founded state. The Law on National

<sup>12</sup> Yugoslavia refers to the Kingdom of Serbs, Croats and Slovenians from 1918 to 1929, and the Kingdom of Yugoslavia from 1929 to 1945.

Bank passed on 26 January 1920 envisaged the transformation of the NBS into a central bank for the whole territory of the country and was named *Народна банка Краљевине Срба, Хрвата и Словенаца* (the National Bank of the Kingdom of Serbs, Croats and Slovenians). In line with the new name of the country from 1929, i.e. Kingdom of Yugoslavia, the bank changed once again its name into *Народна банка Краљевине Југославије* (the Bank of the Kingdom of Yugoslavia, NBY). Hereinafter, we will use the same abbreviation, i.e. NBY, for both of them.

Pursuant to the 1920 Law on the National Bank, the NBY was given the privilege of note issue, which covered the Kingdom's entire territory. The authorised capital was increased from 10 to 30 million dinars in gold. Although the NBY was founded as privately held joint-stock company, it was under the control of the government. The relations of the NBY with the government had been mainly along two lines: ensuring exchange policy stability and acting as the government's treasurer.

Upon the formation of Yugoslavia, it was necessary to preserve monetary stability, unify the monetary system and proclaim a single currency. The currency issue was resolved by agreement that the dinar should be the monetary unit and all other currencies should be withdrawn from circulation. The largest part concerned the Austrian crown notes<sup>13</sup> that were still printed abroad, in Vienna and Budapest, and thus their withdrawal was an urgent task. The replacement of the Austrian crowns with dinars started in February 1920. The exchange was made at the rate of 4 Austrian crowns for 1 dinar, which was reasonable due to the higher purchasing power of the dinar against the crown, the prevailing market exchange rate, the larger proportion of the dinar in the country's metallic reserves compared with the crown and the need to compensate the dinar's region for expropriation through an exchange rate applied by the Austro-Hungarian government during the war.<sup>14</sup>

Due to the replacement of the Austrian crowns, banknotes in circulation swelled by 1.28 billion dinars. For the same amount, government debt to the NBY also swelled, since the government borrowed that amount to finance monetary unification. High inflation was caused not only by the demonetisation of the Austrian crowns, but also by excessive government deficit financing by the bank. The burden of the country's reconstruction after war was heavy, taxes were poorly collected and government expenditures were financed by newly printed money. Only in 1922, when public finances were stabilised, borrowing from the NBY stopped, inflation was kept at bay and the dinar strengthened. In the following year, the NBY imposed credit restrictions in an attempt to further stabilise the currency and curb inflation. Over that time, foreign exchange policy was formulated by the Ministry of Finance and implemented by the bank. Excess demand for foreign exchange was controlled by imposing restrictions. Since December 1922, exporters had the obligation to bring into Yugoslavia export proceeds and sell one-third of them to the NBY. Importers were obliged to justify foreign currency purchases with relevant documents. The controls were aimed at building up gold and foreign exchange reserves and preventing speculative attacks on the dinar and foreign exchange outflows. The extremely restrictive monetary policy that the bank pursued in 1923 and 1924 yielded results soon.<sup>15</sup> From February 1923 to August 1925, the dinar strengthened continuously, from 5.12 Swiss francs to 9.17 against 100 dinars.

The renewal period lasted until 1925 and led to the *de facto* stabilisation of the dinar which was a pre-condition for the *de jure* stabilisation on 28 June 1931. Stabilising the currency *de jure* or legally meant establishing the value of the national currency against a certain quantity of gold. Such stabilisation required that the banknotes in circulation should be covered by a legally pre-

<sup>13</sup> The rest were dinars, Montenegrin perpers, Bulgarian leva and German marks.

<sup>14</sup> Mijatović (2014).

<sup>15</sup> Mijatović (2010).

scribed amount of gold and foreign exchange reserves. The central bank had the obligation to maintain the value of the national currency at par with other gold-currency countries by buying and selling foreign exchange at the gold parity.

Managing to maintain the exchange rate of the dinar fixed for a number of years ahead, Yugoslavia was amongst the last European countries to have *de jure* stabilised its currency. The dinar was actually stabilised in mid-1925, but legally only in 1931. In the meantime, concerns arose about the timing of stabilisation. The government initially intended to perform the legal stabilisation in 1928. In order to strengthen gold and foreign exchange reserves, it negotiated a large foreign loan with a banking consortium in London. However, the NBY took the view that all necessary pre-conditions had not been fulfilled; notably, government's fiscal position had not been sustainable (including the reduction of the government debt with the NBY) and therefore such decision should be postponed. In turn, the NBY called an extraordinary general meeting of the shareholders to adopt the necessary legislative proposals.<sup>16</sup> Nevertheless, the government's decision was postponed due to the fact that the loan agreement was not reached.

The stabilisation loan was eventually contracted on 8 May 1931 with a French banking consortium (1.025 million French francs in gold). Only on 28 June 1931, and when five years of the dinar's market stabilisation had passed, did the country join the gold-exchange standard by the Law on Money. The legal parity of the Yugoslav dinar was stipulated at 26.5 milligrams of fine gold or at 0.0912778 Swiss francs. The dinar was attached to the gold at its current value which was 9.1% of its pre-war value. The redemption of banknotes was made in gold bullion or, at the option of the NBY, in foreign exchange which was legally and freely convertible into gold. In the latter case, the delivery of the foreign exchange was made at a price which would not exceed the legal parity plus the costs of shipping gold. The NBY was obliged to redeem the banknotes with no upper limit to the amount, although the minimum amount for redemption in gold was 250,000 dinars. The NBY was also obliged to maintain reserves (both in gold and in foreign exchange) which were freely redeemable in gold at least 35% of its liabilities at sight and at the same time to maintain reserves in gold at least 25% of its liabilities at sight. Gold and foreign exchange outflows were free.

However, the gold-exchange standard in Yugoslavia lasted only 101 days. The international and European economic environment was not favourable at that time.<sup>17</sup> The financial crisis culminated in Europe in the summer of 1931. The failure of the Creditanstalt in Vienna in May caused a bank panic in Europe. Within few weeks, the banking crisis had spread to Germany and Eastern Europe. The collapse of Creditanstalt with direct and indirect substantial capital investment in Yugoslavia, triggered capital outflows of nearly 300 million dinars in the next two to three months.<sup>18</sup> With the Hoover moratorium, which ended the German obligation to pay war reparations, Yugoslavia was particularly affected with a cost of 450 million dinars in the expected net annual inflows. The British exit from the interwar gold standard in late September 1931 fed a new round of financial panic and a confidence crisis that affected the domestic banking system: about 2.1 billion or 15% of total savings were withdrawn from banks by the end of November.<sup>19</sup>

By imposing heavy restrictions on foreign exchange payments in an attempt to refrain gold losses and foreign exchange outflows, Yugoslavia abandoned the gold-exchange standard on 7 October 1931. It avoided imposing import quotas but introduced clearing agreements that accounted for

<sup>16</sup> Monograph of the National Bank 1884–1934 (1935), pp. 197–200.

<sup>17</sup> Lampe and Jackson (1982), p. 172.

<sup>18</sup> Monograph of the National Bank 1884–1934 (1935), p. 222.

<sup>19</sup> Monograph of the National Bank 1884–1934 (1935), p. 223.

over 77% of exports and 68% of imports in 1932. Over the years 1931 and 1932, the dinar exchange rate was falling against the Swiss franc, before being stabilised in January 1933. The NBY was forced to recognise a premium on foreign exchange (*npuma*), which essentially reflected devaluation risk and implied that the widening spread between the official and market exchange rates could not be maintained. In August 1932, the premium was 5%, but in the following two months it increased to 20%. In January 1933, it stood at 28.5%. However, successive rises of the premium did not fully align the market and official exchange rates; the dinar market value remained slightly higher than its official value with a premium of 8% on average.

The spill-over effects of the interwar crisis appeared in Yugoslavia later than in other European countries and lasted from 1931 to 1935. The economic activity indicators confirm the effects on the domestic economy of the drop in international agricultural prices and the collapse of international capital markets. Prices, output, exports and imports all fell sharply. Restrictive monetary and fiscal policies contributed to a further decline in output. Consequently, the debt service burden increased. An additional complicated issue was the revalorisation of the remaining part of the pre-war loan in French francs the value of which increased five times in value in 1930, since the post-war paper French franc was worth 20% of the pre-war gold currency. Thus, by the end of 1932, debt service payments constituted one-third of the value of current exports. Given, however, that the service of the foreign loans in hard currency was covered only from a limited size of exports, the actual strain on the balance of payments was much heavier than the above-mentioned data imply and increased further with the large decline in foreign capital inflows and the sharp fall, after 1928, in the prices of primary products.

Against this background, the Yugoslav government decided in October 1932 to temporarily suspend all payments in foreign currency and launched negotiations with foreign creditors on a reduction of the debt repayment burden. Under the Convention signed with foreign bondholders in July 1933, the government concluded a series of refinancing agreements receiving new loans to pay off the old ones. Under a new Convention signed with bondholders, funding bonds were re-issued in 1936. The last Convention was signed in 1938: it was agreed that 45% of the debt would be repaid in a two-year period, from October 1937 to October 1939, while the remaining debt was written off.

By the mid-1930s, recovery gathered momentum and the country recorded gains in economic activity which came close to or over the pre-crisis levels. Increasing the exports of industrial and processed agricultural products was the highest priority. To this end, the government took measures to encourage industry, consisting mainly of tariff exemptions. Peasants received some tax relief, harvest insurance, silo construction and credit for their cooperatives. The government also imposed controls on the imports of certain goods in an attempt to lower spending on imports. However, these controls were removed in 1938 as Germany was promoted as the country's principal trading partner.

The most surprising thing about the Yugoslav economy between the wars was that it managed to grow, which was in itself a miraculous achievement since the newly founded state had different parts of the country with different legal and institutional legacies. There were six customs areas, five currencies, five railway networks, twelve separate tax systems, three different banking systems, and a variety of legal and business codes. The unified economic system was only achieved in the mid-1930s, which was no mean achievement by any standard, considering how many different economic systems were in effect in the pre-war period.<sup>20</sup>

<sup>20</sup> Ahtik, Zrinka and Pilipović (2010), p. 15.

Upon the occupation of the country in 1941, the territory of Yugoslavia was divided. The NBY was placed in liquidation. New issuing institutions were created in the territory of Serbia and Croatia, i.e. the Serbian National Bank and the Croatian State Bank, respectively. The Axis occupation forces confiscated over 11 tonnes of gold from the NBY's vaults, while 53 tonnes were in a timely manner transferred to ally countries. The issuing activity in the remaining occupied parts was conducted by the central banks of the respective occupying countries. The German occupation money was in circulation in the Serbian monetary zone concurrently with the Serbian dinar.

**TABLE 2 Yugoslavia: A Chronology of the major monetary events, 1918–1944**

	December 1918
Creation of Yugoslavia.	
Foreign exchange controls.	1919–June 1931
The NBS was transformed into the NBY.	January 1920
Demonetisation of Austrian crowns with crown-dinar banknotes.	1920
Issuance of dinar banknotes without official convertibility to gold or to silver.	1920
Excessive monetisation of the government deficit.	1920–1921
Obligation of exporters to sell one-third of their bills of exchange to the NBY.	1922–June 1931
Restrictive monetary policy, disinflation and strengthening of the dinar.	1922–mid 1925
De facto stabilisation of the dinar.	1925–28 June 1931
Suspension of German reparation payments.	1930
De jure stabilisation of the dinar (101 days on gold).	28 June 1931
Suspension of the gold-exchange standard and imposition of foreign exchange controls.	7 October 1931
Widening spread between the official and the market exchange rates and recognition of a premium of 28.5% on foreign exchange.	1931–1933
Clearing agreements.	1932–1938
Sovereign debt crisis and restructuring.	1933–1939
Controls on imports.	1936–1938
The NBS in exile. It returned to Belgrade after liberation.	1941–1944

## 2 DEFINITION AND DESCRIPTION OF VARIABLES

The index tables present the list of monetary and other macroeconomic time series for Serbia and Yugoslavia from 1884 to 1940, or even earlier where possible. Most of the monetary and macroeconomic series for Serbia are available from 1884 to 1920 and for Yugoslavia from 1920 to 1940. Serbia switched to the Gregorian calendar on 15 January 1919. The data prior to that date refer to the Julian calendar.

Territorial changes of Serbia before WWI have no decisive effect on series' comparability and quality. Namely, the Serbian territory was extended twice. For the first time in 1878, when in the war with Turkey that started in 1876 and was waged in alliance with Russia in 1877 and 1878, Serbia won the rule over four southern districts (*niški*, *pirotski*, *toplički* and *vranjski*). For the second time the Serbian territory was extended after the Balkan wars of 1912 and 1913 with the *Raška* district, *Kosovo*, a part of *Metohija* and *Macedonia*. Yugoslavia was established in 1918 and carried on its development within these boundaries until WWII. The statistical service provided data

for the country's entire territory. Nevertheless, the country's division into the *banovina* regions did not allow obtaining reliable data for entire Serbia, neither in the earlier nor in the present boundaries.

The key macroeconomic time series presented in the tables are classified in six groups: (1) monetary variables; (2) interest rates; (3) exchange rates; (4) government finances; (5) prices, production and labour; and (6) national accounts and population. In the index table for Serbia and Yugoslavia, we present the variables and their components, the time span, the time of frequency, the unit of account and the series' code. The time series shown comprise annual and monthly frequencies as well the date of change for some variables. All series both at annual and at monthly frequency are also included in the accompanied volume's CD.

The currency unit (the legal tender) in both Serbia and Yugoslavia was the dinar. All data figures are therefore expressed in dinars.

## INDEX TABLE - Country: SERBIA

continue

List of Variables	Time Span	Data Frequency	Unit of account	Series Code
<b>1. MONETARY VARIABLES</b>				
<b>Table SE1</b>				
<i>Total reserves</i>				
<i>Total statutory reserves</i>	1884–1920	annual	in thousands of dinars, end-of-period	SE1A_A
	July 1884–Dec. 1913	monthly	in thousands of dinars, end-of-period	SE1A_M
<i>Metallic holdings</i>	1884–1920	annual	in thousands of dinars, end-of-period	SE1B_A
	July 1884–Dec. 1913	monthly	in thousands of dinars, end-of-period	SE1B_M
<i>Gold holdings</i>	1884–1920	annual	in thousands of dinars, end-of-period	SE1C_A
	July 1884–Dec. 1913	monthly	in thousands of dinars, end-of-period	SE1C_M
<i>Silver holdings</i>	1884–1920	annual	in thousands of dinars, end-of-period	SE1D_A
	July 1884–Dec. 1913	monthly	in thousands of dinars, end-of-period	SE1D_M
<i>Foreign exchange (foreign correspondents)</i>	1884–1920	annual	in thousands of dinars, end-of-period	SE1E_A
	July 1884–Dec. 1913	monthly	in thousands of dinars, end-of-period	SE1E_M
<i>Monetary base (excluding metallic currency)</i>				
<i>Monetary base (excluding coins)</i>	1884–1920	annual	in thousands of dinars, end-of-period	SE1F_A
	July 1884–Dec. 1913	monthly	in thousands of dinars, end-of-period	SE1F_M
<i>Banknotes in circulation</i>	1884–1920	annual	in thousands of dinars, end-of-period	SE1G_A
	July 1884–Dec. 1913	monthly	in thousands of dinars, end-of-period	SE1G_M
<i>Gold-backed banknotes</i>	1884–1920	annual	in thousands of dinars, end-of-period	SE1H_A
	July 1884–Dec. 1913	monthly	in thousands of dinars, end-of-period	SE1H_M
<i>Silver-backed banknotes</i>	1884–1920	annual	in thousands of dinars, end-of-period	SE1I_A
	July 1884–Dec. 1913	monthly	in thousands of dinars, end-of-period	SE1I_M
<i>Giro accounts with central bank</i>	1884–1920	annual	in thousands of dinars, end-of-period	SE1J_A
	July 1884–Dec. 1913	monthly	in thousands of dinars, end-of-period	SE1J_M
<i>Other central bank liabilities at sight</i>	1884–1920	annual	in thousands of dinars, end-of-period	SE1K_A
	July 1884–Dec. 1913	monthly	in thousands of dinars, end-of-period	SE1K_M
<i>Effective cover ratio of total banknotes in circulation</i>	1884–1920	annual	in per cent, end-of-period	SE1L_A
	July 1884–Dec. 1913	monthly		SE1L_M
<b>2. INTEREST RATES</b>				
<b>Table SE2</b>				
<i>Central bank interest rates</i>				
<i>Discount rate (silver)</i>	1884–1920	date of change	in per cent	SE2A_D
	1884–1920	annual	in per cent, period average	SE2A_A
	July 1884–Dec. 1920	monthly	in per cent, period average	SE2A_M
<i>Discount rate (gold)</i>	1884–1920	date of change	in per cent	SE2B_D
	1884–1920	annual	in per cent, period average	SE2B_A
	July 1884–Dec. 1920	monthly	in per cent, period average	SE2B_M

## INDEX TABLE - Country: SERBIA

continue

List of Variables	Time Span	Data Frequency	Unit of account	Series Code
<b>2. INTEREST RATES</b>				
<b>Central bank interest rates</b>				
<i>Lombard rate (silver)</i>	1884–1920	date of change	in per cent	SE2C_D
	1884–1920	annual	in per cent, period average	SE2C_A
	July 1884–Dec. 1920	monthly	in per cent, period average	SE2C_M
<i>Lombard rate (gold)</i>	1884–1920	date of change	in per cent	SE2D_D
	1884–1920	annual	in per cent, period average	SE2D_A
	July 1884–Dec. 1920	monthly	in per cent, period average	SE2D_M
<i>Discount rate for banks (silver)</i>	1884–1920	date of change	in per cent	SE2E_D
	1884–1920	annual	in per cent, period average	SE2E_A
	July 1884–Dec. 1920	monthly	in per cent, period average	SE2E_M
<i>Discount rate for banks (gold)</i>	1884–1920	date of change	in per cent	SE2F_D
	1884–1920	annual	in per cent, period average	SE2F_A
	July 1884–Dec. 1920	monthly	in per cent, period average	SE2F_M
<i>Lombard rate for banks (silver)</i>	1884–1920	date of change	in per cent	SE2G_D
	1884–1920	annual	in per cent, period average	SE2G_A
	July 1884–Dec. 1920	monthly	in per cent, period average	SE2G_M
<i>Lombard rate for banks (gold)</i>	1884–1920	date of change	in per cent	SE2H_D
	1884–1920	annual	in per cent, period average	SE2H_A
	July 1884–Dec. 1920	monthly	in per cent, period average	SE2H_M
<i>Market interest rate</i>	1894–1908	annual	in per cent, minimum and maximum rates	SE2I_A
<b>3. EXCHANGE RATES</b>				
<b>Table SE3</b>				
<i>20 dinar gold coins</i>	1892–1913	annual	in dinars, period average	SE3A_A
	Nov. 1891–Jan. 1914	monthly	in dinars, period average	SE3A_M
<i>100 Austrian florins/ 200 Austrian crowns</i>	1895–1913	annual	in dinars, period average	SE3B_A
	Feb. 1895–Jan. 1914	monthly	in dinars, period average	SE3B_M
<b>4. GOVERNMENT FINANCES</b>				
<b>Table SE4</b>				
<b>Flows</b>				
<i>Government revenue</i>	1880–1912	annual	in thousands of dinars	SE4A_A
<i>Government expenditure</i>	1880–1912	annual	in thousands of dinars	SE4B_A
<i>Foreign public debt repayment (principal + interest)</i>	1880–1912	annual	in thousands of dinars	SE4C_A
<b>Stocks</b>				
<i>Foreign public debt</i>	1867–1912	annual	in thousands of dinars	SE4D_A
<i>Government debt to the central bank</i>	1884–1920	annual	in thousands of dinars	SE4E_A
<b>5. PRICES, PRODUCTION AND LABOUR</b>				
<b>Table SE5</b>				
<b>Prices of goods</b>				
<i>Wheat</i>	1864–1910	annual	in dinars per 1 kilo	SE5A_A
<i>Maize</i>	1864–1910	annual	in dinars per 1 kilo	SE5B_A
<i>Beans</i>	1866–1908	annual	in dinars per 1 kilo	SE5C_A
<i>Wheat flour</i>	1864–1910	annual	in dinars per 1 kilo	SE5D_A
<i>Bread</i>	1864–1910	annual	in dinars per 1 kilo	SE5E_A
<i>Mutton</i>	1864–1910	annual	in dinars per 1 kilo	SE5F_A
<i>Pork</i>	1864–1910	annual	in dinars per 1 kilo	SE5G_A
<i>Lard</i>	1864–1910	annual	in dinars per 1 kilo	SE5H_A
<i>Plum brandy</i>	1866–1910	annual	in dinars per 1 liter	SE5I_A
<b>Industrial production</b>				
<i>Milled flour and other items</i>	1888–1908	annual	in thousands of kilos	SE5J_A
<i>Beer</i>	1888–1910	annual	in hectoliters	SE5K_A
<i>Cement</i>	1902–1938	annual	in tons	SE5L_A
<i>Hard coal</i>	1894–1939	annual	in tons	SE5M_A
<i>Brown coal</i>	1894–1939	annual	in tons	SE5N_A
<i>Lignite</i>	1894–1939	annual	in tons	SE5O_A

## INDEX TABLE - Country: SERBIA

List of Variables	Time Span	Data Frequency	Unit of account	Series Code
<b>5. PRICES, PRODUCTION AND LABOUR</b>				
<b>Labour force and daily wages</b>				
<i>Total active population</i>	1866, 1893, 1895, 1896, 1900	annual	thousands of inhabitants	SE5P_A
<i>Diggers</i>	1863–1910	annual	in dinars, period average	SE5Q_A
<i>Reapers</i>	1863–1910	annual	in dinars, period average	SE5Q_A
<i>Masons</i>	1863–1910	annual	in dinars, period average	SE5R_A
<i>Manual labourers</i>	1863–1910	annual	in dinars, period average	SE5S_A
<i>Average wage</i>	Jan. 1894–Dec. 1908	monthly	in dinars, period average	SE5T_M
<b>6. NATIONAL ACCOUNTS AND POPULATION</b>				
<b>Exports</b>				
<i>Exports</i>	1863–1912	annual	in thousands of dinars	SE5A_A
<b>Imports</b>				
<i>Imports</i>	1863–1912	annual	in thousands of dinars	SE5B_A
<b>Transit</b>				
<i>Transit</i>	1863–1912	annual	in thousands of dinars	SE5C_A
<b>Population</b>				
<i>Population</i>	1863–1920	annual	thousands of inhabitants	SE5D_A

Note: The code of each variable is generated by the country prefix (SE), the number of the variables group (1, 2, 3, 4, 5 and 6) and a letter identifying the respective time series within the group (A, B, C,...); at the end, A stands for annual, M for monthly time series and D for dates of change.

## INDEX TABLE - Country: YUGOSLAVIA

continue

List of Variables	Time Span	Data Frequency	Unit of account	Series Code
<b>1. MONETARY VARIABLES</b>				
<b>Total reserves</b>				
<i>Total statutory reserves</i>	1920–1940	annual	in millions of dinars, end-of-period	YU1A_A
	Dec. 1920–Dec. 1940	monthly	in millions of dinars, end-of-period	YU1B_M
<i>Metallic holdings</i>	1920–1940	annual	in millions of dinars, end-of-period	YU1B_A
	Dec. 1920–Dec. 1940	monthly	in millions of dinars, end-of-period	YU1B_M
<i>Gold holdings</i>	1920–1940	annual	in millions of dinars, end-of-period	YU1C_A
	Dec. 1920–Dec. 1940	monthly	in millions of dinars, end-of-period	YU1C_M
<i>Silver holdings</i>	1920–1940	annual	in millions of dinars, end-of-period	YU1D_A
	Dec. 1920–Dec. 1940	monthly	in millions of dinars, end-of-period	YU1D_M
<i>Foreign exchange</i>	1920–1940	annual	in millions of dinars, end-of-period	YU1E_A
	Dec. 1920–Dec. 1940	monthly	in millions of dinars, end-of-period	YU1E_M
<b>Monetary base (excluding metallic currency)</b>				
<i>Monetary base</i>	1920–1940	annual	in thousands of dinars, end-of-period	YU1F_A
<i>Monetary base (excluding coins)</i>	Dec. 1920–Dec. 1940	monthly	in thousands of dinars, end-of-period	YU1G_M
<i>Coins in circulation</i>	1920–1941	annual	in thousands of dinars, end-of-period	YU1H_A
<i>Banknotes in circulation</i>	1920–1940	annual	in thousands of dinars, end-of-period	YU1I_A
	Dec. 1920–Dec. 1940	monthly	in thousands of dinars, end-of-period	YU1I_M
<i>Gold-backed banknotes</i>	1920–1940	annual	in thousands of dinars, end-of-period	YU1J_A
	Dec. 1920–Dec. 1940	monthly	in thousands of dinars, end-of-period	YU1J_M
<i>Silver-backed banknotes</i>	1920–1940	annual	in thousands of dinars, end-of-period	YU1K_A
	Dec. 1920–Dec. 1940	monthly	in thousands of dinars, end-of-period	YU1K_M
<i>Giro accounts with central bank</i>	1920–1940	annual	in thousands of dinars, end-of-period	YU1L_A
	Dec. 1920–Dec. 1940	monthly	in thousands of dinars, end-of-period	YU1L_M
<i>Other central bank liabilities at sight</i>	1920–1940	annual	in thousands of dinars, end-of-period	YU1M_A
	Dec. 1920–Dec. 1940	monthly	in thousands of dinars, end-of-period	YU1M_M
<i>Effective cover ratio of gold</i>	1931–1934	annual	in per cent, end-of-period	YU1N_A
	June 1931–Dec. 1934	monthly	in per cent, end-of-period	YU1N_M
<i>Overall effective cover ratio</i>	1931–1934	annual	in per cent, end-of-period	YU1P_A
	June 1931–Dec. 1934	monthly	in per cent, end-of-period	YU1P_M



## INDEX TABLE - Country: YUGOSLAVIA

continue

List of Variables	Time Span	Data Frequency	Unit of account	Series Code
<b>2. INTEREST RATES</b>				
<i>Central bank interest rates</i>				
<i>Discount rate</i>	1920–1940	date of change	in per cent	YU2A_D
	1920–1940	annual	in per cent, period average	YU2A_A
	Dec. 1920–Dec. 1940	monthly	in per cent, period average	YU2A_M
<i>Lombard rate (securities)</i>	1920–1940	date of change	in per cent	YU2B_D
	1920–1940	annual	in per cent, period average	YU2B_A
	Dec. 1920–Dec. 1940	monthly	in per cent, period average	YU2B_M
<i>Lombard rate (warrants)</i>	1920–1940	date of change	in per cent	YU2C_D
	1920–1940	annual	in per cent, period average	YU2C_A
	Dec. 1920–Dec. 1940	monthly	in per cent, period average	YU2C_M
<i>Lombard rate (gold)</i>	1920–1940	date of change	in per cent	YU2D_D
	1920–1940	annual	in per cent, period average	YU2D_A
	Dec. 1920–Dec. 1940	monthly	in per cent, period average	YU2D_M
<i>Market interest rates</i>				
<i>Short-term lending rate for first-class bills</i>	1924–1937	annual	in per cent, minimum and maximum rates	YU2E_A
<i>Interest rate on sight deposits</i>	1929, 1930; 1935–1937	annual	in per cent, period average	YU2F_A
<i>Interest rate on term deposits</i>	1929, 1930; 1935–1937	annual	in per cent, period average	YU2G_A
<i>Government bond market prices and current yields</i>				
<i>Market price of Compensation for war damage</i>	1923–1939	annual	in dinars, period average	YU2H_A
	Sept. 1923–Dec. 1939	monthly	in dinars, period average	YU2H_M
<i>Market price of Investment loan</i>	1923–1939	annual	in dinars, period average	YU2I_A
	Sept. 1923–Dec. 1939	monthly	in dinars, period average	YU2I_M
<i>Market price of Agrarian bonds</i>	1923–1939	annual	in dinars, period average	YU2J_A
	Sept. 1923–Dec. 1939	monthly	in dinars, period average	YU2J_M
<i>Current yield on Compensation for war damage</i>	1923–1939	annual	in per cent, period average	YU2K_A
	Sept. 1923–Dec. 1939	monthly	in per cent, period average	YU2K_M
<i>Current yield on Investment loan</i>	1923–1939	annual	in per cent, period average	YU2L_A
	Sept. 1923–Dec. 1939	monthly	in per cent, period average	YU2L_M
<i>Current yield on Agrarian bonds</i>	1923–1939	annual	in per cent, period average	YU2M_A
	Sept. 1923–Dec. 1939	monthly	in per cent, period average	YU2M_M
<b>3. EXCHANGE RATES</b>				
<b>Tables YU3</b>				
<i>US dollar (New York)</i>	1920–1940	annual	in dinars, period average	YU3A_A
	Dec. 1919–Dec. 1940	monthly	in dinars, period average	YU3A_M
<i>French franc (Paris)</i>	1920–1940	annual	in dinars, period average	YU3B_A
	July 1919–June 1940	monthly	in dinars, period average	YU3B_M
<i>Swiss franc (Geneva-Zurich)</i>	1920–1940	annual	in dinars, period average	YU3C_A
	July 1923–Dec. 1940	monthly	in dinars, period average	YU3C_M
<i>Pound sterling (London)</i>	1920–1940	annual	in dinars, period average	YU3D_A
	June 1923–Dec. 1940	monthly	in dinars, period average	YU3D_M
<i>Italian lira (Milano)</i>	1920–1940	annual	in dinars, period average	YU3E_A
	Oct. 1919–Oct. 1940	monthly	in dinars, period average	YU3E_M
<i>Mark (Berlin)</i>	1920–1940	annual	in dinars, period average	YU3F_A
	Jan. 1920–Dec. 1940	monthly	in dinars, period average	YU3F_M
<i>Dinar in Zurich (100 dinars in Swiss francs)</i>	1920–1940	annual	in dinars, period average	YU3G_A
	May 1920–Dec. 1940	monthly	in dinars, period average	YU3G_M
<b>4. GOVERNMENT FINANCES</b>				
<b>Table YU4</b>				
<i>Total government revenue</i>	1924–1939	annual	in millions of dinars	YU4A_A
<i>of which direct taxes</i>	1924–1939	annual		YU4B_A
<i>of which indirect taxes and excises</i>	1924–1939	annual		YU4C_A
<i>of which state enterprises</i>	1924–1939	annual		YU4D_A
<i>Total government expenditure</i>	1924–1939	annual	in millions of dinars	YU4E_A
<i>of which pensions</i>	1924–1939	annual		YU4F_A
<i>of which public debt repayment (principal + interest)</i>	1924–1939	annual		YU4G_A
<i>Foreign public debt</i>	1932	annual	in millions of dinars, end-of-period	YU4H_A
<i>Government debt to the central bank</i>	1920–1940	annual	in millions of dinars, end-of-period	YU4K_A

## INDEX TABLE - Country: YUGOSLAVIA

List of Variables	Time Span	Data Frequency	Unit of account	Series Code
<b>5. PRICES, PRODUCTION AND LABOUR</b>				<b>Table YU5</b>
<b>Prices</b>				
<i>Wholesale prices (1926=100)</i>	1926–1939	annual	index	YU5A_A
	Dec. 1926–Dec. 1939	monthly	index	YU5A_M
<i>Agricultural prices (1926=100)</i>	1926–1939	annual	index	YU5B_A
	Dec. 1926–Dec. 1939	monthly	index	YU5B_M
<i>Cattle prices (1926=100)</i>	1926–1939	annual	index	YU5C_A
	Dec. 1926–Dec. 1939	monthly	index	YU5C_M
<i>Minerals prices (1926=100)</i>	1926–1939	annual	index	YU5D_A
	Dec. 1926–Dec. 1939	monthly	index	YU5D_M
<i>Industrial prices (1926=100)</i>	1926–1939	annual	index	YU5E_A
	Dec. 1926–Dec. 1939	monthly	index	YU5E_M
<i>Export prices (1926=100)</i>	1926–1939	annual	index	YU5F_A
	Dec. 1926–Dec. 1939	monthly	index	YU5F_M
<i>Import prices (1926=100)</i>	1926–1939	annual	index	YU5G_A
	Dec. 1926–Dec. 1939	monthly	index	YU5G_M
<b>Industrial production</b>				
<i>Cement</i>	1920–1939	annual	in tons	YU5H_A
<i>Hard coal</i>	1920–1939	annual	in tons	YU5I_A
<i>Brown coal</i>	1920–1939	annual	in tons	YU5J_A
<i>Lignite</i>	1920–1939	annual	in tons	YU5K_A
<b>Labour force and daily wages</b>				
<i>Employment</i>	1920–1940	annual	in thousands, period average	YU5L_A
<i>Daily wages</i>	1920–1940	annual	in dinars	YU5M_A
<i>Daily wages</i>	1920–1940	annual	index (1920=100)	YU5N_A
<i>Nominal wages</i>	1930–1940	annual	index (Dec. 1930=100)	YU5O_A
<i>Real wages</i>	1930–1940	annual	index (Dec. 1930=100)	YU5P_A
<i>Cost-of-living</i>	1930–1940	annual	index (Dec. 1930=100)	YU5Q_A
<b>6. NATIONAL ACCOUNTS AND POPULATION</b>				<b>Table YU6</b>
<i>National income, nominal terms</i>	1923–1939	annual	in millions of dinars, at current prices	YU6A_A
<i>of which industry and mining</i>	1923–1939	annual		YU6B_A
<i>of which agriculture</i>	1923–1939	annual		YU6C_A
<i>National income, real terms</i>	1923–1939	annual	in millions of dinars, at 1938 prices	YU6D_A
<i>of which industry and mining</i>	1923–1939	annual		YU6E_A
<i>of which agriculture</i>	1923–1939	annual		YU6F_A
<i>Exports</i>	1920–1939	annual	in millions of dinars	YU6G_A
<i>Imports</i>	1920–1939	annual	in millions of dinars	YU6H_A
<i>Population</i>	1918–1940	annual	thousands of inhabitants	YU6I_A

Note: The code of each variable is generated by the country prefix (YU), the number of the variables group (1, 2, 3, 4, 5 and 6) and a letter identifying the respective time series within the group (A, B, C,...); at the end, A stands for annual, M for monthly time series and D for dates of change.

This data group contains monetary variables, currency reserves and banknotes in circulation and also their main components, from 1884 to 1920 for Serbia and from 1920 to 1940 for interwar Yugoslavia.

### 2.1.1 Currency reserves

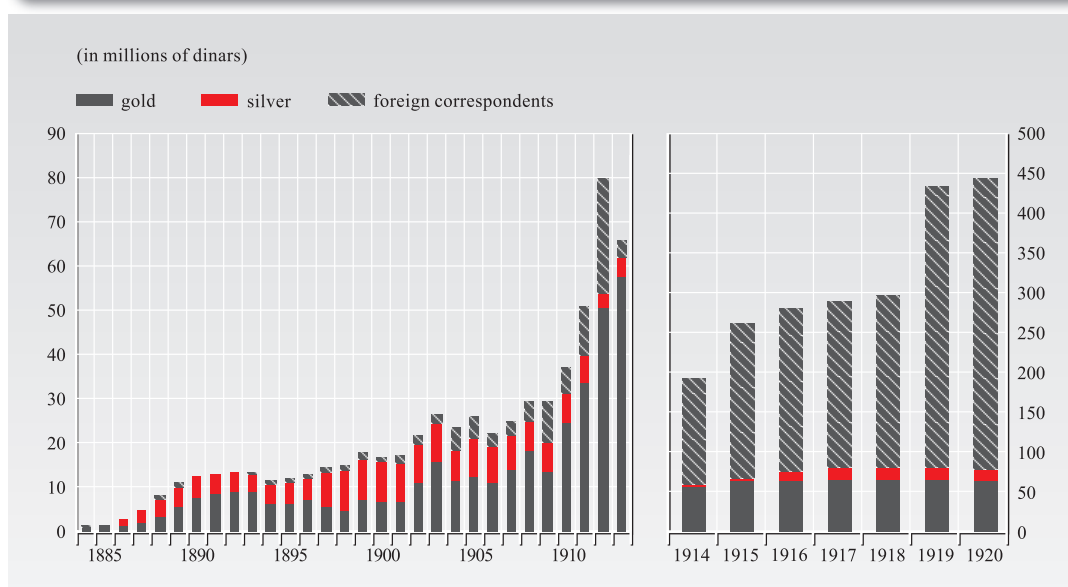
Regarding **Serbia**, total statutory reserves (*подлога*) were composed of three highly liquid and safe asset components: (a) gold (*злато*) holdings and (b) silver (*сребро*) holdings, as statutory

reserves in precious metal (*метална подлога*), and (c) banknotes and financial assets denominated in freely convertible foreign currencies as receivables from foreign correspondents (*страну коресподенту*). The time series on total reserves and their components are given as end-of-period figures, from July 1884 to December 1920. Data on gold and silver holdings on a monthly basis are available separately from the beginning of 1886.

In the NBS' balance sheet, the conversion of the gold, silver and foreign exchange holdings into dinars implied that the dinar exchange rate vis-à-vis the French franc was at par. However, the exchange rate of the dinar against all other currencies was established on the basis of the quantity of gold contained in one monetary unit.

Statutory reserves were needed to provide confidence in banknotes by ensuring that they would be exchangeable for gold or silver on demand. They were a key indicator, as the amount of the banknotes issued by the NBS was tied to the level of the reserves. The legally prescribed minimum coverage for banknotes in circulation amounted to 40%, which was viewed as a strong coverage ratio at that time.

**FIGURE 1 Total Currency Reserves in Serbia, 1884–1920**



Source: Privileged National Bank of the Kingdom of Serbia (1884–1920), Annual Reports.

At the start, the NBS formed currency reserves from its share capital. The payment of the authorised capital, which was 20 million dinars, was divided into two subscriptions of 10 million dinars each. The payment of the first subscription was carried out throughout almost three decades and was ended in 1912. At its inception the value of the share capital was 2.5 million. In addition, the NBS built up currency reserves not only from its share capital, but also through buying gold on the market with banknotes, primarily with silver-backed banknotes. The high government borrowing from the NBS resulted in an increase in banknote circulation which led to the appearance of an agio.

Metallic backing and money circulation were found to be disproportionate: gold dominated metallic backing, whereas silver-backed banknotes dominated circulation. Figure 1 shows the compo-

sition of the NBS's reserves by their main components. Until 1903, currency reserves consisted mainly of gold and silver holdings – their proportion was above 90%. Gold prevailed in the structure of backing, while silver banknotes accounted for around 95% of total circulation. The bank preferred to retain a 'prudent reserve' of gold to ensure that liabilities abroad could be met on demand. The proportion of foreign correspondents increased from 1904 onwards, reaching 30% in certain years.

Concerning Yugoslavia, the data on total statutory reserves (*nodloza*) are displayed yearly in Table YU1\_A and monthly in Table YU1.1\_M. Total reserves consist of metallic reserves, i.e. gold (*zlato*) and silver holdings (*сребро*), and foreign exchange (*девизе*) held in the bank's vault and deposits with correspondent banks abroad. However, the structure of foreign exchange reserves changed twice. As of June 1931, in accordance with the legal stabilisation of the dinar, silver was no longer included in reserves. Reserves contained only gold and claims against the gold standard countries (in the form of currency), bank deposits and securities. Further, in 1936, after the collapse of the Gold Bloc, reserves should only consist of foreign exchange readily and freely convertible into gold. Thus, foreign exchange reserves as of 30 September 1936 contained only gold held in the NBY's vault and abroad.

It should be noted that gold, silver and foreign exchange holdings were converted into 'conventional' or pre-war dinars until 1931. On its balance sheet, the NBY recorded the reserves at a 'conventional' rate, based in general on the pre-war gold dinar parity: one Swiss franc for one dinar; one dollar for 5 dinars; one pound sterling for 25 dinars, etc. Other currencies were exchanged for one dinar if their value was more than one dinar, and according to the exchange rate list if their value was less than one dinar.

As explained by the NBY, reserves' revaluation by this way was carried out primarily because of the need to balance the temporary exchange account of the government.<sup>21</sup> Although unrealistic, the NBY considered returns from reserves' revaluation at the pre-war parity as a useful defensive barrier against any further increase in banknote circulation. Otherwise, money printing and inflation would be the ultimate result.

For example, the value of the reserves for the year 1930, as assessed by the NBY in terms of the current dinar, which was 9.1% of the 'conventional' or the pre-war dinar, appeared as follows:

**Table 3 Total reserves in 'conventional' and current dinars, 31 December 1930**

	'Conventional' dinars (in millions)	Current dinars (in millions)
<i>Metallic reserves:</i>		
- Gold	98.58	1,077.58
- Silver	17.58	43.44
<i>Foreign exchange</i>	119.96	358.36
<i>Total reserves</i>	236.11	1,479.38

Source: Privileged National Bank of the Kingdom of Serbia (1884–1920), *Annual Reports*.

<sup>21</sup> Monograph of the National Bank 1884–1934 (1935), p. 156.

On 31 December 1930, total statutory reserves in the NBY's balance sheet amounted to 236.1 million dinars. This included gold, silver, foreign money and deposits abroad. Banknotes in circulation on the same date amounted to 5,396.5 million, giving a very low effective cover ratio of 4.38%. This, however, reckons statutory reserves in gold values and aggregate demand liabilities in paper values. Calculating reserves on the basis of the corresponding paper values raises total holdings to 1,479.4 million, in which case the effective cover is 27.4%. According to the 1920 Law on the National Bank, the prescribed minimum cover ratio amounted to 33.3%.

The NBY had successfully accumulated reserves, if not in gold, at least in foreign bills which could always be turned into gold. At that time as now, adequate holdings of foreign exchange reserves helped to maintain public confidence in the currency and allowed the central bank to intervene in the market in order to defend the value of the currency. Hence, adequate foreign exchange reserves were a pre-condition for the legal stabilisation of the dinar. It was partly achieved through the obligation imposed on exporters to sell one-third of their bills of exchange to the NBY. As early as in 1924, with the export revenues growth, the NBY had sufficient dinar funds to buy off a third of exporters' bills of exchange, which in turn could affect adversely its ability to intervene in the foreign exchange market. This was because in August 1925 a new interpretation of the legislation stipulated that the banknotes issued by the bank for the above-mentioned purposes were no longer encompassed by the regular banknote contingent.

In June 1931, Yugoslavia's foreign exchange reserves soared to 2,291.5 million chiefly due to the revaluation related to the legal stabilisation of the dinar, the stabilisation loan of 1,400 million and the exclusion of silver and foreign exchange which were no longer convertible into gold. Hence, June 1931 is the starting date of our data series on the effective gold cover ratio and overall effective cover ratio. Under the 1931 Law on Money, the NBY was required to maintain reserves up to 35% not only of the regular banknotes in circulation, but of all liabilities at sight (banknotes in circulation, giro accounts and other liabilities at sight). Further, the prescribed minimum gold coverage for all liabilities at sight amounted to 25%. On the day of the legal stabilisation (28 June 1931), total coverage of all liabilities amounted to 41.1% of which 27.6% in gold. At the end of the year, total coverage was 37.5% of which 31.5% in gold.

In our dataset on monetary base, December 1934 is the last month for which data on both the effective gold cover ratio and overall effective cover ratio are available. Namely, despite the devaluation of the dinar, in the NBY's balance sheet total reserves (i.e. gold holdings) were still valued in dinars at 'stabilisation'. Total reserves and corresponding cover ratios at current prices are shown in Table 4.

**TABLE 4 Total reserves and cover ratios: calculations at current prices, 1935–1940**

(in millions of dinars)	1935	1936	1937	1938	1939	1940
<i>Total reserves with 'premium' of 28.5%</i>	1,881.64	2,089.51	2,196.15	2,456.85	..	..
<i>Cover ratio of total liabilities at sight</i>	29.58	29.68	26.48	27.22	..	..
<i>Total reserves in real value (*)</i>	..	..	..	..	3,181.51	4,384.02
<i>Cover ratio of total liabilities at sight</i>	..	..	..	..	27.86	25.24

Note: (\*) According to the Decree on reserve calculation adopted in October 1939.  
Source: Privileged National Bank of the Kingdom of Serbia (1884–1920), *Annual Reports*.

### 2.1.2 Monetary aggregates

Monetary base in **Serbia** is measured as the sum of gold- and silver-backed banknotes in circulation and liabilities at sight, i.e. giro accounts with the central bank and other central bank liabilities payable on demand. Metallic currency in circulation is excluded from this definition, because of lack of data. Even after minting domestic currency coins, a lot of foreign coins were in circulation.

The time series for gold-backed and silver-backed banknotes in circulation were regularly reported for the period 1884–1913 on an annual and monthly basis (Table SE 1.2\_A and Table SE 1.2\_M); only the 1885 data monthly figures refer to the total. 1884 is the starting date of our data set since the NBS was granted the monopoly of note issue the same year of its establishment. The quantity of gold-backed banknotes in circulation was negligible compared to the silver-backed ones which grew from year to year (Figure 2).<sup>22</sup> On average, silver-backed notes made up 95% of money supply.

Since the budget constantly was in deficit (1878–1903), the government frequently resorted to borrowing from the NBS; borrowing from the central bank was conditional upon the circulation of the silver-backed banknotes, as seen in Figure 2.

Pursuant to the 1883 Law on the NBS, including the 1885 amendments thereto, the bank could at no time place into circulation more banknotes than 2.5 times the amount of gold and/or silver kept in its vault. In addition to this 40% of gold coverage, such banknotes were backed with 60% by 92-day maturity bills of exchange, short-term warranties, government and public loan coupons with maturity of no longer than 92 days, and government bonds in the amount of up to 75% of their market value. As already mentioned in the introduction, the law also prescribed that the National Bank should exchange on demand its 10-dinar banknotes against silver, and its 50, 100, 500 and 1000-dinar banknotes against gold, at full nominal value without discount.

The legally prescribed minimum coverage for banknotes in circulation was observed at all times. In years of economic instability and agricultural downturn, the backing for circulating banknotes was significantly higher than that prescribed by the law.<sup>23</sup> However, any rise in note circulation was usually followed by a rise in the agio. The NBS was severely criticised by both the government and the public that its excessive issue of silver-backed banknotes resulted in the agio's appearance.

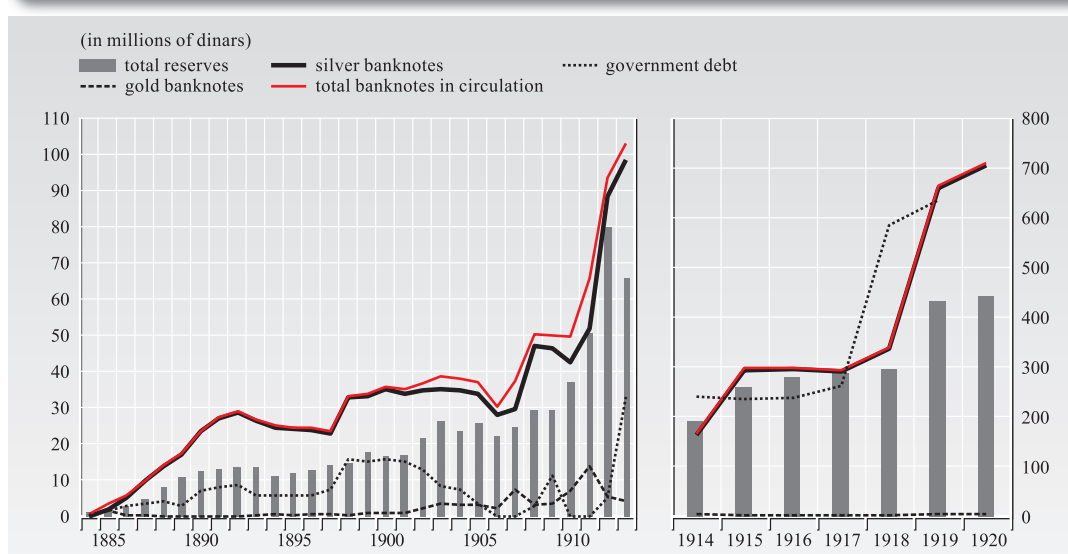
In fact, the NBS and the government adopted different interpretations of the legal provisions relating to metal backing. The NBS's view was that gold backing could be used for the issue of the silver-backed banknotes. As a result, metallic backing and currency in circulation came to stand in a completely inverse proportion: gold dominated backing, whereas silver-backed banknote circulation amounted to approximately 95% of total circulation. By contrast, the government maintained that gold could only be used for backing gold-backed banknotes, while silver-backed banknotes should be covered exclusively by silver. Therefore, silver-backed banknotes had to be withdrawn over a five-year period, and only a third of all banknotes could remain in circulation. This disinflationary policy took its toll on economic activity. In 1896, the government restored the ear-

<sup>22</sup> In the period 1891–1900, the share of the gold-backed banknotes in the money supply equalled mere 1.48%, whereas in 1901–1910, it rose to 8.48%. It reached its highest level in 1911 owing to the renewal of the trade agreement with the Austro-Hungarian Empire.

<sup>23</sup> After the Customs War with Austro-Hungary in late 1906, backing equalled 74%; during the First Balkan War in 1912 it was 86%, whereas in the first year of WWI, it reached as much as 116%.

lier practice according to which metal backing for silver-backed banknotes could be either in silver or in gold. Silver-backed banknotes, however, remained limited to 25 million, regardless of backing. The limit was raised to 30 million in 1898, but remained unchanged until 1908,<sup>24</sup> when the law extended the NBS's privilege for another 25 years and set the ratio of total circulation of silver-backed banknotes to the NBS's subscribed capital at 1 to 5. That year, the subscribed capital of the bank equalled 7.5 million dinars in gold, which meant that the circulation of silver-backed banknotes could equal 37.5 million dinars or 41.2 million if the government allowed a deviation of 10% above the maximum limit in view of extraordinary circumstances.

**FIGURE 2 Currency Reserves and Banknotes in Circulation in Serbia, 1884–1920**



Source: Privileged National Bank of the Kingdom of Serbia (1884–1920), Annual Reports.

As for **Yugoslavia**, monetary base is measured as the sum of banknotes in circulation and liabilities at sight, i.e. giro accounts with the central bank and other central bank liabilities payable on demand. Metallic currency in circulation is included only from 1931 onwards and on a yearly basis.

The 1920 Law on the National Bank granted the NBY the exclusive right to issue banknotes convertible into the legal metallic money. Given that convertibility had already been suspended, the question left to be resolved was whether the legal metallic money should be gold or silver. According to the law, the quantity of 'regular' banknotes in circulation was not to surpass the triple value of the NBY's gold and foreign exchange reserves. Therefore, the coverage ratio was reduced from 40% to 33.3%. However, the new law had retained two banknote contingents, the 'regular' and the 'irregular'. The latter could be used only for government needs.

## 2.2 INTEREST RATES

This section deals with the central bank interest rates and available short-term market interest rates in Serbia during the period 1884–1920, and in Yugoslavia during the period 1920–1940. Addi-

<sup>24</sup> In the context of the Customs War with the Austro-Hungarian Empire, the government had to allow the breach of the legal maximum from 1907 and permit the bank to issue an additional 4 million dinars in silver-backed banknotes.

tionally, we present data for Yugoslavia on government bond market prices and current yields as a benchmark for long-term interest rates.

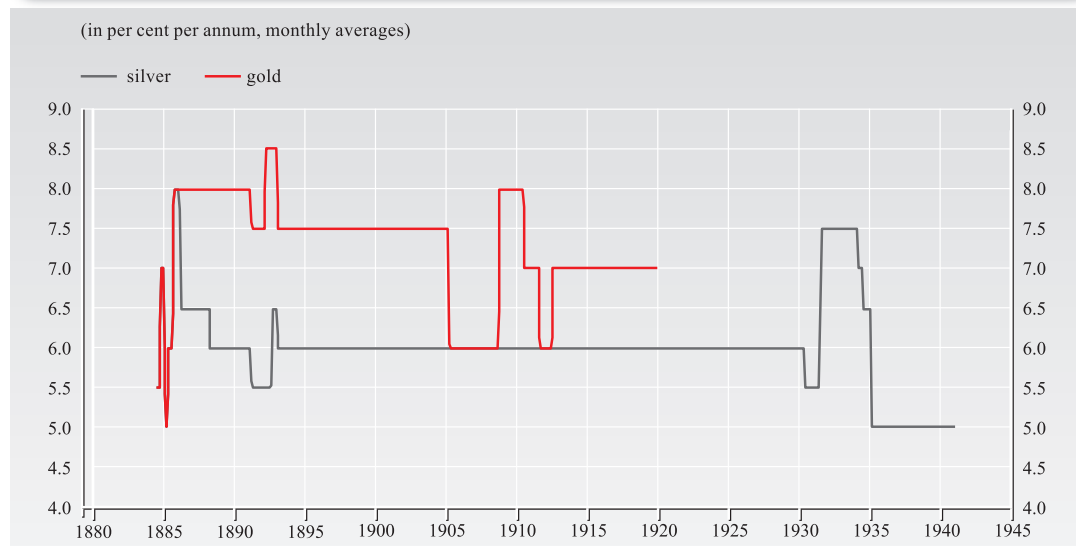
### 2.2.1 Short-term interest rates

#### Official interest rates: discount rate and Lombard rate

For **Serbia**, the reported official interest rates are the discount (*дисконтна*) and the Lombard (*ломбардна*) rates, both on gold and on silver. Both time series begin in 1884 and continue through the sample period, given that the NBS upon its inception placed banknotes into circulation by extending bills of exchange loans and lombard loans. The series are shown on a monthly and annual basis; the date of change is also shown. They are also available in two types: ‘in general’ (*општа*), and for banks (or ‘for money bureaus’, *за новчане заводе*) discount and Lombard rates given that commercial banks (as well as various exporting and industrial firms) enjoyed preferential treatment from the NBS from 1886 until end-1919.<sup>25</sup>

The NBS discounted only the most secure bills of exchange available in the market: short-term bills of exchange of banks, merchants, industrialists and craftsmen. In addition, the bills had to bear at least two authorised signatures. The creditworthiness of each signatory to the bill submitted for discount was closely scrutinised. Bills of exchange recorded only modest growth, while after 1908 they started to decline. This was due to several reasons. First, high-quality bills of exchange (‘trading’ bills of exchange) were scarce. Second, despite being offered a lower-than-market interest rate, traders and craftsmen rarely resorted to the NBS’s credits, as the bank did not allow the

**FIGURE 3** The Discount Rate, July 1884–December 1940



Source: Privileged National Bank of the Kingdom of Serbia (1884–1920), Annual Reports.

<sup>25</sup> For instance, they were granted credits at an interest rate which was around 1–2 percentage points lower than the prevailing market rates (although as of 1892 there were no facilities for borrowing in gold). The bank, in fact, wanted to enhance financial intermediation and economic development. Over time, the original aim of the money bureaus, which was mutual credit to members and, subsequently, to non-members (though at a somewhat higher interest rate), was abandoned and the bureaus, as private joint-stock companies, grew into genuine credit institutions.



bills of exchange to be repaid in instalments, but redeemed in full. On the other hand, banks accepted repayment in instalments. Traders and craftsmen, therefore, frequently opted for borrowing at higher rate, in return for easier terms of repayment. And third, the NBS's was subject to a legal upper limit on the amount of credits provided to the trade and craftsmanship sectors. Due to the limit set on the quantity of silver-backed banknote issue, the NBS always found itself faced with the same problems during the agricultural products season export when money demand was at peak. As the bank could not breach that limit, it had to suspend the discounting of the bills of exchange precisely at the time when the demand for silver-backed banknotes was very high.

Lombard loans were extended for a maximum of three months, against collateral in gold or silver, or in Serbian state bonds, government-guaranteed bonds and state Treasury coupons with a maturity of no longer than 92 days. They could equal no more than 75% of the market price of the collateral. As the only collateral accepted by the NBS were government bonds, which were almost fully sold abroad, and government guaranteed bonds, which were very scarce, collateralised loans made up only a very small portion of the bank's total assets.

In 1886, the NBS decided to allow banks to use current accounts against coverage in bills of exchange equalling 125% of the loan. The loan had to be settled at end-quarter. The maximum credit amount that a bank was allowed to provide should not be more than one half of its subscribed capital. The NBS approved current account loans to healthy trading firms against coverage in bills of exchange equalling 133% of the loan. Current accounts were particularly important, as they functioned as giro accounts which the NBS did not maintain at the time. Movements in current account overdrafts were aligned with the development of the banking institutions in the country. In the first years of the NBS's operation, the number of banking institutions was low but growing. Current account loans followed suit: in 1887, they barely exceeded 80 thousand dinars, while in 1908 they reached 12 million.

The movements in the NBS's discount rate and the market lending rate over time reveal that the discount rate on silver loans ranged between 5.5% and 6.5% (most often standing at 6%), while the market rate varied widely and was sometimes as much as double the NBS's rate. This leads us to the question why the NBS kept its interest rate practically unchanged for so long (1891–1920). The NBS by itself provides an explanation: 'When setting the discount rate, the bank's management had to take into account the effects of an increase or a decrease of the official interest rate could bring about, as well as it should be concerned with the protection of the bank's metallic reserves and provide favourable terms for attracting short-term foreign investments. Further, the bank's management had to pay attention to the nascent domestic money market and, in line with its legal mandate, strive to keep the average market rate as low as possible. Due to the special features of the domestic money market, the credits provided by the note issuing bank had to be cheaper than those provided by other monetary agents. This is the reason why the official rate of the bank could be neither equivalent nor higher than the average market rate'.<sup>26</sup>

On several occasions, the NBS had to suspend the granting of both discount and collateralised loans with a maturity longer than one to three months. Silver loans were suspended for two reasons: first, the legal limitation on the issue of banknotes and, second, the high government debt with the bank. Gold loans, on the other hand, were suspended at times of drastic reductions in the bank's metallic backing which threatened to fall below the legally prescribed minimum rate. In 1908, political unrest, caused by the annexation of Bosnia and Herzegovina, led to a massive gold

<sup>26</sup> Monograph of the National Bank, 1884–1934 (1935), p. 59.

outflow and deposits withdrawal, and consequently to a suspension of gold loans until June 1910.

The times series on official interest rates in **Yugoslavia** report the discount rate (*дисконтна стопа*) and the Lombard rate (*ломбардне стопе*) on securities, warrants and gold; they are shown in two formats, namely as values by the date of change and on a monthly and yearly basis.

Only commercial bills were eligible for rediscount, i.e. bills resulting from business transactions and not bills drawn up purely for the purpose of obtaining money. Since the commercial bills could be only submitted for discount by banks, large merchants and manufacturers, the bulk of the NBY's credits went to them.

As seen in Figure 3, the discount rate, for the first time after WWI, changed in May 1930, from 6.0% to 5.5%. It was subsequently increased to 6.5% and further to 7.5% in June and July 1931, respectively. With the end of the Great Depression, it was reduced to 7.0% in February 1934, followed by a new reduction to 6.5% in July 1934. It was reduced again to 5.0% in February 1935 and remained at that level until the end of 1940. The Lombard rate was increased from 7% to 8% in June 1931. This was followed by a further rise to 9.0% in July 1931. In February 1934, it was reduced to 8.0%, followed by a new reduction to 7.5% in July 1934 and finally to 6.0% in February 1935.

From the very beginning, the NBY was criticised for its unprincipled monetary policy, namely for keeping its discount rate unchanged while economic conditions had changed. The discount rate remained at 6.0% during the 1920s, same as it was before the war. In the NBY's *Annual Report for 1922* it was mentioned that the discount rate had no longer the same importance as in normal circumstances when it affected money circulation. There was a great disparity between the market and the official discount rates, so any change in the official discount rate would not affect lending conditions, since the NBY's share in total credit (12 billion) was only 1.5 billion dinars.

### Market interest rates

Market interest rates of private banks in **Serbia** (SE2I\_A) are available only for the years for which we have data from the *Statistical Yearbook of the Kingdom of Serbia*. They were shown as minimum and maximum rates without exactly specifying their type. We suppose that minimum rates were sight deposit rates and that maximum rates were short-term lending rates. It is known that market interest rates fluctuated, often exceeding double the NBS rates. From the NBS's reports and documents we know that the interest rate on prime bills of exchange ranged from 9% to 11% at the outset of the NBS's operations, but declined gradually over the subsequent years to 6–8% in Belgrade and 8–10% in the rest of Serbia. As of 1895, the free market interest rate picked up again to range from 8% to 10% in Belgrade and from 10% to 12% elsewhere in Serbia. With occasional exceptions, it remained within this latter range up until World War I.

In an effort to lower the market interest rate, the NBS also resorted to administrative measures. Thus in 1891, the NBS made lending to banks conditional upon their setting their interest rates at the following maximum levels: 8% if they had been operating for three years, 9% if they had been operating for two years and 10% if they had been operating for one year. Such measures, however, failed to yield the desired results. A similar thing happened in 1908, when, in a bid to bring interest rates down, the government enacted a law on the extension of privilege, requesting banks to set their interest rates at no more than 3 percentage points above the NBS's interest rate if they wished to use NBS loans. Out of 84 banks with which the NBS operated at the time,

only 44 consented to such limitation of the interest rate level. As a consequence, in late 1909 the NBS did business with only 54 banks, or 30 less than in 1908. The market interest rate remained unchanged, while a large number of banks found it more profitable to borrow from larger Belgrade banks or abroad, at a higher interest rate than that offered by the NBS, but with no limitations regarding the interest rates charged on their customers.

For **Yugoslavia**, short-term market lending rates for first-class bills are shown, as minimum and maximum rates (YU2E\_A), and market interest rates on sight deposits (YU2F\_A) and term deposits<sup>27</sup> (YU2G\_A) as well. Those interest rates were analysed in the *Monograph of the National Bank 1884–1934* (1935) and the NBY's *Annual Reports* when it started regularly to report on macroeconomic developments.

As in the most other Southeast European countries, market interest rates in Yugoslavia had been high. The behaviour of the short-term market lending rates was different across different sub-periods: from 1920 to 1922 they varied between 7% and 12%; from 1922 to 1925 they reached their highest level, i.e. 20%–30% and even higher; from 1925 to 1931 they continuously decreased; and finally, in the post-1931 period the high interest rates that prevailed during the Great Depression were followed by a period of moderate reduction.

The farmers and the peasants, however, as well as the artisans, were altogether without access to cheap credit. They had to go to the small provincial banks and private lenders. While the former granted credits to peasants at 20% to 30%, private lenders charged far more, the rate sometimes being such as to be ruinous. The small provincial banks with small savings deposits had to apply for credits to the larger banks in the towns. The interest rate on the credit they obtained in this way was practically about 10%–15% and consequently they in turn had to charge a high rate of interest.

Another problem was a constant lack of capital for long-term loans. The banks, having succeeded in making their funds liquid, were reluctant to provide loans with maturities longer than three months. Money was often withheld because lenders feared that in the case of legal proceedings they might not recover their loans, owing to the fact that the imperfect functioning of the administrative machinery made legal action slow and costly. For this reason, sound undertakings could not often obtain money unless they were in the hands of propertied persons who could give satisfactory guarantees. The flow of foreign capital into the country, however, remained slow, and such capital as did come in was not as cheap as to have any great influence on the interest rate.

In order to bring about a general reduction of the interest rates, the NBY in its bank refinancing policy always investigated the interest rate paid by the banks on savings deposits and charged on loans and discounts. In 1924, the NBY took the initiative to secure an agreement among banks on reducing the interest rate paid on loans and charged on deposits. Such an act was interpreted that the bank intended to lay down the rate of private interest. The NBY, however, explained that it neither intended nor ought to do so. Moreover, it pointed out the interest rate could not be lowered by decrees or laws, but only by an increase in the funds available for business. Nevertheless, the bank considered that it had the right to refuse credit to those intermediaries which, by setting high rates, prevented their customers from prospering. This policy was assessed by the NBY as having positive effects: competition for savings deposits was reduced to a minimum which in turn allowed banks to decrease their interest rates on loans.

<sup>27</sup> I.e. deposits with any kind of withdrawal restrictions.

Trying to reduce the market interest rate, the NBY demanded from banks that from 1 July 1926 they should moderate the interest rate on discounts, since it was clear that there was plenty of available money in the country. In dealing with the question of interest rates, the bank went one step further and placed a statutory upper limit on interest rates charged on loans in 1934 and 1936 (the upper limit remained unspecified in the available NBS's reports).

### 2.2.2 Long-term interest rates

#### Fixed-rate government bonds: market prices and current yields

We could not derive reliable data series on market prices and yields of the Serbian government bonds from available sources. We have only daily reports of Serbian newspapers on the prices of bonds traded on the European stock exchanges (*Српске новине*), but they are not complete.

Serbian long-term government bonds were placed on the European capital market by foreign banks domiciled in Vienna, Paris and Berlin. Those banks bought bonds from the Serbian government in advance and undertook the risk of [re-]selling those bonds on the European stock exchanges. Such risk was implicitly built into the effective interest rates, which were higher than the nominal ones because government loans were generally issued below par. The fact that from 1881 to 1913 the Serbian government borrowed nominally 1,354 million dinars (French francs) and received effectively 1,113 million dinars, meaning that the cost of borrowing was 18% higher than it was nominally agreed.

The government's relatively low creditworthiness in the European capital markets was primarily attributed to the large government budget deficits. The 1895 sovereign debt crisis made things even worse. The prices of Serbian government bonds started to rise only after foreign debt servicing was centralised within the Independent Monopoly Directorate. Moreover, fiscal consolidation after 1902 produced budgetary surpluses from 1904 onwards, which had a positive effect on the prices of government bonds. The average effective interest rate on foreign government loans issued below par fell from 6.5% in the period 1881–1903 to 5.7% in the period 1904–1912 (see Table 5).

**TABLE 5** Interest rates on the Serbian foreign long-term government loans issued below par

	Nominal amount borrowed (in thousands of dinars)	Effective amount received (in thousands of dinars)	Nominal interest rate in %	Effective interest rate in %
<i>Period of large budget deficits (1881–1903)</i>	398,936.500	308,198.300	5.0%	6.5%
<i>Period of stability (1904–1912)</i>	305.0	240.8	4.5%	5.7%

Source: Gnjatović (2009).

The long-term interest rates in Yugoslavia are proxied by the data on the market prices and current yields on the three most important fixed-rate government bonds traded on the Belgrade Stock Exchange. The market price of the bond Compensation loan for war damage (*рента за ратну штету*) was quoted in dinars per nominal 1,000 dinars (YU2H\_A), the price of the Investment loan (*инвестициони зајам*) in dinars per nominal 100 dinars (YU2I\_A) and the price of the Agrarian bonds (*аграрне обвезнице*) in dinars per nominal 100 dinars (YU2J\_A). From 1932, the prices

are calculated at a new way of quoting whereby the rate does not include accrued interest, which simplifies the calculation of the yield. However, for the previous period, the yields are not adjusted for the coupon (which is included in the quoted price).

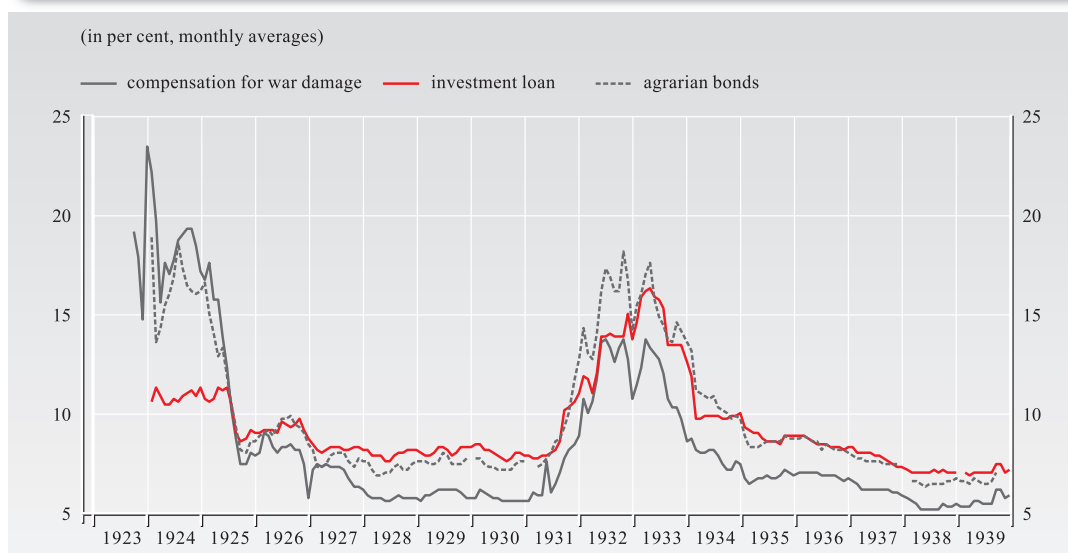
Current yield is measured by the ratio of the annual interest payment and the bond's current market price as a percentage of the latter; it therefore refers to the yield of the bonds at the current moment, not the total return over the life of the bond. All Serbian bonds were trading at a discount, i.e. the current yield was higher than the coupon yield.

**TABLE 6** Serbian government bonds quoted in the Belgrade Stock Exchange

Bond name	Year of issue	Amount (in millions of dinars)	Coupon rate	Maturity (years)
<i>Compensation for war damage</i>	1923–1925	4,916.6	2.5%	50
<i>Investment loan</i>	1921	500.0	7.0%	50
<i>Agrarian bonds</i>	1921	130.0	4.0%	30

Source: Monograph of the Ministry of Finance of the Kingdom of Yugoslavia, 1918–1939 (1939).

**FIGURE 4** Current Yields of Government Bond Loans in Yugoslavia,  
September 1923–December 1939



Source: Belgrade Stock Exchange (2004) and authors' own calculations.

### 2.3 EXCHANGE RATES

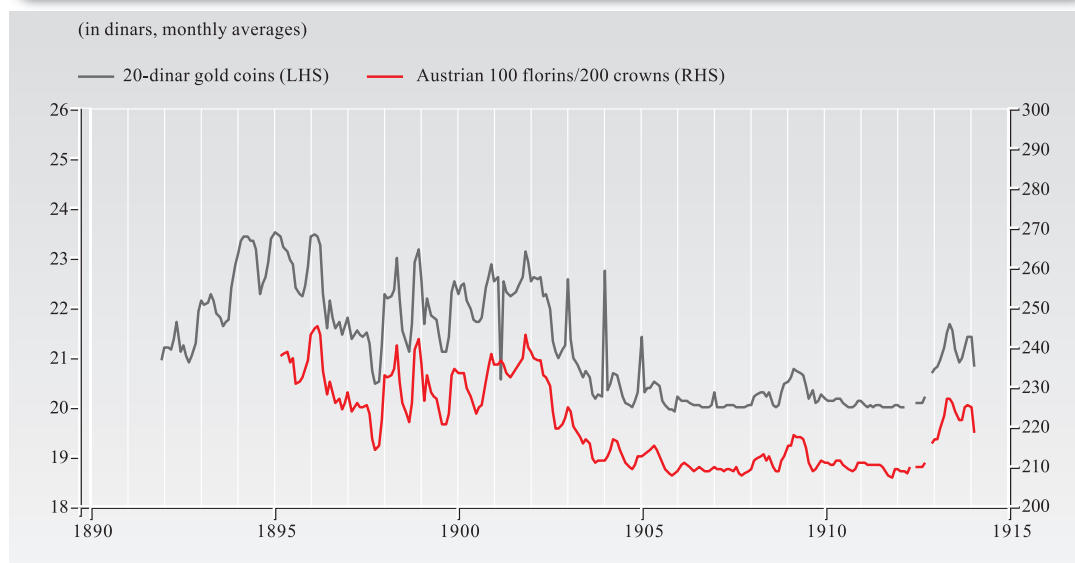
The exchange rate data for **Serbia** include the nominal exchange rate of the silver dinar per 20-dinar gold coin and the rate of the silver dinar per 100 Austrian florins/200 Austrian crowns. The 20-dinar gold coin is the Serbian equivalent of the 20-French franc gold coin (or the Napoleon

d'Or) which was the most widely used in trade transactions in 19th century Europe. In Southeast Europe, Serbia is probably the only country reporting a price for coins (expressed in domestic paper money). Most countries used to report the domestic price for bills of exchange drawn on foreign banks abroad.

The data series of the exchange rate of the dinar against the 20-dinar gold coin (expressed in domestic paper currency) and the Austrian florin/Austrian crown are available from November 1891 and February 1895, respectively. They have been constructed based on the official exchange rates prevailing in Belgrade. For the period prior to 1899 and after 1908, we used the mid-day rate published in Serbian newspapers. Year averages are derived from monthly averages.

The dinar complied with the coinage requirements of the Latin Monetary Union: the exchange rate of the dinar versus the French franc was at par as both currencies had the same content of gold. However, due to the limited domestic production capacity and the widening budget deficit and government foreign debt, the country's gold reserves could not sustain any more the convertibility of the domestic currency in gold at a fixed parity. Exchange from one currency to another involved an additional charge, namely the agio. Defined as the difference between domestic money (silver-backed 10-dinar banknotes) and gold which was used for the settlement of the country's international obligations, the agio was actually an indicator of the depreciation of the dinar against gold.

**FIGURE 5 Exchange Rates in Belgrade, November 1891–January 1914**



Source: Authors' own calculations based on daily data published in "Serbian Newspapers" for the two periods before 1899 and after 1908; For the period 1899–1908 see Statistical Yearbook of the Kingdom of Serbia (1913).

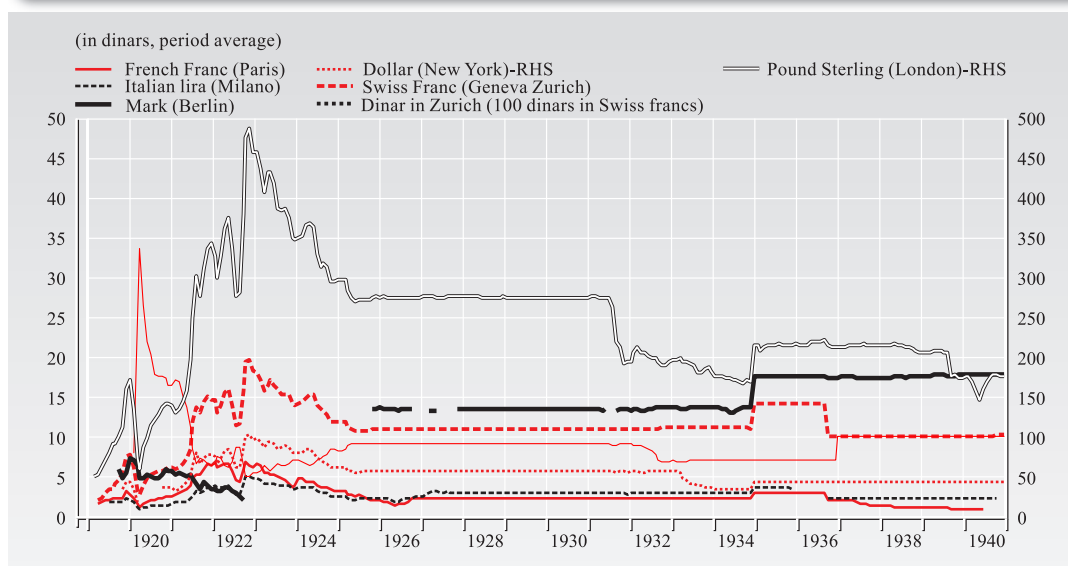
The agio varied in the course of the year. Due to its predominantly agrarian character, domestic economic activity picked up in the second half of the year. During the export season gold flowed into the country; its supply was larger and the agio declined as a result. By contrast, in the first half of the year, as exports weakened and money supply was not reduced, banknotes which were redeemable in silver, squeezed out banknotes which were redeemable in gold and thus the agio went up. The NBS could not eliminate the agio by direct interventions through trade in gold, but it could ease its fluctuations. The bank purchased gold during the autumn season, when there was

enough of it in circulation, and sold gold usually in March, when it was scarce and the agio went up. During the 1880s, the agio equalled 3–4%, which was somewhat lower than in the preceding period.<sup>28</sup> It peaked between 1893 and 1903, when the silver-backed 10-dinar banknote dominated circulation. The agio was significantly lower from 1903 onwards, when public finances were put in order and goods exports and capital inflows gathered pace. Attempts to curtail the agio by limiting the amount of the silver-backed banknotes induced a slowdown in economic activity and the appearance of a 0.5% disagio in the course of 1905, i.e. an additional charge on gold had to be paid from time to time all the way until 1908.

Considering the exceptionally difficult circumstances, the dinar was relatively stable throughout the period before World War I (see Figure 6). The price for a 20-dinar gold coin ranged from 20 to 23.5 dinars. The price for 100 Austrian florins increased from 210 to 240 dinars, that is from 103 to 113 dinars for 100 Austrian crowns after 1909; the new exchange rate was half the old one: 1 Austrian florin = 2 Austrian crowns. The Austrian crown replaced the Austrian florin in 1900, but the Belgrade Stock Exchange continued to quote the old unit of account (100 Austrian florins) until 1909.

The exchange rate data for **Yugoslavia** include the spot nominal exchange rate of the dinar vis-à-vis the US dollar, the French franc, the Swiss franc, the pound sterling, the Italian lira and the mark (until 1923)/Reichsmark (1924–1948) on the Belgrade Stock Exchange. Prices for foreign exchange are presented in dinars per one unit of foreign currency. Both yearly and monthly time series refer to period averages. During interwar, the Yugoslav currency was quoted in all major world stock exchanges (New York, Zurich, Paris, London, Prague and Berlin). The Belgrade Stock Exchange regularly reported on the dinar exchange rate in Zurich (100 dinars in Swiss francs). Series YU3G\_A and series YU3G\_M present the data on an annual and a monthly basis, respectively. The sharp decline of the dinar from 1920 onwards was induced by the monetisation of budget

**FIGURE 6 Dinar Exchange Rates at the Belgrade Stock Exchange, February 1919–December 1940**



Source: Belgrade Stock Exchange (2004) and the Monograph of the National Bank 1884–1934 (1935).

<sup>28</sup> During the 1860s and the 1870s, the agio reached 6% and 5%, respectively.

deficits and the replacement of the former Austrian crowns. From October 1920 to January 1923, the exchange rate of the dinar fell from 20.41 to 3.69 Swiss francs per 100 dinars. At the same time, this was the lowest exchange rate of the dinar recorded in the Swiss money markets between the two world wars.

The gradual rise of the dinar started in 1923, when Yugoslavia finally managed to increase exports. The NBY stopped issuing banknotes for the account of the government; banknote issue for its own account was also limited. Within the framework of the foreign exchange rate policy determined by the Ministry of Finance, the bank was mandated to achieve exchange rate stability. In the next years, it intervened in the foreign exchange market in order to stabilise the value of the dinar: it sold foreign exchange bills whenever the demand for the dinar was high and bought foreign exchange especially during the export season when the supply was high. Ultimately, *de jure* stabilisation came in 1931; the legal parity of the dinar was defined at 26.5 milligrams of fine gold or at 0.0912778 Swiss francs. However, the gold-exchange standard lasted only 101 days. After abandoning gold, the country switched to floating rates and the dinar started to depreciate. During the Great Depression, it lost 28.5% of its value against the Swiss franc; its market value was slightly higher than its official value with a premium of 8%, on average.

## 2.4 GOVERNMENT FINANCES

Key fiscal data series for Serbia are presented in Table SE 4\_A. All series are in dinars and refer to realised values. The data series for Yugoslavia are shown in Table YU 4\_A. They are presented in more detail (by main category of budget revenues and expenditures) and also refer to realised values (in dinars).

### 2.4.1 Flows: revenue and expenditure

For **Serbia**, government revenue (series SE4A\_A) and government expenditure (series SE4B\_A) refer to central government and cover the period from 1880 to 1912. Government revenue and expenditure were recorded on a cash basis, meaning that they were recognised when collected or paid, respectively. The fiscal year started on 1 November and ended on 31 October of the next year. In order to align the fiscal year with the calendar year, the simple rule was used: 1879/1880 fiscal year is 1880 calendar year, 1880/1881 fiscal year is 1881 calendar year, and so on.

Revenues were shown by source or type, such as various taxes, fees and charges. Expenditures were shown by function and object. Also, at the time a distinction was made between ordinary and extraordinary budget items. However, this distinction was rather conventional, e.g. certain spending items called '*издаци ван буџета*' were outside the ordinary budget. In fact, 'extraordinary' items were far from exceptional or infrequent and were among the largest budget items. For this reason, extraordinary items are included in the series presented here.

Given their regularity, foreign public debt repayment, principal and interest (series SE4C\_A), are included in ordinary expenditures. According to modern budget accounting, only interest payments should be included in ordinary expenditures. Our data sources do not allow a breakdown of debt service expenditures into their principal and interest components.

During the 1880s and the 1890s the budget was permanently in deficit, as seen in Figure 7. It was almost impossible to achieve a balance between insufficient revenues and ordinary and extraordinary expenditures. The 1884 tax reform failed to produce the expected results. Furthermore, rigid



budget structures limited the scope for adjusting expenditures. Foreign debt repayment and military expenditures accounted for two-thirds of government expenditures. The state monopolies on tobacco, railroad exploitation and salt were the most significant sources of government revenue and were pledged for securing foreign loans. They picked up in the early 1890s. In 1895, the government signed an agreement on debt conversion with representatives of the three creditor banks: the Ottoman Bank in Paris, the Berlin Trade Company and Lender bank from in Vienna. Debt conversion by lowering the interest rate and extending repayment ultimately facilitated debt service at annual level.

**FIGURE 7 Government Revenue and Expenditure in Serbia, 1880–1912**



Source: Gnjatović (2009).

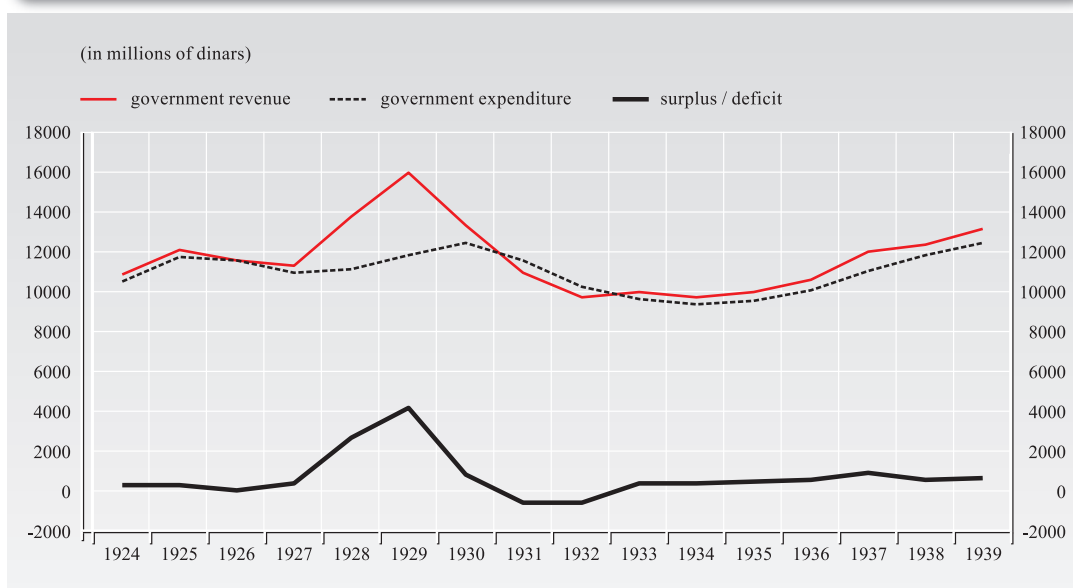
Even though government revenues were gradually improving, primarily due to more timely tax collection and to the state monopolies, they were not sufficient to cover high spending. The tax system, which was heavily dependent on personal taxation, was a key issue. In line with the European practice at the time, the tax reform in the mid 1880s introduced different types of taxation and strengthened the tax base. Since 1902, the strict supervision of all budget receipts and outlays implemented by the National Assembly, which used to discuss the state budget item by item, helped in fiscal consolidation. 1903 was the last year in a row which ended with a budget deficit for Serbia; from 1906 to 1910, it recorded a budget surplus. However, the sound fiscal position was soon disturbed by high military expenditures (Balkan Wars and World War I).

In interwar **Yugoslavia**, there were 20 different budget periods with respect to duration and the method of budgeting in line with certain economic and political circumstances. In the early post-war years, Yugoslavia's budgeting was largely of an extraordinary character: budget planning did not exist until 1923/1924 fiscal year. Therefore, our budget data begin with that fiscal year. They refer to central government and are recorded on a cash basis. Government revenue (series SE4A\_A) and expenditure (series SE4B\_A) start from 1924 and run through to 1939. Fiscal year started on 1 April, and ended on 31 March of the next year. In order to convert fiscal to calendar year, the simple rule was used: 1923/1924 fiscal year is 1924 calendar year, 1924/1925 fiscal year is 1925 calendar year and so on.

Additionally shown are the most important items of revenues: direct taxes (series YU4B\_A), indirect taxes and excises (series YU4C\_A) and state enterprises (series YU4D\_A), as well as the most important items of expenditures: pensions (series YU4F\_A) and public debt repayment (series YU4G\_A). The last item includes repayments of principal and interest on both foreign and domestic loans. According to modern national accounting, only interest payments should be included in ordinary expenditures. Again, our data sources do not allow a breakdown of debt service expenditures into their principal and interest components.

The 1923/1924 fiscal year halted the growth of the budget deficit (see Figure 8). Expenditures were realistically projected, taking into account all state needs, whereas revenues were strengthened thanks to the tax policy and the introduction of a new temporary tax, i.e. the excise tax on land. Fiscal policy focused on maintaining an annually balanced budget. Between the 1923/1924 and the 1929/1930 fiscal years government expenditure grew relatively slowly. At the same time, revenue generated from all sources, both from direct and indirect taxes and from the state economy, grew similarly. The structure of government revenue did not change significantly. Revenues generated from direct and indirect taxes accounted for almost two-thirds of total government revenues, while revenues from the state enterprises constituted around one third. The new large government loans, both domestic and foreign, were not taken into account until 1931.

**FIGURE 8 Government Revenue and Expenditure in Yugoslavia 1924–1939**



Source: Federal Statistical Office (1989).

During the Great Depression, the government tried to achieve balanced budgets by cutting spending given the sharp drop in revenues. Once the crisis was overcome and revenue started growing again in 1933/34, the budget ended with a small deficit.

#### 2.4.2 Stocks: public debt

Budget deficits compelled the **Serbian** government to seek additional sources of finance through borrowing at home and abroad, the former referring mainly to borrowing from the NBS. There-

fore, our public debt data comprises the series on the gross outstanding foreign public debt of central government (SE4D\_A) and the government debt to the NBS (SE4E\_A) as proxy for domestic public debt.

Public debt of **Yugoslavia** is also presented by the gross outstanding foreign public debt of the central government (series YU4H\_A), but only for one year (1932), and by the government debt to the NBY (series YU4K\_A) for the period 1920–1940. It should be noted that government borrowing from the bank (series YU4J\_A) is not a proxy for the public domestic debt because an important part of it was sovereign bonds.<sup>29</sup> The government issued bonds to compensate individuals for war damages and finance the agrarian reform (i.e. to compensate the former landowners in Bosnia and Herzegovina, Dalmatia and southern and northern parts of the country in order to eliminate the last remnants of the feudal order). They were also placed on the domestic money market to finance the reconstruction of damaged infrastructure across the country and, after the Great Depression, the liquidation of peasant debts.

### Foreign public debt

The data series on foreign public debt of **Serbia** represents the gross outstanding debt issued by the central government, denominated in dinars (i.e. French francs) over the period from 1867 to 1912 (series SE4D\_A of Table SE4\_A).<sup>30</sup> From 1878, when it was internationally recognised as an independent state, until WWI Serbia concluded 23 long-term foreign government bond loans. The high borrowing requirements of the Serbian government reflected the need to finance military spending and investment in infrastructure. Consequently, foreign debt service was a significant burden on the country's budget.

After World War I, **Yugoslavia** took over 10 old Serbian foreign loans in a total amount of 815.3 million dinars in gold (with an outstanding repayment amount of 45.9 million dinars in gold). It also took over the government loans of Montenegro (17.0 million dinars in gold), a part of the pre-war Austro-Hungarian government debt (43.6 million French francs and 110.3 million dinars in gold) and the government debt of the provinces which were parts of the Austro-Hungarian monarchy before the war (336.0 million Austrian crowns in gold). The post-war reconstruction of the country (railway network, roads and factories) was carried out thanks to both foreign and domestic borrowing. However, the Great Depression stopped abruptly capital inflows.

Detailed data on foreign public debt are only available for 1932. Gross outstanding foreign public debt amounted 32.8 billion dinars; 32.9% was denominated in French francs in gold, 22.1% in pound sterling, 22% in dollars, 16.5% in paper French francs, 6.4% in Reichsmark (6.4%) and only 0.1% in dinars. The foreign debt to national income ratio was 89.8%.

### Domestic public debt

One of the main tasks of the NBS was to finance the steadily rising budget deficits through the discount of three-month state coupons and collateralised loans. The government repaid only the interest and not the principal. In 1886, two years after the NBS's inception, government debt rose to 2.9 million dinars, which represented a half of all banknotes issued (50.9%).

<sup>29</sup> For example, in 1932 the government debt to the NBY was 2.4 billion dinars and the debt from government bond issue was 6.0 billion.

<sup>30</sup> Only two foreign government bond loans were issued at par, namely the 1882 and the 1890 Salt Loans. See Gnjatović (2009).

In 1890, government debt to the NBS with respect to collateralised loans, coupons and the NBS's share in government loans abroad came close to 6 million dinars. Moreover, the bank also approved the so-called intermediate loans in a total amount of 1 million dinars against government guarantees (to individual ministries, state institutions, railways directorate, the monopoly on tobacco, salt, public institutions, etc.). The next year, direct and indirect government loans rose to 8 million dinars.

Up to 1898, the government borrowed from the bank pursuant to an agreement with the NBS's management. Thereafter, however, since borrowing from abroad was not possible, the government forced the NBS to lend to it 10 million dinars, in addition to all other already existing loans. Silver-backed banknotes issued in respect to this loan had metallic backing in the same proportion as provided for all other banknotes, but they were not included in the maximum allowed contingent of banknotes in circulation (25 million dinars). Government debt to the NBS was already significant, but in 1889 it doubled to 15.9 million dinars. In 1900, another loan of 2 million dinars was concluded on the same terms as applied to the loan of 10 million. The NBS's dissatisfaction with the situation is evident from the following quote: 'Once a high-handed approach has been adopted, it was difficult to reverse the trend. This legal solution too was enacted without requesting the opinion or consent of the bank's management... This and similar laws and legal solutions only further eroded the NBS's independence, leaving it to choose between a rock and a hard place: either to breach the laws, enacted without its consent and thereby expose itself to forced measures, ... or to bend its head and apply the laws and decisions, and yet protest against them. In the general interest, the bank opted for the second option, giving way before force'.<sup>31</sup>

The relations between the NBS and the government remained strained until 1904. Lending to government became occasional and short-term in character, as can be seen from the data: in 1904, the outstanding government debt to the NBS was 7.5 million, in 1905 it was 3.4 million, while in the subsequent two years, 1906 and 1907, the government ran no debt with the central bank at all.<sup>32</sup>

However, the Customs War with the Austro-Hungarian Empire, and the 1908 Annexation Crisis in particular, brought about a financial crisis. The government was given the option of additional borrowing from the NBS, i.e. the right to use temporary, three-month advances based on extraordinary coupons worth up to 10 million dinars. However, it did not fully use this option until the outbreak of the Second Balkan War in 1913. A special type of lending to the government was also introduced, the so-called temporary exchange (*привремена размена*). Under this arrangement, the government could exchange gold in unlimited amounts with the NBS against an appropriate amount of silver-backed banknotes and vice versa, and exchange silver-backed banknotes against gold without any deductions whatsoever. The banknotes issued in respect of temporary exchange were not included in the contingent with a backing of 40%. This enabled the government to exchange gold against silver-backed banknotes without any losses on the agio. As it later proved, this type of exchange enabled, above all, simple financing of budget expenditure in extraordinary circumstances.

The progress achieved from 1909 to 1911 paved the way for the stabilisation of the state finances, not disrupted even by the First Balkan War of 1912. However, economic upswing came to a halt

<sup>31</sup> See the Monograph of the Privileged National Bank of the Kingdom of Serbia 1884–1909 (1909), p. 130.

<sup>32</sup> This is best illustrated by a detachment from the speech of the Minister of Finance, Lazar Paču, in the 1904 Assembly debate: '...the National Bank should not be a source of government revenue. It may become such a source only indirectly: by creating conditions for even development and providing viable credit arrangements, which will in return upgrade economic activity and trade, thus strengthening the primary sources of revenue to the state Treasury' (Monograph of the Privileged National Bank of the Kingdom of Serbia 1884–1934, 1935, p. 38).

in 1913 as a consequence of war distress and downturn in crop yields. Budget revenue declined, and the government stepped up its borrowing from the central bank. High budget expenditures during World War I were financed with NBS funds as well.

Lending money to the government was also one of the main functions of the central bank in inter-war **Yugoslavia**. Almost immediately upon its return to the country, the NBS financed the huge budget expenditures of the new state. In addition, due to the replacement of the former Austrian crowns by dinars, the government debt to the NBY swelled by 1.28 billion dinars. Further, the bank extended loans to the government under a ‘temporary exchange clause’, but in fact without ‘exchange’. Printing money and inflation were the ultimate result.

Financing budget expenditures through inflation lasted until mid-1922, when the upper limit of extraordinary government debt to the NBY was reached. Namely, the Law on the NBY stipulated that government borrowing from the NBS could be based on bills of exchange worth up to 1 billion dinars and the maximum amount of extraordinary loans was set at 2 billion. In order to stabilise the dinar, the government and the NBS agreed on the liquidation of the government debt to the bank. Indeed, the government reduced its debt from 1922 to June 1931, when legal stabilisation of the dinar was in place, although not in the amounts agreed upon. According to the agreement, the government loan of 1 billion worth would be settled in full amount every year, but this never happened until June 1931. Contrary to the agreement, the extraordinary loans remained unchanged. Only the ‘state debt without interest on crown notes’ was reduced from 1.28 billion in 1921 to 897.8 million in June 1931.

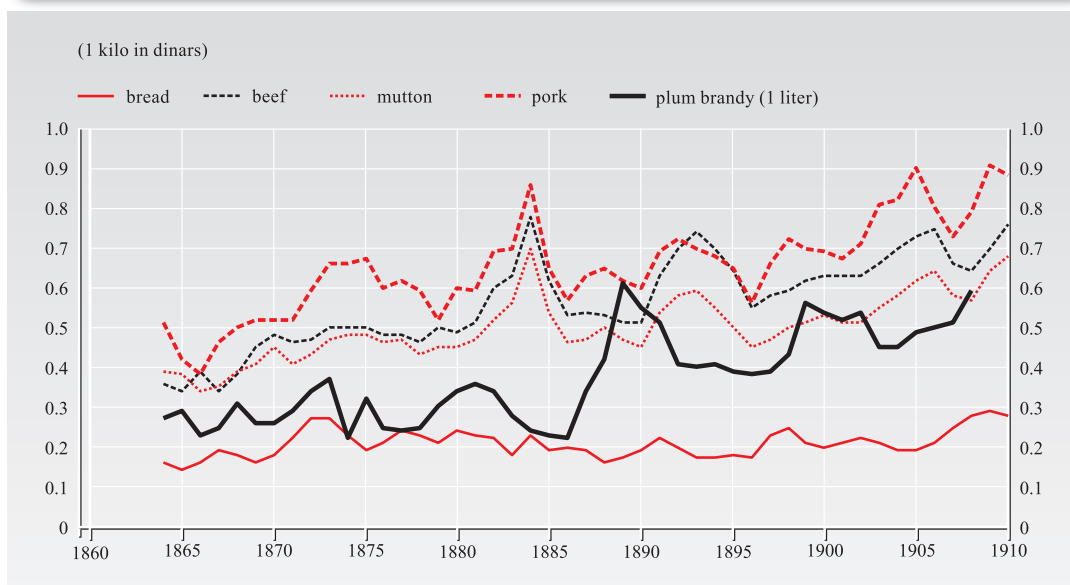
## 2.5 PRICES, PRODUCTION AND LABOUR

Prices indices were not compiled in Serbia before WWI. They are approximated by the prices of the main foodstuffs. For Yugoslavia, the wholesale price index and the import and export price indices are available from 1927 onwards. Industrial production is approximated by the production of selected industrial products (1888–1939) for both Serbia and Yugoslavia. Labour data series include series on employment and wages.

### 2.5.1 Prices

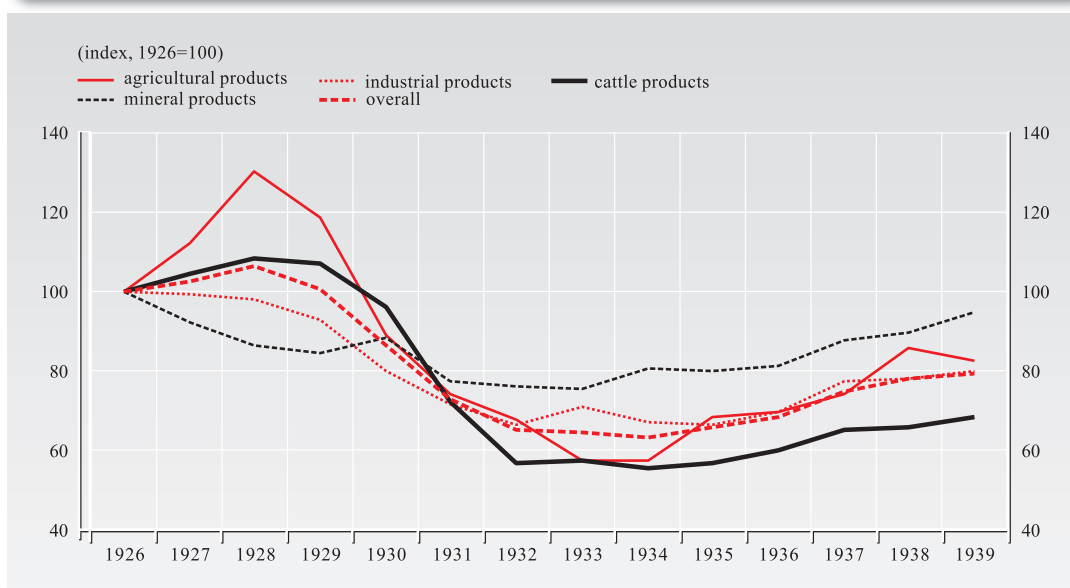
The collection of data on prices in **Serbia** started in 1862. The prices were presented in groš currency values (in the *State Statistics of Serbia*), but also in dinars (in the *Statistical Yearbooks of the Kingdom of Serbia*, published from 1893). The data series captures the changes in the prices of main agricultural items, livestock and foodstuffs, in major places of Serbia (see Figure 9). The guidelines for the collection of data on prices did not differ substantially from the common definitions and methods used today. The prices were collected by court servants and referred to for the average produce quality at the products’ placement on the market. An analysis of the prevailing price trends, the price parity for certain major goods (e.g. wheat, flour and bread), and even comparisons with the price trends in the European countries were also reported.

The data collection process was continuous. As the territory of Serbia expanded, the number of towns where the prices were collected increased. Therefore, in the *1905 Statistical Yearbook of the Kingdom of Serbia*, product prices from 42 towns were published. Table SE5.1\_A displays the average annual prices for the main agricultural items at the time. The time span is from 1864 to 1910; and from 1866 to 1910 for beans and plum brandy.

**FIGURE 9 Prices of the Main Foodstuffs in Serbia, 1864–1910**

Source: Two Centuries of Serbian Development (2008).

The wholesale price index (*индекс цена на велико*) was calculated for the first time in 1927 in Yugoslavia. Namely, the economic studies division of the NBY, founded in 1928, laid the methodological foundations for the calculation of price indices. The wholesale price index was based on the wholesale prices of 55 major products (both domestic and imported): 14 agricultural products, 12 cattle products, 6 mineral products and 23 industrial products. The prices were collected from

**FIGURE 10 Indices of Wholesale Prices in Yugoslavia, 1926–1939**

Source: Statistical Yearbook of the Kingdom of Yugoslavia.

the main domestic wholesale markets and included production costs, taxes, transport and wholesalers' earnings. The index was calculated by applying a unweighted geometric mean. Series YU5A\_A to series YU5G\_A of Table YU5.1\_A display the general index of the wholesale prices as well as the sub-indices of agricultural, cattle, minerals and industrial prices from 1926 to 1939 with 1926 as base year. A special group of wholesale price indices shown in Table YU5.1\_A are import (series YU5F\_A) and export prices (series YU5G\_A). They were calculated on the basis of a list of 20 items for each index. The data on the prices of 17 items that had more importance for external trade were compiled separately.

Before the Great Depression, inflation in Yugoslavia was quite moderate, following a trend similar to Western European countries. However, during the interwar crisis a sharp drop in the prices of almost all goods and services occurred. According to the official statistics, from 1928 to 1934, wholesale prices fell by 40.5%, as seen in Figure 10.

### 2.5.2 Production

Statistical data on total industrial production do not exist for the pre-WWII period.<sup>33</sup> Data series on the production of selected industrial products in both Serbia and Yugoslavia are only available.

The first official statistics in **Serbia** date from 1888 and relate to the production of two products, i.e. beer and flour. It was only in 1893 when the basket of goods became larger. Between the wars, data releases became more frequent, and mining and ore processing industries were presented in more detail. Table SE5.2\_A show annual data from 1888 to 1939 on the production, in volume terms, of several selected products in Serbia: milled flour and other items (series SE5J\_A), beer (series SE5K\_A), cement (series SE5L\_A), hard coal (series SE5M\_A), brown coal (series SE5N\_A) and lignite (series SE5O\_A). However, there is much data missing for some years. Regarding **Yugoslavia**, Table YU5.2\_A reports data series on the same mining products. They can also be used for the assessment of the overall industrial production since mining products were important inputs in the country's industry (about 90% of total mining production was domestically used).

As part of national accounts, gross national income of industry and mining is shown in Table YU6\_A (series YU6B\_A). The data suggest that interwar Yugoslavia went through three distinctive periods: the 1920s, the Great Depression and the 1930s, with annual growth rates of 5.7%, -8.4% and 8.0%, respectively.<sup>34</sup>

### 2.5.3 Labour and wages

#### Employment

Labour force statistics were established only after WWI. For the period before the war, an insight into employment in **Serbia** is only possible through the censuses of population after 'occupation' was introduced in questionnaires and thus it was possible to extract 'active population' out of 'total'. The 1866 census may be regarded as the 'first modern' and complete census conducted in the country. Before then, the data collected were less reliable. Series SE5T\_A in Table SE5.3\_A presents

<sup>33</sup> The only data source available for this period is some descriptive statistics presented by Kukoleča. (1941).

<sup>34</sup> Stajić (1959), pp. 60–61.

the estimated data on economically active population in 1866, 1893, 1895, 1896 and 1900. The estimation was performed by the Statistical Office of the Republic of Serbia.<sup>35</sup> The largest part (85%–90%) of the active population earned income from agriculture and about 6% from industry and crafts. Up to the 1900 census, the growth of employment was evident for the active population of all occupation groups, except in 1895 when employment decreased due to the changed age structure of population relative to other periods; a difference was resulted from the smaller enumeration figures for the population aged 15 to 65. Although the 1905 and 1910 censuses were implemented, the data figures were not found.

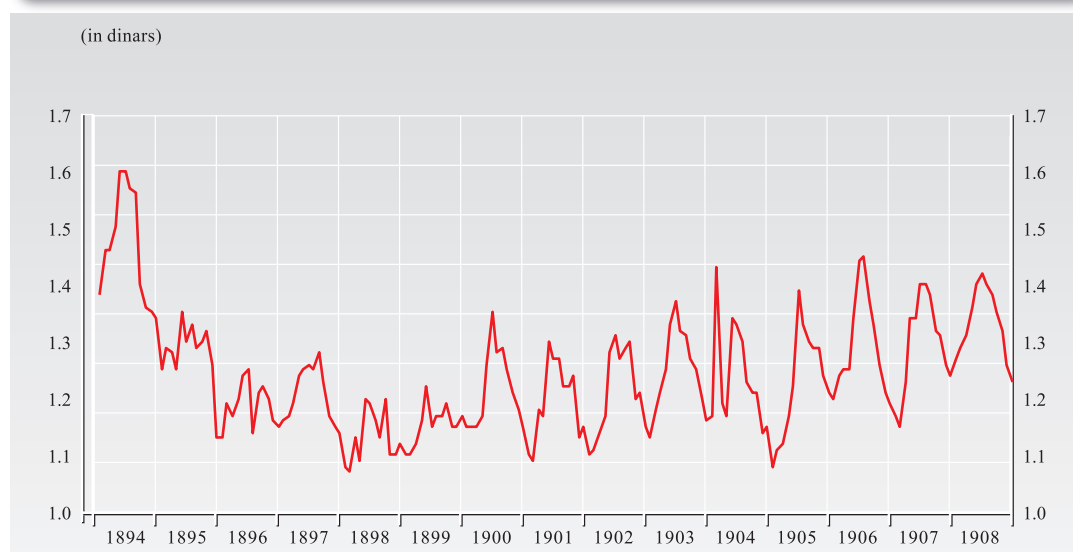
After WWI, the statistics on employment were based on the records of social insurance. Series YU5L\_A in Table YU5.3\_A shows employment in **Yugoslavia** from 1920 to 1940. However, it is unknown whether the data refer to the end of the year or the year average. In any event, these data on employment must be interpreted with caution because they were only announced by employment agencies and did not capture some jobs which were found without the mediation of such an agency. Nor did they encompass employees in the private agricultural sector, transport and other services.

As official figures show, the number of employed persons declined from 824,000 in 1929 to 775,000 in 1934. From then until the beginning of World War II, the number of persons employed gradually increased, surpassing one million in 1940. This was mainly due to the extensive public works which the government initiated in 1935 in an attempt to boost employment.

### Wages

In Serbia, the data on wages began to be collected simultaneously with the data on prices. They referred to certain money amounts received by the workers. Court servants were in charge of col-

**FIGURE II Average Daily Wage in Serbia, January 1894–December 1908**



Source: Statistical Yearbook of the Kingdom of Serbia (1913) and Two Centuries of Serbian Development (2008).

<sup>35</sup> See Two Centuries of Serbian Development (2008).

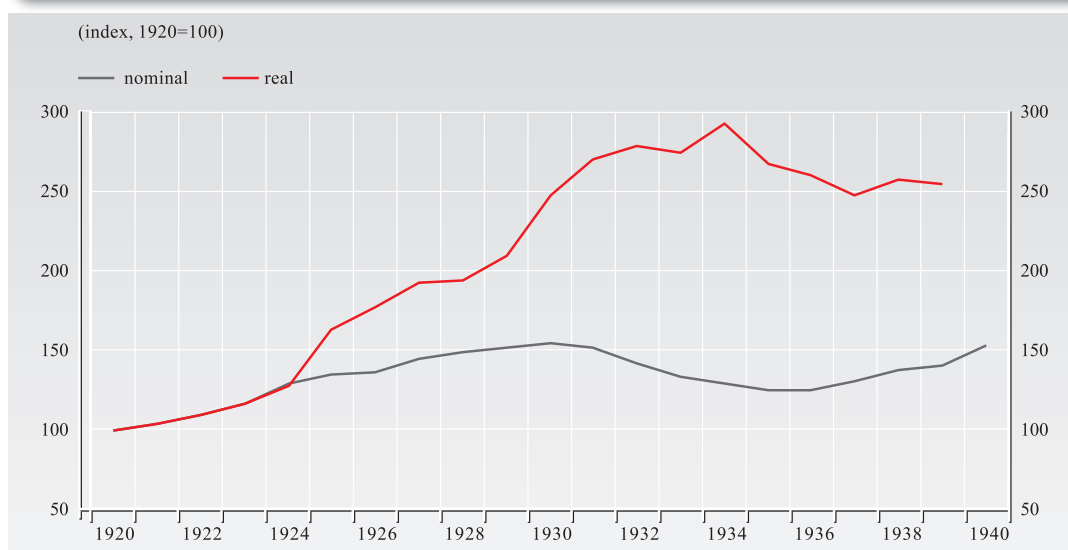


lecting daily wages on four types of day labourers: diggers, reapers, masons and general manual labourers. The data were published in the *State Statistics of Serbia*, for individual towns and for the whole country. Based on this data input, annual average data were calculated and published first in the *State Statistics of Serbia* and later in the *Statistical Yearbooks*.

Table SE5.3\_A displays the time series for diggers (series SE5P\_A), reapers (series SE5Q\_A), masons (series SE5R\_A) and manual labourers (series SE5S\_A). All series cover the period from 1863 to 1910. The data on average daily wages payable to diggers for the period 1863–1879 were recalculated from groš into dinars. Average total daily wages are reported for a shorter period that is from 1894 to 1908, and at monthly frequency (see Table SE5\_M; series SE5T\_M; Figure 11).

From 1920 to 1940 social insurance offices produced the statistics on wages. They provided data on the average wage of employees, by activity and gender, and covered the entire territory of the country (see Table YU5.3\_A).

**FIGURE 12 Nominal and Real Wages in Yugoslavia, 1920–1940**



Source: Federal Statistical Office (1989).

To draw attention to the interwar deflation effect on wages, a real wages index was obtained as the ratio of the nominal wages index and the implicit prices index (see Table YU5.3\_A; series YU5P\_A) since a consumer price index is not available for the period prior to 1940.<sup>36</sup> The implicit prices index was derived from the data input on national income for the period 1923–1939. As seen in Figure 12, prices fell more rapidly than nominal wages over the crisis years 1930–1934.

## 2.6 NATIONAL ACCOUNTS AND POPULATION

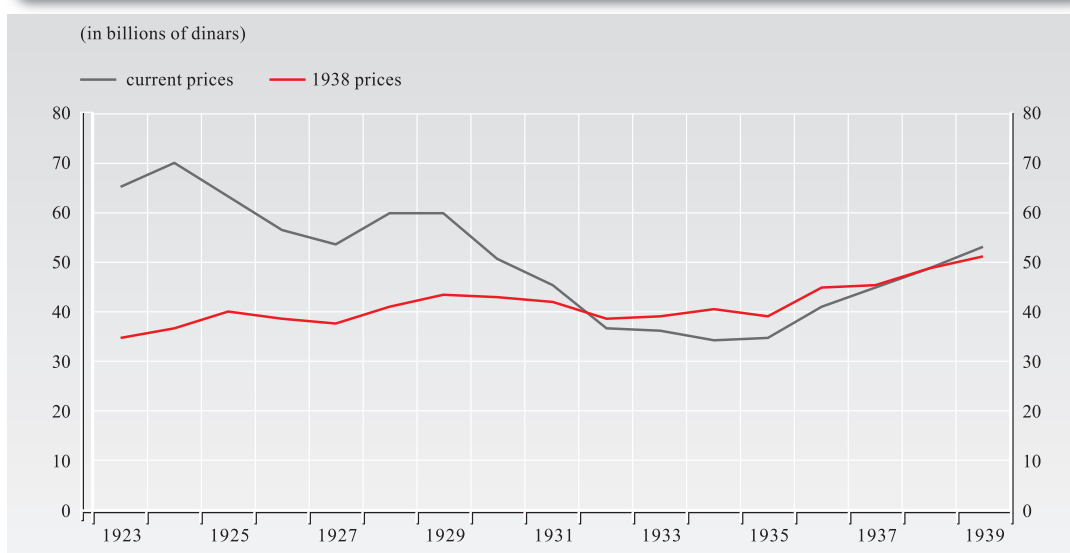
This group contains data on the gross national income (only for Yugoslavia), foreign trade and population.

<sup>36</sup> Two Centuries of Serbian Development—Statistical Review (2008), p. 85.

### 2.6.1 Gross national income

In pre-WWI **Serbia**, calculations of gross domestic product and national income were not conducted. Thus, due to lack of data, reliable estimations do not exist. Calculations of gross national income for **Yugoslavia** were first carried out by Stevan Stajić after WWI.<sup>37</sup> Based on the material product concept, he defined national income as the sum of the income accrued by the following sectors: industry and mining, agriculture, forestry, construction, transportation, trade and crafts. He computed national income at current and constant 1938 prices for the period 1923–1939 (see Table YU6\_A; series YU6A\_A and series YU6D\_A).

**FIGURE 13 National Income of Yugoslavia, 1923–1939**



Source: Stajic (1959).

Table YU6\_A also contains the most important components of Stajic's statistics: income from industry and mining at current (series YU6B\_A) and constant (series YU6E\_A) prices and income from agriculture (without forestry) at current (series YU6C\_A) and constant (series YU6F\_A) prices for the period from 1923 to 1939. Agriculture formed the largest sector of the domestic economy until 1939. The agricultural production share in national income did decline over time, albeit slightly, and in no case this decline may signal significant structural changes at the time.<sup>38</sup> As seen in Figure 13, nominal income dropped strongly during the Great Depression, from 70 billion dinars in 1924 to just 34 billion in 1934. However, real income even increased, chiefly due to the sharp drop in prices.

### 2.6.2 Foreign trade

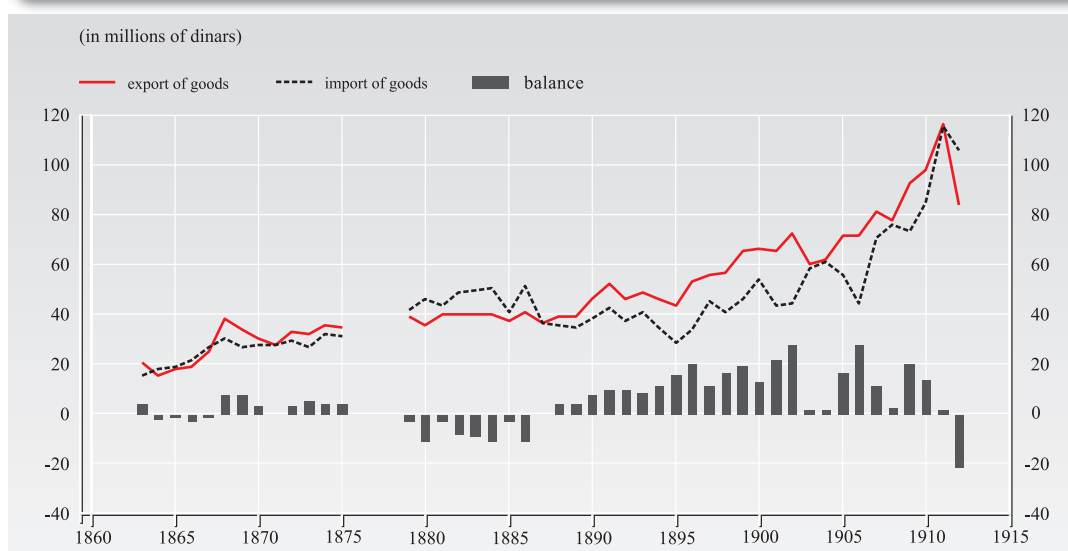
The statistics on the **Serbian** foreign trade were first published in 1844 and related to 1842/1843. Afterwards, the data were only compiled, but not published. The regular publication of foreign trade statistics started in 1863 in the first release of the *State Statistics of Serbia*. Table SE6\_A reports annual data on foreign trade of goods for the period 1863–1912; services are not included

<sup>37</sup> See Stajic (1959).

<sup>38</sup> See Lampe and Jackson (1982), pp. 325–326.

(see Figure 14). The trade statistics registered all goods that crossed the borders and passed through customs: exports (*извоз*) (series SE6A\_A), imports (*увоз*) (series SE6B\_A) and transit (*привоз*) (series SE6C\_A). Customs declarations served as the basis for the statistics compilation. The goods were classified according to the general customs tariff. The volume was recorded gross or net depending on what was used for the payment of customs duty. The value of traded goods was recorded in f.o.b. terms, i.e. as the market value of goods at the customs frontier of Serbia. It included the transaction value of the goods and the value of services performed to deliver the goods to the customs frontier of Serbia. Goods imports were recorded by country of origin (*земља порекла*) and exports by country of last known destination (*земља опредељења*).

**FIGURE 14 Serbian Foreign Trade, 1863–1912**



Source: Statistical Yearbook of the Kingdom of Serbia (various issues) and Two Centuries of Serbian Development (2008).

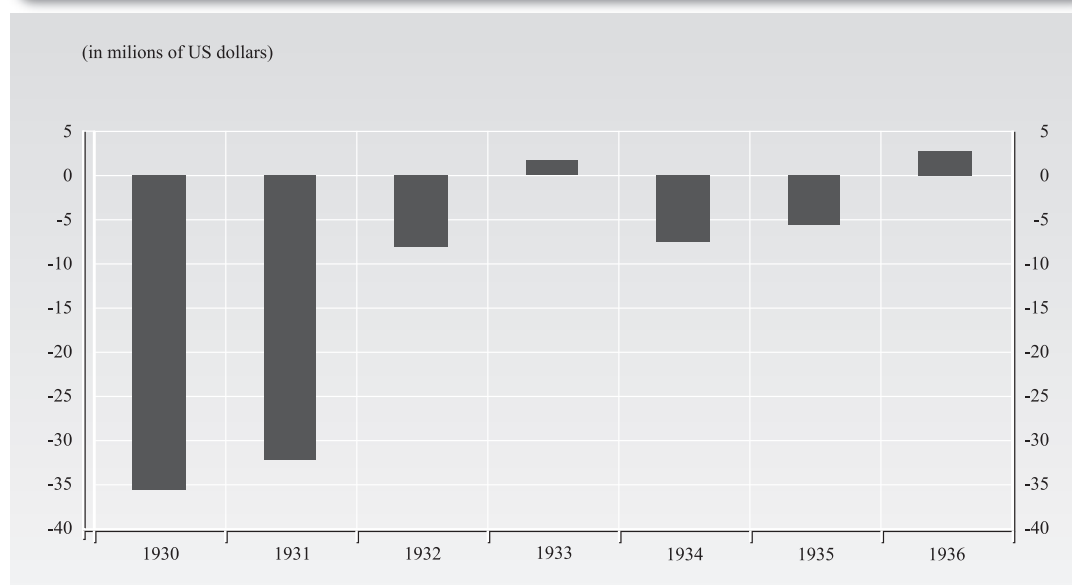
Austria-Hungary, Romania and Turkey were the three neighbouring countries of Serbia. Austria-Hungary was the largest importer of Serbian goods and the intermediary in exporting Serbian goods to other Central and Western European countries. For the years 1876, 1877 and 1878 foreign trade data are not available since statistics on foreign trade were not kept during the war for independence (1876–78). After the war, Serbia started intensive trade with Bosnia and Bulgaria. From 1884 onwards, it also started trade with the US, the UK, Belgium, Italy, Germany, France and Switzerland. Austria-Hungary remained the main trading partner for as long as until 1906, when it declared ‘the customs war’ that remained in force until 1911. As far as the structure of commodities is concerned, Serbia mostly exported raw materials (especially livestock) and imported processed goods. Data for Serbia are not available after WWI.

For **Yugoslavia**, trade data are shown in Table YU6\_A. Customs declarations were the primary data source for compiling export and import data series at the Statistical Office of the Ministry of Finance. Series YU6G\_A and series YU6H\_A list the annual value of exports (f.o.b.) and imports (c.i.f.) of goods in dinars. Data on exports refer to all exported products, including those that were first imported as intermediate products and then exported as final products of Yugoslav origin. Export prices were controlled according to the official price list that was published twice a month. Data on imports included all imported goods on which a tariff was imposed and paid.

Recorded values denominated in foreign currency were converted in dinars using the current market exchange rate in effect at the transaction date, while clearing (bilateral) trade values were converted using the official exchange rate with the addition of a premium. During the interwar crisis, Yugoslavia signed bilateral clearing agreements with Austria, Czechoslovakia, Belgium, Luxembourg, Italy, France, Switzerland and Germany. International trade was facilitated by these clearing agreements. In 1929, the total value of exported goods amounted to 7.9 billion dinars, with the total value of imported goods reaching 7.6 billion, implying a trade surplus of 327 million. During the following three years, the value of trade sharply decreased; after 1932, it started to rise again. However, it did not reach its previous highest level until 1939.

Between 1930 and 1932, the current account balance in Yugoslavia was in deficit despite a surplus in foreign trade balance. The ratio of the current account deficit in the national income was relatively high, reaching 4%, while in the next six years it was positive and remained at about 1% (Figure 15).

**FIGURE 15** Current Account Balance of Yugoslavia, 1930–1936



Source: Federal Statistical Office (1989).

### 2.6.3 Population

The first population census in **Serbia** was carried out in 1834 and encompassed the overall population (678,192 inhabitants). Since then, 15 population censuses were conducted in different time intervals up to WWI. The reliability of the results of the 1841, 1843, 1850 and 1863 censuses, which were conducted for the purpose of identifying/recording taxpayers according to the new fiscal law, is called in question. The 1866 census can be considered the first census that was properly done and delivered true data (see Table SE6\_A).

The war with Turkey in 1877 and 1878 and the post-war political situation prevented the planned 1880 census from being conducted. The following population census took place only at the end of 1884. In the meantime, the political independence of the enlarged territory of Serbia was recog-

nised at the Berlin Congress of 1878. A partial census was conducted in 1879 in the so-called new regions alone.

The recommendations of the stipulated that census should have been conducted via questionnaires for every household. The 1890 census used household-level questionnaires, in line with the recommendations of the International Statistical Congress held in St. Petersburg in 1872, and represents an important break in the development of the country's population statistics: population would henceforth be counted every five years, on 31 December of the census year.

The data on population were published in the volumes of the *State Statistics of Serbia* and the *Statistical Yearbooks of the Kingdom of Serbia*. Occasionally revised and corrected by the statistical department, there were discrepancies between the data published in subsequent publications and those published first, for which none explanation was provided.

Data on total population of **Yugoslavia** are based on the two population censuses between wars (1921 and 1931). They were carried out according to the concept of 'present population'.<sup>39</sup> The 1921 census was partially processed because the part of the Dalmatia region was still under Italian occupation at that time. Population in Dalmatia was calculated by using the results of the 1910 Austro-Hungarian census. The 1931 census which was the last for that period is more realistic. The General State Statistics computed the yearly data entries on 31 December using a geometric progression scheme (series YU6G\_A). The data which were reported in the *Statistical Yearbook of the Kingdom of Yugoslavia for the year 1940* (book 10) differ from the previously published one due to the correction made to the rate of the natural population growth for the period after 1931.

### 3 DATA SOURCES

#### SERBIA

The NBS's *Balance Sheets* and its *Annual Reports* are the main primary sources of data on monetary variables. In the annual and semi-annual *Balance Sheets*, the data refer to outstanding stocks as at end-December and end-June respectively. The *Annual Reports*, produced by the Shareholders' Committee (in Serbian only), contain observations on a weekly, monthly and yearly basis (as at the last day of the period). The maximum and the minimum values as well as the monthly and yearly averages are sometimes reported. The contents of *Annual Reports* are more or less standardised and encompass notes to the accounts, reports of the Governing and Supervisory Councils and Shareholders' Committee meeting minutes. The *Annual Reports* referring to the wartime years from 1914 to 1919 and January 1920 were adopted by the Shareholders' Committee and published in 1920. All *Annual reports* (in Serbian only) for the period 1884–1920 are digitised and available on the NBS website ([http://www.nbs.rs/internet/cirilica/10/10\\_2/10\\_2\\_2/pretraga/index.html](http://www.nbs.rs/internet/cirilica/10/10_2/10_2_2/pretraga/index.html)). Additional useful source on monetary data are the two monographs of the NBS published in 1909 and 1935.

The dates of change in the NBS's discount rate and the Lombard rate (general rates and rates for banks) are taken from the monograph of the NBS published in 1935. The monthly data have been calculated as the average of the daily values, and the yearly data as the average of the monthly

<sup>39</sup> Census counts, like estimates, refer to *de facto* (physically present) population, not to the *de jure* (usual resident) population.

values. The data on the market interest rates are from the *Statistical Yearbook of the Kingdom of Serbia* (various issues).

The data figures on the dinar nominal exchange rates in Belgrade, both at annual and monthly frequency, are taken from the *Statistical Yearbook of the Kingdom of Serbia*, book 12, 1907 and 1908 (in Serbian and French), for the period from 1899 to 1908. However, for the period before 1899 and after 1908, the only available data source is the Serbian Newspapers (*Српске новине*). The daily data published in it were the basis for the calculation of the average exchange rates for those years that are missing in the *Statistical Yearbooks*. The *Serbian Newspapers* from the period 1834–1919 are also digitised and available on the NBS website (in Serbian only) ([http://www.nbs.rs/internet/cirilica/10/10\\_2/10\\_2\\_2/pretraga/index.html](http://www.nbs.rs/internet/cirilica/10/10_2/10_2_2/pretraga/index.html)).

The data on government finances (government revenue and expenditure, stock and repayment of foreign public debt) are from Gnjatovic (2009), where they are derived and summarised based on the primary data sources, i.e. the *Statistical Yearbook of the Kingdom of Serbia* (various issues), the *Final Accounts of the State Revenue and Expenditure of the Kingdom of Serbia* (various issues) (*Завршни рачуни државних прихода и расхода Краљевине Србије*), *Collection of Laws, Contracts and Agreements on Loans Disbursed by the Kingdom of Serbia (1899)* and *Collection of Laws, Contracts and Agreements on Consolidated Debt of the Kingdom of Serbs, Croats and Slovenes* (1924). The data on the government debt to the central bank are taken from the NBS's *Annual Reports*.

Price data for the major foodstuffs are available from the primary sources: the *State Statistics of Serbia* (*Државонис Србије*) and the *Statistical Yearbooks of the Kingdom of Serbia* from 1893 onwards. The data on prices from these sources are summarised and presented in *Two Centuries of Serbian Development* (2008). The data series on the production of selected industrial products are from the *Two Centuries of Serbian Development* (2008) and Sundhassen (1989). The data on labour force (total active population and average daily wages for selected occupations) are also from the *Two Centuries of Serbian Development* (2008). The primary sources of the data on total active population are the *State Statistics of Serbia*, the *Statistical Yearbook of the Kingdom of Serbia* (various issues) and the *Censuses of Population of the Kingdom of Serbia*. The primary data source for the average daily wages for selected occupations is the *Statistics of Prices of Agricultural and Other Produce in the Kingdom of Serbia* and the *Statistical Yearbook of the Kingdom of Serbia*. The average daily wages on monthly basis are taken from the *Statistical Yearbook of the Kingdom of Serbia* (various issues).

The data series on the value of the imports, exports and transit in nominal terms are taken from the *Statistical Yearbook of the Kingdom of Serbia* (various issues) and the *Two Centuries of Serbian Development* (2008), whose data are based on the *External Trade Statistics of the Kingdom of Serbia* (various issues). Data on population are from the *Two Centuries of Serbian Development* (2008) and Sundhassen (1989). Various primary sources have been used: the *State Statistics of Serbia*, the *Censuses of Population of the Kingdom of Serbia*, the *Statistical Yearbook of the Kingdom of Serbia*, and the *General Demographic Data on the Kingdom of Serbia* (1928).

## YUGOSLAVIA

As in the case of the NBS, the NBY's *Balance Sheets and its Annual Reports* are the main primary sources for the data on monetary variables. In the annual and the semi-annual *Balance Sheets*, the data refer to the end-June and the end-December outstanding stocks. The *Annual Reports*, pro-

duced by the Shareholders' Committee (in Serbian), contain observations on a weekly, monthly and yearly basis (as at the last day of the period).

All *Annual Reports* from the period 1820–1940 are digitised and are available on the NBS website ([http://www.nbs.rs/internet/cirilica/10/10\\_2/10\\_2\\_2/pretraga/index.html](http://www.nbs.rs/internet/cirilica/10/10_2/10_2_2/pretraga/index.html)). An additional useful source of monetary data is the *Monograph of the National Bank 1884–1934* (1935).

The dates of change in the NBY's discount rate and the Lombard rate are taken from the *Monograph* (1935) and from the *NBY's Annual Reports*. The monthly data are calculated as the average of the daily values and the yearly data as the average of the monthly values. The data on the market interest rates (lending and deposit rates) are retrieved from the NBY's *Annual Reports* and its *Monograph* (1935). The data on the market prices of the government bonds traded on the Belgrade Stock Exchange are taken from the Belgrade Stock Exchange (2004) that contains copies of preserved *Annual Reports of the Belgrade Stock Exchange* dating back to 1904. The current yields on government bonds are calculated using the reported market prices and additional information on bonds provided in the *Monograph of the Ministry of Finance of the Kingdom of Yugoslavia 1918–1939* (1939).

The data on the dinar nominal exchange rates in Belgrade and Zurich, both at annual and monthly frequency, are taken from the *Belgrade Stock Exchange* (2004) and the *Monograph of the National Bank 1884–1934* (1935).

The data on government finances (government revenue and expenditure as well as their main components) are from the *Federal Statistical Office* (1989) which used data from the *Statistical Yearbooks of the Kingdom of Yugoslavia* (in Serbian and French) and the *Final Accounts of the State Revenue and Expenditure of the Kingdom of Yugoslavia*. The data on the government debt to the central bank are taken from the NBY's *Annual Reports*. The data on the foreign public debt are from the *Statistical Yearbook of the Kingdom of Yugoslavia*.

The data on the wholesale price indices, both at annual and monthly frequency, are collected from the *Statistical Yearbook of the Kingdom of Yugoslavia* (various issues). Apart from the general index of wholesale prices, there were also published sub-indices of the wholesale prices for selected products, as well as export and import prices. The data on industrial production of selected industrial products are taken from the *Two Centuries of Serbian Development* (2008) which used data from the *Statistics of Mining and Ore Processing of the Kingdom of Yugoslavia* (various issues) edited by the Ministry of Forests and Mines. The data on employment are from the *Federal Statistical Office* (1989) and are based on the records of social insurance. The data on nominal and real wages and the cost-of-living index are also taken from the *Federal Statistical Office* (1989).

The data series on the national income at current and constant 1938 prices for the period 1923–1939 are from Stajić (1959). The data on the external trade are from the *Statistical Yearbook of the Kingdom of Yugoslavia* (various issues) and Sundhaussen (1989). The data on population are from the *Statistical Yearbook of the Kingdom of Yugoslavia for 1940*, book 10.

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*Note: In the following tables “..” indicates that the item did not exist; in case of reconstructed data, that the entry was not calculated for that point in time; “.” indicates a missing value. An absolute zero is coded as “-“, while “0.0” codes a rounded zero. For details on the unit of the series, see index table in section 2.*

## Serbia

Table SE1.I\_A Total reserves, 1884–1920

(in thousands of dinars, end-of-period)

Year	Total statutory reserves	Metallic holdings	Gold holdings	Silver holdings	Foreign exchange (foreign correspondents)
	SE1A_A	SE1B_A	SE1C_A	SE1D_A	SE1E_A
1884	1231.7	875.4	874.5	0.8	356.3
1885	1554.9	1246.9	1208.5	38.4	308.0
1886	3038.0	2673.2	1224.4	1448.8	364.8
1887	4903.2	4598.8	1817.5	2781.3	304.4
1888	7952.8	7443.8	3409.7	4034.1	509.0
1889	11014.6	10230.6	5802.7	4427.9	784.0
1890	12722.3	12365.9	7917.3	4448.6	356.4
1891	13098.1	12882.4	8690.5	4191.9	215.7
1892	13460.2	13303.3	9188.3	4115.0	156.9
1893	13494.2	13030.1	9024.2	4005.8	464.1
1894	11373.2	10732.5	6441.6	4290.9	640.7
1895	11880.0	10907.6	6235.1	4672.5	972.4
1896	12804.4	12065.8	7160.3	4905.6	738.6
1897	14234.3	13318.4	5978.4	7340.0	915.9
1898	14758.5	13907.7	4677.7	9230.0	850.7
1899	17681.7	16156.4	7171.8	8984.6	1525.3
1900	16646.5	15774.9	6807.9	8967.0	871.5
1901	17126.3	15590.6	6623.3	8967.2	1535.7
1902	21471.3	19771.6	10973.0	8798.7	1699.6
1903	26312.0	24520.0	15850.2	8669.8	1792.0
1904	23646.8	18411.9	11632.3	6779.6	5234.9
1905	25964.7	21084.9	12413.9	8670.9	4879.8
1906	22360.3	19347.6	11100.2	8247.4	3012.7
1907	24915.1	21532.5	14097.5	7435.0	3382.6
1908	29484.0	24984.5	18065.3	6919.2	4499.5
1909	29245.2	20013.3	13375.4	6637.9	9231.9
1910	36959.1	31120.1	24388.4	6731.8	5839.0
1911	50777.6	40181.7	33659.9	6521.9	10595.9
1912	80061.6	53971.8	50435.6	3536.2	26089.8
1913	65751.1	62114.4	57842.5	4271.9	3636.8
1914	193401.5	59371.1	57170.3	2200.8	134030.4
1915	261144.7	67133.5	64148.5	2985.1	194011.2
1916	280466.7	73754.3	63837.1	9917.2	206712.4
1917	287979.9	79322.6	63781.1	15541.5	208657.3
1918	297293.9	79320.0	63760.0	15560.0	217973.9
1919	434478.6	78919.7	63383.9	15535.8	355558.9
1920 (*)	442520.7	78868.1	63332.3	15535.8	363652.6

Note: (\*) The data figures for the year 1920 refer to 31 January.

Table SE1.2\_A Monetary base (excluding coins), 1884–1920

(in thousands of dinars, end-of-period; cover ratio in per cent, legal minimum rate 40%)

Year	Monetary base (excluding coins) SEIF_A	Banknotes in circulation SEIG_A	Gold-backed banknotes SEIH_A	Silver-backed banknotes SEII_A	Giro accounts with central bank SEIJ_A	Other central bank liabilities at sight SEIK_A	Effective cover ratio of total banknotes in circulation, in % SEIL_A
1884	817.0	781.8	781.8	..	35.2	..	157.5
1885	3709.3	3500.0	1568.7	1931.3	209.3	..	44.4
1886	5782.6	5738.9	437.6	5301.3	43.7	..	52.9
1887	10041.2	10037.8	182.2	9855.6	3.4	..	48.8
1888	14107.9	14078.4	141.4	13937.0	29.5	..	56.5
1889	17427.9	17335.5	102.0	17233.5	92.4	..	63.5
1890	23635.2	23475.4	82.3	23393.1	159.8	..	54.2
1891	28067.0	27271.5	122.6	27148.9	795.5	..	48.0
1892	30902.9	28874.5	160.5	28714.0	2028.4	..	46.6
1893	28469.2	26766.4	195.6	26570.9	1702.8	..	50.4
1894	26825.0	25063.6	548.0	24515.6	1761.4	..	45.4
1895	25451.2	24589.9	422.0	24168.0	861.2	..	48.3
1896	25808.0	24461.2	659.2	23802.0	1346.8	..	52.3
1897	25414.1	23660.7	794.8	22865.9	1753.4	..	60.2
1898	34167.3	33144.6	364.2	32780.4	1022.7	..	44.5
1899	36321.7	34007.1	839.9	33167.2	2314.5	..	52.0
1900	36909.8	35878.6	849.2	35029.5	1031.2	..	46.4
1901	35910.8	35058.7	1117.0	33941.7	852.1	..	48.9
1902	40400.7	36813.5	2123.8	34689.7	3587.3	..	58.3
1903	45432.1	38851.2	3685.0	35166.2	6580.9	..	67.7
1904	39493.3	38017.2	3142.2	34875.0	1476.1	..	62.2
1905	39456.5	37085.2	3104.1	33981.2	2371.3	..	70.0
1906	32791.3	30230.8	2278.7	27952.1	2560.5	..	74.0
1907	40012.1	37363.6	7556.6	29807.1	2648.5	..	66.7
1908	55374.4	50411.9	3373.8	47038.0	1584.6	3377.9	58.5
1909	58113.8	49848.1	3464.5	46383.6	8265.7	0.0	58.7
1910	54295.8	49654.6	7037.3	42617.4	1421.2	3220.0	74.4
1911	76050.6	65823.2	13981.3	51841.9	3587.4	6640.0	77.1
1912	150845.0	93625.3	5336.4	88288.9	11179.7	46040.0	85.5
1913	139404.4	103438.6	4285.3	99153.3	1315.9	34649.9	63.6
1914	387988.6	167261.1	3665.1	163596.0	2932.7	217794.8	115.6
1915	533332.3	297751.4	3415.6	294335.7	7983.5	227597.4	87.7
1916	519438.9	298992.7	3335.9	295656.8	10545.8	209900.4	93.8
1917	562280.2	294892.7	3164.0	291728.7	11149.1	256238.4	97.7
1918	599506.1	340569.3	3094.8	337474.5	6353.7	252583.1	87.3
1919	1067231.9	664007.5	4239.6	659767.8	15413.8	387810.7	65.4
1920 (*)	1120974.7	711448.4	4331.3	707117.2	20600.4	388925.9	62.2

Note: (\*) The data figures for the year 1920 refer to 31 January.

Table SE2.I\_D Central bank interest rates, 1884–1920

*(in per cent, date-of-change)*

Year	Month	Day	Discount rate	Discount rate	Lombard rate	Lombard rate	Discount rate for	Discount rate for	Lombard rate for	Lombard rate for
			(silver)	(gold)	(silver)	(gold)	banks (silver)	banks (gold)	banks (silver)	banks (gold)
			SE2A_D	SE2B_D	SE2C_D	SE2D_D	SE2E_D	SE2F_D	SE2G_D	SE2H_D
1884	July	2	5.5	5.5	6.5	6.5	5.5	5.5	6.5	6.5
1884	Oct.	16	7.0	7.0	8.0	8.0	7.0	7.0	8.0	8.0
1885	Jan.	2	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0
1885	Feb.	12	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
1885	Apr.	18	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0
1885	Aug.	19	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0
1885	Sep.	7	8.0	8.0	8.5	8.5	8.0	8.0	8.5	8.5
1886	Jan.	1	8.0	8.0	8.0	8.0	7.5	7.5	8.0	8.0
1886	Feb.	24	6.5	8.0	6.5	8.0	6.0	7.5	6.5	8.0
1886	Nov.	1	6.5	8.0	6.5	8.0	5.5	7.0	6.5	8.0
1888	Apr.	1	6.0	8.0	6.0	8.0	5.0	7.0	6.0	8.0
1889	Jan.	1	6.0	8.0	6.5	8.5	5.0	7.0	6.5	8.5
1889	Nov.	20	6.0	8.0	6.0	8.0	5.0	7.0	6.0	8.0
1891	Mar.	6	5.5	7.5	5.5	7.5	4.5	6.5	5.5	7.5
1892	Mar.	9	5.5	7.5	5.5	7.5	4.5	7.5	5.5	7.5
1892	Mar.	18	5.5	8.5	5.5	8.5	4.5	8.5	5.5	8.5
1892	Aug.	31	6.5	8.5	6.5	8.5	5.5	8.5	6.5	8.5
1893	Jan.	11	6.0	7.5	6.0	7.5	5.0	7.5	6.0	7.5
1905	Mar.	2	6.0	6.0	6.0	6.0	5.0	5.0	6.0	6.0
1908	Sep.	24	6.0	8.0	6.0	8.0	5.0	8.0	6.0	8.0
1910	June	24	6.0	7.0	6.0	7.0	5.0	6.0	6.0	7.0
1911	Aug.	5	6.0	6.0	6.0	6.0	5.0	5.0	6.0	6.0
1912	June	27	6.0	7.0	6.0	7.0	5.0	6.0	6.0	7.0

Table SE2.I\_A Central bank interest rates, 1884–1920

(in per cent, period averages)

Year	Discount rate (silver)	Discount rate (gold)	Lombard rate (silver)	Lombard rate (gold)	Discount rate for banks (silver)	Discount rate for banks (gold)	Lombard rate for banks (silver)	Lombard rate for banks (gold)	Market interest rate (*)
	SE2A_A	SE2B_A	SE2C_A	SE2D_A	SE2E_A	SE2F_A	SE2G_A	SE2H_A	SE2I_A
1884	6.1	6.1	7.1	7.1	6.1	6.1	7.1	7.1	.
1885	6.5	6.5	6.6	6.6	6.5	6.5	6.6	6.6	.
1886	6.7	8.0	6.7	8.0	6.1	7.4	6.7	8.0	.
1887	6.5	8.0	6.5	8.0	5.5	7.0	6.5	8.0	.
1888	6.1	8.0	6.1	8.0	5.1	7.0	6.1	8.0	.
1889	6.0	8.0	6.4	8.4	5.0	7.0	6.4	6.2	.
1890	6.0	8.0	6.0	8.0	5.0	7.0	6.0	8.0	.
1891	5.6	7.6	5.6	7.6	4.6	6.7	5.6	7.6	.
1892	5.8	8.3	5.8	8.3	4.8	8.1	5.8	8.3	.
1893	6.0	7.5	6.0	7.5	5.0	7.5	6.0	7.5	.
1894	6.0	7.5	6.0	7.5	5.0	7.5	6.0	7.5	4–12
1895	6.0	7.5	6.0	7.5	5.0	7.5	6.0	7.5	5–12
1896	6.0	7.5	6.0	7.5	5.0	7.5	6.0	7.5	5–12
1897	6.0	7.5	6.0	7.5	5.0	7.5	6.0	7.5	4–12
1898	6.0	7.5	6.0	7.5	5.0	7.5	6.0	7.5	4–12
1899	6.0	7.5	6.0	7.5	5.0	7.5	6.0	7.5	4–12
1900	6.0	7.5	6.0	7.5	5.0	7.5	6.0	7.5	3–12
1901	6.0	7.5	6.0	7.5	5.0	7.5	6.0	7.5	.
1902	6.0	7.5	6.0	7.5	5.0	7.5	6.0	7.5	4–12
1903	6.0	7.5	6.0	7.5	5.0	7.5	6.0	7.5	.
1904	6.0	7.5	6.0	7.5	5.0	7.5	6.0	7.5	6–12
1905	6.0	6.3	6.0	6.3	5.0	5.4	6.0	6.3	6–12
1906	6.0	6.0	6.0	6.0	5.0	5.0	6.0	6.0	.
1907	6.0	6.0	6.0	6.0	5.0	5.0	6.0	6.0	7.5–12
1908	6.0	6.5	6.0	6.5	5.0	5.8	6.0	6.5	7.5–13
1909	6.0	8.0	6.0	8.0	5.0	8.0	6.0	8.0	.
1910	6.0	7.5	6.0	7.5	5.0	7.0	6.0	7.5	.
1911	6.0	6.6	6.0	6.6	5.0	5.6	6.0	6.6	.
1912	6.0	6.5	6.0	6.5	5.0	5.5	6.0	6.5	.
1913	6.0	7.0	6.0	7.0	5.0	6.0	6.0	7.0	.
1914	6.0	7.0	6.0	7.0	5.0	6.0	6.0	7.0	.
1915	6.0	7.0	6.0	7.0	5.0	6.0	6.0	7.0	.
1916	6.0	7.0	6.0	7.0	5.0	6.0	6.0	7.0	.
1917	6.0	7.0	6.0	7.0	5.0	6.0	6.0	7.0	.
1918	6.0	7.0	6.0	7.0	5.0	6.0	6.0	7.0	.
1919	6.0	7.0	6.0	7.0	5.0	6.0	6.0	7.0	.
1920	6.0	..	6.0	..	5.0	..	6.0	..	.

Note: (\*) minimum and maximum rates.

**Table SE3\_A Exchange rates, 1892–1913***(in dinars, period averages)*

Year	100 Austrian florins/ 20-dinar gold coins		100 Austrian florins/ 200 Austrian crowns	
	SE3A_A	SE3B_A	SE3A_A	SE3B_A
1892	21.35	.	20.80	215.84
1893	22.15	.	20.40	212.92
1894	23.10	.	20.24	211.64
1895	22.89	236.30	20.09	209.94
1896	22.19	232.51	20.03	209.24
1897	21.28	223.13	20.26	211.92
1898	22.95	232.36	20.43	213.72
1899	21.79	227.93	20.11	210.70
1900	22.21	230.58	20.03	209.90
1901	22.38	236.56	20.23	211.24
1902	21.90	228.29	21.24	223.66
1903				
1904				
1905				
1906				
1907				
1908				
1909				
1910				
1911				
1912				
1913				

**Table SE4\_A Government Finances, 1867–1920***(continue)**(in thousands of dinars, end-of-period)*

Year	Government revenue	Government expenditure	Foreign public debt repayment (principal+interest)	Foreign public debt	Government debt to the central bank
	SE4A_A	SE4B_A	SE4C_A	SE4D_A	SE4E_A
1867	.	.	.	2350.0	..
1868	.	.	.	2303.0	..
1869	.	.	.	2256.0	..
1870	.	.	.	2209.0	..
1871	.	.	.	2162.0	..
1872	.	.	.	2115.0	..
1873	.	.	.	2068.0	..
1874	.	.	.	2021.0	..
1875	.	.	.	1974.0	..
1876	.	.	.	7252.0	..
1877	.	.	.	7093.0	..
1878	.	.	.	6935.0	..
1879	.	.	.	6776.0	..
1880	19145.4	19520.5	536.9	6618.0	..
1881	25682.5	25714.5	536.9	139459.0	..
1882	25688.3	32611.2	7586.9	152244.0	..
1883	28315.0	34469.9	8571.9	150740.0	..

Table SE4\_A Government Finances, 1867–1920

(in thousands of dinars, end-of-period)

Year	Government revenue SE4A_A	Government expenditure SE4B_A	Foreign public debt repayment (principal+interest) SE4C_A	Foreign public debt SE4D_A	Government debt to the central bank SE4E_A
1884	32641.6	37291.2	8571.9	189507.0	304.2
1885	38746.1	45968.6	10651.9	257937.0	1538.5
1886	32168.7	46000.0	14485.7	280533.0	2918.9
1887	38229.1	44460.0	16187.8	278152.0	3512.9
1888	37625.5	44635.5	16187.8	306771.0	4064.0
1889	36863.7	51870.0	18537.8	303591.0	2873.9
1890	41970.8	46196.9	18537.8	327076.0	6958.3
1891	56840.3	57527.1	20573.7	322253.0	7916.4
1892	51868.4	60110.6	20573.7	316170.0	8699.0
1893	55652.6	62719.8	20573.7	340693.0	5738.8
1894	57786.2	62623.9	21119.7	362453.0	5828.7
1895	58458.0	66603.3	20100.6	413104.0	5803.8
1896	59633.2	66026.6	20100.6	411795.0	5750.1
1897	61646.9	72125.3	20100.6	410538.0	7331.8
1898	65840.2	80687.5	20100.6	407404.0	15943.6
1899	72096.0	85477.0	19565.6	424224.0	15152.3
1900	75306.2	84419.5	20686.6	420799.0	15857.4
1901	79698.0	92089.0	20337.7	417140.0	15085.3
1902	78638.0	99414.0	19802.7	414854.0	12835.6
1903	92025.0	109333.0	23102.7	471450.0	8528.9
1904	110238.0	92062.0	23102.7	467857.0	7517.2
1905	91817.0	87676.0	23102.7	464264.0	3430.7
1906	91270.4	87335.6	23102.7	460671.0	0.0
1907	94824.1	86689.9	27902.7	552078.0	0.0
1908	95293.8	93877.3	27902.7	547960.0	3020.9
1909	105130.5	103682.5	27902.7	543842.0	11307.6
1910	116581.1	111633.5	35402.7	689724.0	0.0
1911	131280.1	114733.5	35402.7	684706.0	0.0
1912	125200.0	120900.0	35402.7	679838.0	5000.9
1913	.	.	.	.	34649.9
1914	.	.	.	.	170276.9
1915	.	.	.	.	240846.4
1916	.	.	.	.	236883.7
1917	.	.	.	.	238575.7
1918	.	.	.	.	263053.5
1919	.	.	.	.	585916.8
1920	.	.	.	.	636414.0



Table SE5.1\_A Goods prices, 1864–1910

(in dinars per 1 kilo, except SE5J\_A: in dinars per 1 liter)

Year	Wheat	Maize	Beans	Wheat flour	Bread	Mutton	Pork	Lard	Plum brandy
	SE5A_A	SE5B_A	SE5C_A	SE5D_A	SE5E_A	SE5F_A	SE5G_A	SE5H_A	SE5I_A
1864	0.11	0.11	.	0.14	0.16	0.39	0.51	1.22	.
1865	0.10	0.08	.	0.12	0.14	0.38	0.42	1.08	.
1866	0.13	0.09	0.25	0.15	0.16	0.34	0.38	1.03	0.27
1867	0.14	0.12	0.33	0.18	0.19	0.35	0.46	1.16	0.29
1868	0.13	0.09	0.28	0.15	0.18	0.39	0.50	1.16	0.23
1869	0.11	0.07	0.14	0.14	0.16	0.41	0.52	1.12	0.25
1870	0.13	0.09	0.14	0.16	0.18	0.45	0.52	1.09	0.31
1871	0.17	0.13	0.17	0.20	0.22	0.41	0.52	1.17	0.26
1872	0.22	0.16	0.21	0.26	0.27	0.43	0.59	1.50	0.26
1873	0.22	0.15	0.25	0.26	0.27	0.47	0.66	1.57	0.29
1874	0.17	0.15	0.26	0.21	0.23	0.48	0.66	1.64	0.34
1875	0.14	0.11	0.25	0.17	0.19	0.48	0.67	1.43	0.37
1876	0.15	0.09	0.17	0.19	0.21	0.46	0.60	1.39	0.22
1877	0.19	0.13	0.20	0.22	0.24	0.47	0.62	1.39	0.32
1878	0.18	0.13	0.21	0.20	0.23	0.43	0.59	1.39	0.25
1879	0.17	0.12	0.21	0.20	0.21	0.45	0.52	1.11	0.24
1880	0.20	0.16	0.26	0.23	0.24	0.45	0.60	1.34	0.25
1881	0.18	0.11	0.25	0.21	0.23	0.47	0.59	1.18	0.30
1882	0.16	0.12	0.27	0.19	0.22	0.52	0.69	1.41	0.34
1883	0.14	0.10	0.17	0.16	0.18	0.56	0.70	1.25	0.36
1884	0.15	0.11	0.20	0.19	0.23	0.70	0.86	1.44	0.34
1885	0.13	0.10	0.13	0.17	0.19	0.54	0.65	1.09	0.28
1886	0.15	0.10	0.14	0.18	0.20	0.46	0.57	1.03	0.24
1887	0.14	0.10	0.18	0.17	0.19	0.47	0.63	1.23	0.23
1888	0.11	0.09	0.25	0.14	0.16	0.50	0.65	1.30	0.22
1889	0.12	0.09	0.24	0.14	0.17	0.47	0.62	1.29	0.34
1890	0.13	0.10	0.21	0.16	0.19	0.45	0.60	1.18	0.42
1891	0.16	0.11	0.25	0.19	0.22	0.54	0.69	1.26	0.61
1892	0.12	0.09	0.18	0.16	0.20	0.58	0.72	1.17	0.55
1893	0.10	0.07	0.11	0.13	0.17	0.59	0.70	1.12	0.51
1894	0.10	0.09	0.11	0.13	0.17	0.55	0.68	1.10	0.41
1895	0.11	0.11	0.15	0.14	0.18	0.50	0.65	1.17	0.40
1896	0.10	0.07	0.16	0.13	0.17	0.45	0.56	0.94	0.41
1897	0.16	0.10	0.17	0.20	0.23	0.47	0.66	1.17	0.39
1898	0.18	0.11	0.17	0.23	0.25	0.50	0.72	1.51	0.38
1899	0.14	0.08	0.11	0.18	0.21	0.51	0.70	1.26	0.39
1900	0.11	0.09	0.12	0.14	0.20	0.53	0.69	1.19	0.43
1901	0.13	0.10	0.13	0.16	0.21	0.51	0.67	1.17	0.56
1902	0.14	0.11	0.15	0.17	0.22	0.51	0.71	1.44	0.54
1903	0.12	0.12	0.18	0.16	0.21	0.55	0.81	1.73	0.52
1904	0.14	0.13	0.22	0.17	0.19	0.58	0.82	1.65	0.54
1905	0.14	0.14	0.29	0.18	0.19	0.62	0.90	1.77	0.45
1906	0.12	0.10	0.24	0.22	0.21	0.64	0.80	1.47	0.45
1907	0.15	0.11	0.19	0.24	0.25	0.58	0.73	1.16	0.49
1908	0.17	0.12	0.18	0.29	0.28	0.57	0.79	1.38	0.50
1909	0.18	0.12	.	0.30	0.29	0.64	0.91	1.69	0.51
1910	0.16	0.10	.	0.28	0.28	0.68	0.88	1.63	0.59

Table SE5.2\_A Industrial production, 1888–1939

(production of selected industrial products)

Year	Milled flour and other items (in thousands of kilos)	Beer (in hectoliters)	Cement (in tons)	Hard coal (in tons)	Brown coal (in tons)	Lignite (in tons)
	SE5J_A	SE5K_A	SE5L_A	SE5M_A	SE5N_A	SE5O_A
1888	30559	42055	.	.	.	.
1889	34097	38971	.	.	.	.
1890	33191	45744	.	.	.	.
1891	37858	43046	.	.	.	.
1892	46869	49975	.	.	.	.
1893	50813	55205	.	.	.	.
1894	47879	65701	.	2065	55958	26104
1895	56064	61362	.	1426	41008	19537
1896	57790	55378	.	11948	50635	24705
1897	56562	55010	.	21309	48791	20964
1898	44381	68421	.	13057	54077	26390
1899	47055	69672	.	21584	69684	25948
1900	52252	70754	.	55559	77644	22492
1901	62027	62860	.	44275	99053	26713
1902	61074	70776	2095	35888	89254	28612
1903	78284	76199	4698	40962	92567	26298
1904	82156	75665	5250	43520	108585	31076
1905	79069	68479	.	47848	105647	30906
1906	90198	81852	9236	63508	134391	39608
1907	116583	89558	7044	53139	172795	42382
1908	125026	108398	11074	61133	179098	55894
1909	.	112336	13464	51132	162176	78992
1910	.	127048	12655	40109	158929	77652
1911	.	.	.	31714	191660	80995
1912	.	.	.	.	.	.
1913	.	.	.	.	.	.
1914	.	.	.	.	.	.
1915	.	.	.	.	.	.
1916	.	.	.	.	.	.
1917	.	.	.	.	.	.
1918	.	.	.	.	.	.
1919	.	.	968	20674	35637	32388
1920	.	.	400	65885	176817	92068
1921	.	.	14926	74916	231681	91445
1922	.	.	23831	96014	309304	162551
1923	.	.	29600	134644	375747	224844
1924	.	.	29248	128904	346944	214436
1925	.	.	36395	177192	364974	229262
1926	.	.	27409	185369	437176	245993
1927	.	.	.	258429	452693	219898
1928	.	.	.	329103	549901	257842
1929	.	.	.	376614	609402	223056
1930	.	.	.	314845	641375	259990
1931	.	.	58291	355750	600912	275682
1932	.	.	42004	317309	581789	322530
1933	.	.	30952	325598	532493	261947
1934	.	.	31290	325628	569673	320412
1935	.	.	33422	330051	594457	299930
1936	.	.	32931	361268	611344	233559
1937	.	.	44290	372771	701161	289606
1938	.	.	89832	392884	728283	362650
1939	.	.	.	406735	767010	417608

Table SE5.3\_A Labour force and daily wages, 1863–1910

(in dinars, period averages; SE5T\_A in thousands)

Year	Total active population	Diggers	Reapers	Masons	Manual labourers
	SE5T_A	SE5P_A	SE5Q_A	SE5R_A	SE5S_A
1863	..	1.09	1.54	1.77	1.08
1864	..	1.30	1.75	1.76	1.11
1865	..	1.46	1.72	1.90	1.15
1866	1215	1.13	1.55	2.06	1.14
1867	..	1.34	1.93	2.28	1.29
1868	..	1.53	2.22	3.34	1.48
1869	..	1.97	2.28	2.48	1.63
1870	..	1.93	2.64	2.64	1.73
1871	..	1.96	2.49	2.68	1.76
1872	..	2.08	2.29	2.69	1.65
1873	..	1.76	2.69	2.53	1.61
1874	..	1.74	2.14	2.47	1.56
1875	..	1.93	2.34	2.38	1.61
1876	..	1.91	2.66	2.32	1.58
1877	..	1.56	2.54	2.42	1.53
1878	..	2.03	2.35	2.48	1.56
1879	..	1.72	2.74	2.55	1.60
1880	..	1.44	2.65	2.65	1.47
1881	..	1.76	3.13	2.82	1.69
1882	..	1.85	2.15	2.09	1.72
1883	..	2.31	3.29	3.17	2.05
1884	..	2.08	2.93	3.21	1.95
1885	..	1.68	2.24	2.64	1.61
1886	..	1.62	2.19	2.78	1.58
1887	..	.	2.06	2.68	1.39
1888	..	1.27	1.77	2.60	1.28
1889	..	1.22	1.91	2.38	1.19
1890	..	1.24	1.83	2.33	1.15
1891	..	1.30	2.19	2.63	1.32
1892	..	1.47	2.17	2.65	1.42
1893	1183	1.56	2.30	2.80	1.52
1894	..	1.48	2.23	2.84	1.46
1895	1044	1.31	1.85	2.72	1.28
1896	1269	1.18	1.92	2.55	1.19
1897	..	1.21	1.92	2.61	1.21
1898	..	1.07	1.90	2.57	1.13
1899	..	1.08	1.68	2.56	1.15
1900	1411	1.15	1.95	2.50	1.22
1901	..	1.14	1.83	2.50	1.19
1902	..	1.10	1.91	2.50	1.21
1903	..	1.13	1.89	2.59	1.24
1904	..	1.15	2.02	2.60	1.24
1905	..	1.22	2.01	2.71	1.23
1906	..	1.20	2.03	2.83	1.29
1907	..	1.26	2.00	2.95	1.30
1908	..	1.21	2.16	3.03	1.33
1909	..	1.42	2.12	3.13	1.40
1910	..	1.45	2.51	3.39	1.61

Table SE6\_A National accounts and population, 1863–1920

(in thousands of dinars: SE6D\_A thousands of inhabitants)

Year	Exports	Imports	Transit	Population
	SE6A_A	SE6B_A	SE6C_A	SE6D_A
1863	20229.4	15777.6	2704.1	1155.1
1864	15428.8	17729.0	4135.0	1175.2
1865	17901.6	19185.8	2625.3	1195.5
1866	18798.1	21677.7	5329.0	1216.3
1867	24812.2	26451.3	7980.8	1232.7
1868	37824.2	29962.7	7629.7	1249.4
1869	33863.7	26659.5	7192.9	1266.2
1870	30595.4	27911.4	5430.4	1283.3
1871	27627.4	27715.2	7069.4	1300.6
1872	32858.2	29493.6	7249.3	1318.1
1873	31711.2	26675.6	5866.9	1335.9
1874	35381.4	31788.2	7480.5	1353.9
1875	35014.9	31219.2	5957.9	1372.1
1876	.	.	.	1390.6
1877	.	.	.	1409.4
1878	.	.	.	1428.4
1879	38880.8	41567.6	1184.1	1750.7
1880	35212.3	46095.6	1246.1	1779.9
1881	40127.1	43173.8	983.4	1809.6
1882	40334.1	48451.3	584.7	1839.8
1883	40232.5	49716.6	413.7	1870.5
1884	39968.7	50947.2	598.7	1901.7
1885	37625.3	40473.0	551.1	1942.8
1886	40718.7	51694.4	414.5	1984.8
1887	36130.0	36479.0	969.4	2027.7
1888	38909.1	35183.9	5780.9	2071.5
1889	39065.9	34843.4	7989.9	2116.2
1890	45840.6	38044.7	13905.7	2162.0
1891	52279.8	42805.7	18367.9	2191.3
1892	46451.7	37069.6	20790.9	2221.0
1893	48910.4	40922.6	16348.0	2251.1
1894	46023.2	34881.2	18037.4	2281.6
1895	43390.5	28239.7	24868.9	2312.5
1896	53386.0	33447.9	16844.0	2347.5
1897	55940.0	45313.8	13801.0	2383.0
1898	56991.5	41101.9	14845.4	2419.1
1899	65744.4	46428.6	16917.9	2455.7
1900	66522.0	54027.2	17723.4	2492.9
1901	65685.7	43835.4	22997.4	2530.9
1902	72123.7	44820.8	25282.6	2569.5
1903	59967.4	58235.3	32734.4	2608.6
1904	62156.1	60926.4	42685.5	2648.4
1905	71996.3	55600.6	39872.4	2688.7
1906	71604.1	44328.6	48645.9	2731.9
1907	81491.3	70583.3	55963.7	2775.8
1908	77749.1	75635.1	46511.5	2820.4
1909	92981.8	73535.1	49998.1	2865.7
1910	98388.0	84695.6	57764.9	2911.7
1911	116916.4	115425.4	54087.4	3068.5
1912	84221.3	106093.5	63271.6	3052.8
1913	.	.	.	3003.6
1914	.	.	.	2971.7
1915	.	.	.	2799.5
1916	.	.	.	2741.3
1917	.	.	.	2693.5
1918	.	.	.	2607.4
1919	.	.	.	2665.8
1920	.	.	.	2724.8

## Yugoslavia

Table YUI.1\_A Total reserves, 1920–1940

(in millions of dinars, end-of-period)

Year	Total statutory reserves	Metallic holdings	Gold holdings	Silver holdings	Foreign exchange
	YU1A_A	YU1B_A	YU1C_A	YU1D_A	YU1E_A
1920	431.4	79.7	64.2	15.5	351.6
1921	401.3	90.9	74.2	16.7	310.4
1922	349.3	80.6	64.0	16.6	268.7
1923	437.4	86.1	68.8	17.3	351.2
1924	474.4	89.8	72.4	17.5	384.5
1925	460.1	93.4	75.9	17.5	366.7
1926	438.9	103.6	86.1	17.5	335.3
1927	452.7	106.3	88.8	17.6	346.4
1928	339.1	108.6	91.0	17.5	230.5
1929	380.0	112.1	94.5	17.6	267.9
1930	236.1	116.2	98.6	17.6	120.0
1931	2096.8	1758.4	1758.4	..	338.4
1932	1968.1	1760.8	1760.8	..	207.3
1933	1906.2	1795.0	1795.0	..	111.2
1934	1905.5	1784.6	1784.6	..	120.9
1935	1464.3	1431.5	1431.5	..	32.8
1936	1626.1	1626.1	1626.1	..	..
1937	1709.1	1709.1	1709.1	..	..
1938	1909.6	1909.6	1909.6	..	..
1939	1988.4	1988.4	1988.4	..	..
1940	2740.0	2740.0	2740.0	..	..

Table YUI.2\_A Monetary base, 1920–1940

(continue)

(in millions of dinars, end-of-period; cover ratio in per cent)

Year	Monetary base	Coins in circulation	Banknotes in circulation	Giro accounts with central bank	Other central bank liabilities at sight	Effective cover ratio of gold (*)	Overall effective cover ratio (*)
	YU1F_A	YU1H_A	YU1I_A	YU1J_A	YU1K_A	YU1L_A	YU1M_A
1920	3601.5	.	3344.1	115.2	142.2	..	..
1921	5059.8	.	4688.4	235.4	136.0	..	..
1922	6007.6	.	5039.9	252.7	715.1	..	..
1923	6444.5	.	5790.2	198.9	455.4	..	..
1924	6676.4	.	6001.5	307.0	368.0	..	..
1925	6817.4	.	6062.7	366.6	388.1	..	..
1926	6547.0	.	5811.8	347.0	388.2	..	..

Table YU1.2\_A Monetary base, 1920–1940

(in millions of dinars, end-of-period; cover ratio in per cent)

Year	Monetary base	Coins in circulation	Banknotes in circulation	Giro accounts with central bank	Other central bank liabilities at sight	Effective cover ratio of gold (*)	Overall effective cover ratio (*)
	YU1F_A	YU1H_A	YU1I_A	YU1J_A	YU1K_A	YU1L_A	YU1M_A
1927	6930.5	.	5743.4	721.0	466.2	..	..
1928	6617.0	.	5528.2	493.2	595.6	..	..
1929	7373.6	.	5818.0	1250.1	305.5	..	..
1930	6249.4	.	5396.5	667.2	185.7	..	..
1931	5755.3	166.5	5172.3	326.3	90.2	31.5	37.5
1932	5949.8	479.2	4772.7	384.7	313.1	32.2	36.0
1933	6318.2	960.0	4327.2	474.4	556.6	33.5	35.6
1934	6243.7	993.9	4384.0	531.9	333.9	34.0	36.3
1935	7145.8	870.1	4890.0	689.7	696.0	..	..
1936	7902.4	864.6	5408.5	651.2	978.1	..	..
1937	9127.4	839.8	5834.1	1390.6	1063.0	..	..
1938	9792.4	778.4	6920.7	1080.0	1013.3	..	..
1939	12399.2	983.1	9697.9	899.1	819.1	..	..
1940	18490.7	1125.6	13833.9	1182.9	2348.4	..	..

Note: (\*) excluding coins.

Table YU2.1\_D Central bank interest rates, 1920–1940

(in per cent, date-of-change)

Year	Month	Day	Discount rate	Lombard rate (securities)	Lombard rate (warrants)	Lombard rate (gold)
			YU2A_D	YU2B_D	YU2C_D	YU2D_D
1920	throughout		6.0	6.0	..	..
1922	June	22	6.0	7.0	..	..
1924	Oct.	26	6.0	8.0	..	..
1930	May	29	5.5	7.0	..	..
1931	June	29	6.5	8.0	8.0	8.0
1931	July	20	7.5	9.0	9.0	9.0
1932	Oct.	30	7.5	9.0	7.5	9.0
1933	Oct.	2	7.5	9.0	7.5	7.5
1934	Feb.	9	7.0	8.0	7.0	7.0
1934	July	16	6.5	7.5	6.5	6.5
1935	Feb.	1	5.0	6.0	5.0	5.0
1940	throughout		5.0	6.0	5.0	5.0

Table YU2.1\_A Central bank and market interest rates, 1920–1940

(in per cent, period averages)

Year	Discount rate	Lombard rate (securities)	Lombard rate (warrants)	Lombard rate (gold)	Short-term market lending rate for first- class bills (*)	Market interest rate on sight deposits	Market interest rate on term deposits
	YU2A_A	YU2B_A	YU2C_A	YU2D_A	YU2E_A	YU2F_A	YU2G_A
1920	6.0	6.0	..	..	7–12	.	.
1921	6.0	6.0	..	..	7–12	.	.
1922	6.0	7.0	..	..	7–12	.	.
1923	6.0	7.0	..	..	20–30	.	.
1924	6.0	7.2	..	..	18–30	.	.
1925	6.0	8.0	..	..	18–30	.	.
1926	6.0	8.0	..	..	.	.	.
1927	6.0	8.0	..	..	.	.	.
1928	6.0	8.0	..	..	12–18	.	.
1929	6.0	8.0	..	..	9–12	6.0	10.0
1930	5.7	7.4	..	..	8–11	5.0	7.0
1931	6.5	8.0	8.8	8.8	.	.	.
1932	7.5	9.0	8.7	9.0	.	.	.
1933	7.5	9.0	7.5	8.6	9–13	.	.
1934	6.8	7.9	6.8	6.8	9–11	.	.
1935	5.1	6.1	5.1	5.1	8–10	4.0	5.0
1936	5.0	6.0	5.0	5.0	7–10	4.0	5.0
1937	5.0	6.0	5.0	5.0	7–10	4.0	5.0
1938	5.0	6.0	5.0	5.0	.	.	.
1939	5.0	6.0	5.0	5.0	.	.	.
1940	5.0	6.0	6.0	5.0	.	.	.

Note: (\*) minimum and maximum rates.

Table YU2.2\_A Government bond market prices and current yields, 1923–1939

(continue)

(market prices in dinars quoted on the Belgrade Stock Exchange, current yields in per cent; period averages)

Year	Market price of Compensation for war damage (*)	Market price of Investment loan (*)	Market price of Agrarian bonds (*)	Current yield on Compensation for war damage	Current yield on Investment loan	Current yield on Agrarian bonds
	YU2H_A	YU2I_A	YU2J_A	YU2K_A	YU2L_A	YU2M_A
1923	123.8	.	.	20.2	.	.
1924	136.4	64.9	24.8	18.3	10.8	16.2
1925	236.0	70.4	37.4	10.6	10.0	10.7
1926	306.6	75.9	43.5	8.2	9.2	9.2
1927	360.4	85.1	52.2	6.9	8.2	7.7
1928	436.3	88.3	55.6	5.7	7.9	7.2
1929	419.6	86.5	52.6	6.0	8.1	7.6
1930	438.3	87.9	54.0	5.7	8.0	7.4

Table YU2.2\_A Government bond market prices and current yields, 1923–1939

(market prices in dinars quoted on the Belgrade Stock Exchange, current yields in per cent; period averages)

Year	Market price of Compensation for war damage (*)	Market price of Investment loan (*)	Market price of Agrarian bonds (*)	Current yield on Compensation for war damage	Current yield on Investment loan	Current yield on Agrarian bonds
	YU2H_A	YU2I_A	YU2J_A	YU2K_A	YU2L_A	YU2M_A
1931	376.5	81.0	45.0	6.6	8.6	8.9
1932	207.1	53.4	26.2	12.1	13.1	15.3
1933	222.3	48.1	26.8	11.2	14.5	14.9
1934	320.6	70.2	37.9	7.8	10.0	10.5
1935	368.0	79.2	46.8	6.8	8.8	8.5
1936	363.9	82.8	47.8	6.9	8.5	8.4
1937	407.2	90.4	52.7	6.1	7.7	7.6
1938	469.3	99.5	61.6	5.3	7.0	6.5
1939	450.6	99.1	60.1	5.5	7.1	6.7

Note: (\*) From 1932 onwards prices are calculated at a new way of quoting in which the rate does not include accrued interest.

Table YU3\_A Exchange rates at the Belgrade Stock Exchange, 1920–1940

(in dinars, period averages)

Year	Dollar (New York)	French franc (Paris)	Swiss franc (Geneva-Zurich)	Pound sterling (London)	Italian lira (Milano)	Mark (Berlin)	Dinar in Zurich (100 dinars in Swiss francs)
	YU3A_A	YU3B_A	YU3C_A	YU3D_A	YU3E_A	YU3F_A	YU3G_A
1920	33.7	2.1	5.2	114.0	1.5	5.6	21.5
1921	46.4	3.4	8.1	179.9	2.0	5.1	13.7
1922	75.2	6.1	14.2	330.2	3.5	3.3	7.1
1923	93.8	5.7	17.2	431.4	4.3	.	5.9
1924	78.5	4.1	14.3	346.4	3.4	.	7.0
1925	58.8	2.8	11.4	284.2	2.3	.	8.8
1926	56.6	1.8	11.0	275.3	2.2	13.5	9.1
1927	56.8	2.2	11.0	276.4	2.9	13.4	9.1
1928	56.8	2.2	10.9	276.8	3.0	13.6	9.1
1929	56.7	2.2	11.0	275.9	3.0	13.5	9.1
1930	56.4	2.2	11.0	274.9	3.0	13.5	9.1
1931	56.5	2.2	11.0	257.8	3.0	13.5	9.1
1932	56.7	2.2	11.0	199.8	2.9	13.5	8.3
1933	46.3	2.3	11.1	191.4	3.0	13.7	7.0
1934	34.2	2.3	11.1	173.8	3.0	13.6	7.0
1935	43.6	2.9	14.3	215.0	3.6	17.6	7.0
1936	43.4	2.7	13.2	217.4	2.3	17.6	7.0
1937	43.3	1.8	10.0	215.4	2.3	17.5	10.0
1938	43.4	1.3	10.0	213.7	2.3	17.6	10.0
1939	44.2	1.1	10.0	196.8	2.3	17.8	10.0
1940	44.5	0.9	10.1	170.3	2.2	17.8	10.0



Table YU4\_A Government finances, 1920–1940

(in millions of dinars, nominal terms)

Year	Total government revenue YU4A_A	of which direct taxes YU4B_A	of which indirect taxes and excises YU4C_A	of which state enterprises YU4D_A	Total government expenditure YU4E_A	of which pensions YU4F_A	of which public debt repayment (principal+ interest) YU4G_A	Foreign public debt (*) YU4H_A	Government debt to the central bank YU4K_A
1920	.	.	.	.	.	.	.	.	3283
1921	.	.	.	.	.	.	.	.	4418
1922	.	.	.	.	.	.	.	.	4518
1923	.	.	.	.	.	.	.	.	4524
1924	10838	1377	5917	3452	10540	.	.	.	4521
1925	12064	1737	6597	3637	11777	.	.	.	4467
1926	11606	1828	6106	3582	11593	626	584	.	4414
1927	11319	1754	5981	3540	10983	717	664	.	4338
1928	13796	1774	5058	6875	11147	1026	860	.	4202
1929	15962	2393	5521	6944	11817	1014	873	.	4153
1930	13312	2094	5366	4836	12470	1015	1097	.	4021
1931	10964	1785	4420	4207	11530	1089	919	.	1799
1932	9681	1793	4015	3533	10286	1103	1010	32763	2409
1933	10015	2104	3855	3525	9651	1158	797	.	2316
1934	9758	2199	3994	3440	9379	1193	686	.	2287
1935	9989	2196	4151	3523	9562	1210	678	.	2271
1936	10572	2390	4651	3381	10059	1219	718	.	2248
1937	11987	2705	5241	3917	11083	1267	971	.	2238
1938	12385	2762	5522	3941	11814	1135	1008	.	2228
1939	13118	2992	5659	4352	12463	1110	1141	.	3625
1940	.	.	.	.	.	.	.	.	9162

Note: (\*) On 1 July.

Table YU5.1\_A Prices, 1926–1939

(continue)

(index, 1926=100)

Year	Wholesale prices YU5A_A	Agricultural prices YU5B_A	Cattle prices YU5C_A	Minerals prices YU5D_A	Industrial prices YU5E_A	Export prices YU5F_A	Import prices YU5G_A
1926	100.0	100.0	100.0	100.0	100.0	100.0	100.0
1927	102.6	112.4	104.3	92.2	99.3	107.1	97.3
1928	106.2	130.1	108.6	86.4	98.0	114.6	96.0
1929	100.6	118.6	107.2	84.4	92.6	114.3	91.4
1930	86.6	89.3	96.3	88.2	80.3	93.5	79.8

Table YU5.1\_A Prices, 1926–1939

(index, 1926=100)

	Wholesale prices	Agricultural prices	Cattle prices	Minerals prices	Industrial prices	Export prices	Import prices
Year	YU5A_A	YU5B_A	YU5C_A	YU5D_A	YU5E_A	YU5F_A	YU5G_A
1931	72.9	74.3	72.2	77.2	71.4	72.8	69.0
1932	65.2	67.5	56.6	76.3	66.2	60.9	68.3
1933	64.4	57.2	57.1	75.5	70.8	58.4	74.3
1934	63.2	57.4	55.4	80.8	67.4	59.1	70.1
1935	65.9	68.2	56.6	79.7	66.7	63.6	69.3
1936	68.4	69.7	60.0	81.0	69.7	64.8	71.1
1937	74.7	74.1	65.1	87.5	77.6	72.6	74.1
1938	78.3	85.8	65.8	89.9	78.2	76.2	71.2
1939	79.3	82.5	68.7	94.9	79.8	77.2	79.7

Table YU5.2\_A Industrial production, 1920–1939

(production of selected industrial products in tons)

	Cement	Hard coal	Brown coal	Lignite
Year	YU5H_A	YU5I_A	YU5J_A	YU5K_A
1920	400	65885	176817	92068
1921	14926	74916	231681	91445
1922	23831	96014	309304	162551
1923	29600	134644	375747	224844
1924	29248	128904	346944	214436
1925	36395	177192	364974	229262
1926	27409	185369	437176	245993
1927	.	258429	452693	219898
1928	.	329103	549901	257842
1929	.	376614	609402	223056
1930	.	314845	641375	259990
1931	58291	355750	600912	275682
1932	42004	317309	581789	322530
1933	30952	325598	532493	261947
1934	31290	325628	569673	320412
1935	33422	330051	594457	299930
1936	32931	361268	611344	233559
1937	44290	372771	701161	289606
1938	89832	392884	728283	362650
1939	.	406735	767010	417608

Table YU5.3\_A Labour force and wages, 1920–1940

(period averages)

Year	Employment in thousands	Daily wages in dinars	Daily wages (1920=100)	Nominal wages (Dec. 1930=100)	Real wages (Dec. 1930=100)	Cost-of-living (Dec. 1930=100)
	YU5L_A	YU5M_A	YU5N_A	YU5O_A	YU5P_A	YU5Q_A
1920	500.2	17.3	100.0	.	.	.
1921	528.9	18.0	104.4	.	.	.
1922	559.7	18.8	109.0	.	.	.
1923	619.2	20.2	117.1	.	.	.
1924	612.0	22.2	128.5	.	.	.
1925	642.5	23.4	135.2	.	.	.
1926	664.2	23.5	136.1	.	.	.
1927	709.2	25.0	144.9	.	.	.
1928	781.4	25.8	149.4	.	.	.
1929	824.2	26.3	152.3	.	.	.
1930	816.7	26.6	153.7	100.0	100.0	100.0
1931	779.6	26.2	151.6	99.5	105.7	94.0
1932	741.5	24.6	142.2	91.2	111.4	81.7
1933	713.9	23.2	134.4	86.4	120.1	71.8
1934	775.0	22.2	128.7	78.7	114.2	68.9
1935	802.9	21.7	125.3	77.8	109.9	70.9
1936	872.6	21.7	125.5	79.5	108.9	73.1
1937	924.1	22.7	131.4	83.1	105.5	71.7
1938	960.6	23.6	136.8	85.1	105.1	80.9
1939	972.6	24.3	140.5	92.2	103.0	89.6
1940	1032.3	26.4	152.5	102.9	130.8	78.6

Table YU6\_A National accounts and population, 1918–1940

(continue)

(in millions of dinars; YU6I\_A thousands of inhabitants)

Year	National income at current prices	of which industry and mining	of which agriculture	National income at 1938 prices	of which industry and mining	of which agriculture	Exports	Imports	Population
	YU6A_A	YU6B_A	YU6C_A	YU6D_A	YU6E_A	YU6F_A	YU6G_A	YU6H_A	YU6I_A
1918	.	.	.	.	.	.	.	.	11621
1919	.	.	.	.	.	.	.	.	11794
1920	.	.	.	.	.	.	1321	3466	11970
1921	.	.	.	.	.	.	2461	4122	12149
1922	.	.	.	.	.	.	3691	6442	12330
1923	65223	8765	34414	34470	5866	16177	8049	8310	12514



# VIII

## Albania: from 1920 to 1944

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*Bank of Albania*

### I MAJOR MONETARY EVENTS

The history of Albanian monetary and economic statistics is closely related with the history of the country's overall political and economic developments. Albania was part of the Ottoman Empire for about five centuries (1385–1912). The Ottoman monetary and credit system expanded significantly in Albania. The Imperial Ottoman Bank,<sup>2</sup> created in 1863 and The Agricultural Turkish Bank created in 1888, started operations in several cities of Albania through the respective subsidiaries. Since then, efforts to establish the National Bank of Albania went hand-in-hand with the struggle to form an integrated and independent state. After gaining its independence on 28 November 1912, Albania suffered from poor economic development as it had neither a central bank and a banking system, nor a national currency. During this challenging historical period, hard foreign currency, such as the Austro-Hungarian currency (the crown) and the Latin Monetary Union (LMU) currencies such as the French franc, the Italian lira and the Greek drachma, circulated in the domestic money market, gradually replacing the Ottoman currency. Gold franc was accepted for public accounts while in public treasury, gold, silver

**TABLE I Chronology of major monetary events in Albania**

<b>NBA – Institutional milestones</b>	<b>Milestones in the history of the Albanian franc</b>
<b>1913</b> First attempts to establish the National Bank of Albania (NBA).	<b>1913</b> The institution fails very soon. No monetary system in Albania. Free circulation of coins (gold and silver) and hard foreign currencies in the domestic money market.
<b>1923</b> Efforts are made by the League of Nations to help Albania create a central bank.	<b>1923</b> The government introduces a law authorising the municipalities to issue banknotes. However, these banknotes are not standardised.
<b>1925</b> A Convention on the establishment of the National Bank of Albania is signed between the Albanian and Italian authorities' representatives. Italian investors hold 75% of its capital. The NBA is designated as the note-issuing bank of the country.	<b>1925</b> The National Bank of Albania introduces for the first time the gold franc as legal tender in Albania. The law 'On monetary arrangement' enters into force. The country joins the gold-exchange standard.
<b>February 1926</b>	The first Albanian currency unit is put into circulation.
<b>1928–1929</b>	A bimetallic standard is applied.
<b>20 April 1939</b> Economic - Customs and Currency union Convention between Italy and Albania.	<b>1939</b> The country leaves the gold-exchange standard on 20 April. The Albanian gold franc is renamed Albanian franc. It is pegged to the Italian Lira at a fixed rate (1 Albanian franc = 6.25 Liras).
<b>1944</b> The Convention of 1925 is repealed and the NBA is expropriated to protect public interest.	
<b>1945</b> The State Bank of Albania is established; the bank's entire capital is held by domestic investors.	Conventions between Albania and Italy are rescinded.

<sup>1</sup> *Financial Stability and Statistics Department*. The authors would like to express their gratitude to all SEEMHN DCTF participants for providing the opportunity, encouragement and guidance in developing this research project. Special thanks go to Kalina Dimitrova for her availability in preparing the unified index data table. We would like to thank the staff of the Albanian State's Archive for their assistance in providing us with the necessary documents and information required for this paper. We are also grateful to our colleagues in the Statistics Division of the Bank of Albania and Refika Fejzo for the monetary aggregates issue. This study would not have been possible without the support provided by the Bank of Albania. The views expressed herein are strictly those of the authors and do not necessarily reflect the views of the Bank of Albania. The authors alone are responsible for any errors. *E-mail to:* apisha@bankofalbania.org; bvorpsi@bankofalbania.org; nhoxhaj@bankofalbania.org.

<sup>2</sup> <http://www.obarsiv.com/english/history.html>

and paper were used without any distinction (Calmés 1922). In July 1913, Albania's independence was confirmed by the Conference of Ambassadors in London.<sup>3</sup>

### 1.1 THE BEGINNINGS OF MONEY IN ALBANIA

The first attempts to establish a monetary system in Albania were made with the Concession Act of 4 October 1913 (Bank of Albania 2003, Shkoza 1935) and the establishment of the National Bank of Albania (NBA). The Convention of 1913 includes a Concession Act signed between the Albanian government, the representative of the Italian government and an Austro-Hungarian banking group, with a term of 60 years. This strategic document provided that the NBA capital would amount to 10 million crowns, or 10.5 million Italian liras (in gold coins). According to the Agreement, the NBA was obliged to hold gold reserves at the level of 1/3 of the total amount of currency in circulation. The NBA would be the only institution authorised to issue banknotes and coins within the Albanian territory and carried out a number of transactions as a commercial bank, such as receiving deposits and conducting credit transactions with industrial, financial and agricultural enterprises and associations. The NBA would act as fiscal agent of the government. The franc (*frang*) was introduced as the country's legal tender.

As a result of the difficulties arising from World War I (1914–1918), the institution did not manage to carry on its activities for a very long time; hence, it failed. In the absence of a monetary system in Albania, foreign (mainly LMU) currencies gained ground in the domestic money market (Borgatta 1941).<sup>4</sup> Some local administrations, mainly the self-governing municipalities, began to issue their own banknotes (only in small amounts) in order to meet immediate market needs (Lubonja et al. 2002). On the other hand, the Albanians inherited from the Ottomans the habit of holding *good* (i.e. *hard*) money (Borgatta 1941). As a League of Nations representative reported in 1922, '... thanks to the good sense of the Albanian inhabitants, who entirely refused to accept any foreign paper money and amassed gold and silver during World War I, Albania was one of few countries enjoying a metal currency on an effective gold basis...' (Calmés 1922). According to Roselli (2006), the financial representative of Albania to the League of Nations noted that the country was facing financial problems and the government's priority was to create money. The League set up a legal framework for the establishment of a note-issuing bank. In June 1924, the League of Nations assigned the Italian financial group and some other foreign institutions to negotiate the establishment of a note-issuing bank.<sup>5</sup>

A second, more successful attempt to establish the National Bank of Albania (NBA) was made on 15 March 1925 Convention through the Concession Agreement between the Albanian government and the 'Credito Italiano', which held 75% of the capital (Ministry of Finance 1925). The statute of the NBA was drafted in Rome, where the Administrative Committee was situated. The Central Directorate was established in Durres and later in Tirana. The latter attended to the implementation of the Administrative Committee and the Administrative Council decrees. Given the fact that the majority of the shareholders and members of the council were Italians, the Italian influence was evident in the monetary policy decision-making process of the NBA (Trani 2007). According to this agreement, the nominal capital of the NBA was set at 12.5 million gold francs. The NBA had the exclusive privilege of issuing banknotes, held government deposits, provided

<sup>3</sup> Also referring to as the principality of Albania.

<sup>4</sup> Austrian crowns, all LMU currencies (e.g. French franc/Italian lira), including Serbian currency too. For public accounting, the franc/lira was used.

<sup>5</sup> According to the League's initial plans, 75% of the bank's capital would consist, in equal funds (investments), of British, French and Italian capital and the remaining 25% would be divided among Belgians, Swedes, Dutch and Albanians. As financing from the other foreign powers failed, the Italian government stepped in, offering their support. By the declaration of 9 November 1921, the League of Nations entrusted the Albanian territorial integrity to Italy.

Treasury services and negotiated central and local government loans. The metallic reserves (gold or silver) were defined at 1/3 of the banknotes in circulation.

The law 'On monetary arrangement' was approved by Parliament on 23 June 1925 and the Senate on 5 July 1925. This law gave the NBA the right to issue banknotes as well as gold and silver coins (Bank of Albania 1925). The first Albanian currency unit, the franc, was put into circulation in February 1926. For a period of over 10 years, the NBA operated under monopoly. Until 1926, many foreign currencies, both coins and notes, circulated freely in the domestic market, such as silver crowns and US, French, Italian and Greek banknotes. However, public confidence in banknotes was still very low and thus metallic coins were the preferred holding. In an attempt to unify the country's monetary system and make people trust banknotes, Albania joined the gold-exchange standard. Banknotes could be converted into gold or a gold-based foreign currency such as the Italian lira, the US dollar or the pound sterling at a fixed rate. The replacement of foreign currencies was achieved gradually by issuing the new monetary unit (i.e. the Albanian gold franc banknote) over a five-year period, until total currency in circulation was close to the market needs (Borgatta 1941).<sup>6</sup> The gold deposits were consigned partly at the Italian Mint (for coining of the Albanian gold franc) and to the Bank of Italy in Rome, where the headquarters of the NBA was located.

## 1.2 BIMETALLISM

As a national monetary system did not exist before 1925, gold (napoleons) and silver (crowns) coins were broadly used in all money payments. The Treasury accepted gold, silver and paper money; however, silver and paper money were accepted at their official exchange rate<sup>7</sup> plus a premium of 5 and 10 per cent, respectively, to cover exchange rate risk (Calmés 1922). To avoid this kind of losses, Treasury payments were made mostly in gold. The monetary reform of 1925 arranged for gold and silver to be both in circulation, but the silver coins were relegated to the status of fractional currency (together with nickel and bronze coins) with limited redemption power in private transactions as 'token coins' (Roselli 2006). The face value of the silver coin was fixed well above its intrinsic market value. At the same time, silver coins had unlimited redemption power and the National Bank of Albania was legally bound to exchange silver for gold coins at the official exchange rate (mint exchange rate). This caused a shortage of 'token coins' and losses for the bank, which ultimately withdrew silver coins from circulation. Even though the monetary standard of bimetallism was not successful in Albania, silver coins were preferred to be re-introduced in 1928/29. During the monarchic period under King Zog (1928–1939), several discussions took place between the Albanian and the Italian governmental officials concerning the withdrawal of silver coins from circulation. The Albanian government was directly interested in having mint profits as the law permitted (1/2 share of the minting profits). In order to satisfy the government interest in mint profits and bring the intrinsic value closer to the legal value, new legislation was enacted in June 1928 (Roselli 2006). This new law stipulated, among other things, (i) a change in the metal content of silver coins bringing more in line the market and mint ratios; and (ii) silver coinage had to be issued by the NBA upon the authorisation of the government. This was a starting point for larger profits for the latter.

However, in May 1929, the National Bank of Albania and the Bank of Italy maintained a position of independence and took a stand against this law<sup>8</sup> on the rationale that the NBA could face large losses in case of silver devaluation.<sup>9</sup> The entire capital and reserves of the bank could be

<sup>6</sup> Borgatta, in his study, found that the market demand for Albanian franc banknotes was 14.5 billion.

<sup>7</sup> A fixed exchange rate was set on a weekly basis by each prefecture or sub-prefecture, and a committee of merchants.

<sup>8</sup> The law, however, was not implemented in practice.

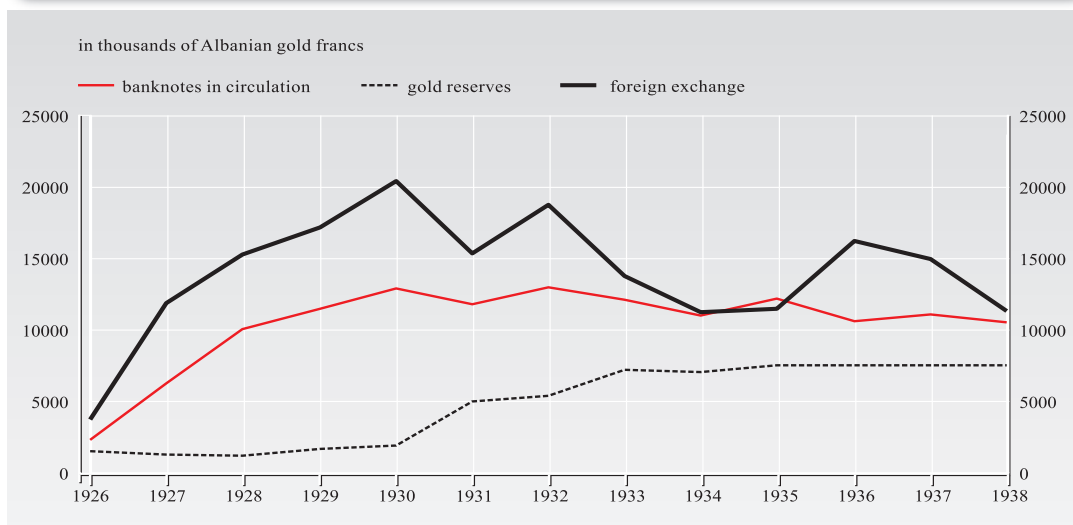
<sup>9</sup> People preferred to exchange silver for gold.

wiped out and a shortage in silver's token circulation could occur. On 4 December 1929, an agreement was reached between the government and the bank under which silver coins were withdrawn from the market, while nickel coin issuance increased.

### 1.3 THE GREAT DEPRESSION

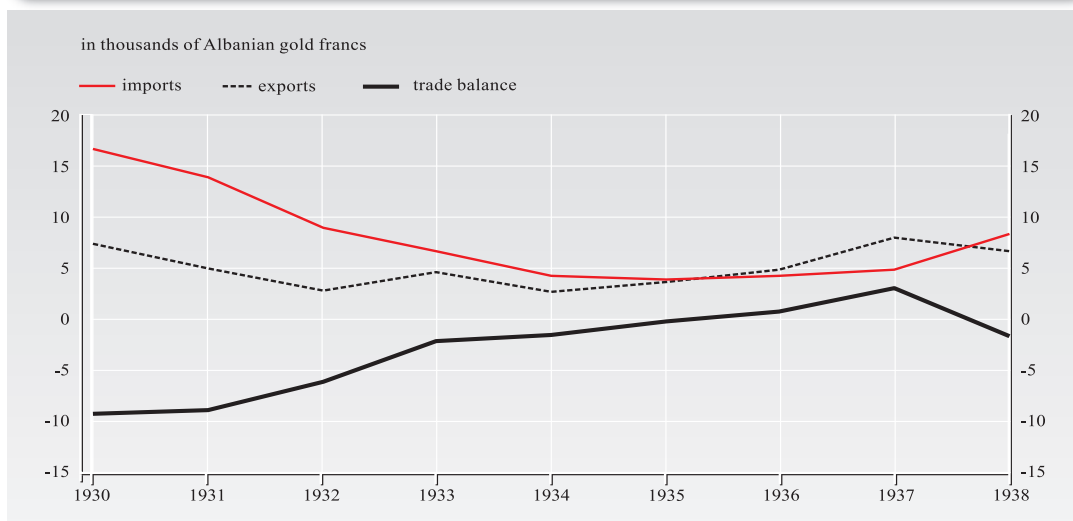
Until 1930, Albania was under the gold-exchange standard regime. Total currency reserves were mainly composed of gold-based foreign currencies, while the remaining 10% was in gold (see Fig-

**FIGURE 1 Banknotes in Circulation and Reserves, 1926–1938**



Sources: NBA (1938), Borgata (1941), Fishta (1971) and Bank of Albania (2003).

**FIGURE 2 Albania's Trade with Italy, 1930–1938**



Sources: Ministry of Finance 1929, 1936 and Gambino 1941.



ure 1). The crisis affected both the economic and monetary sectors. In terms of trade transactions, in mid-1929 there was a sharp decline in both imports and exports, which lasted until early 1934. The reduction of trade transactions led to an improvement in the trade deficit. The crisis caused devaluation pressures on the currency since, in 1932, there was an increase in demand for exchange of banknotes with gold (Fishta 1971). To restrain devaluation pressures and maintain exchange rate stability, the NBS suspended gold convertibility.

On its way out of the crisis, Albania experienced a recovery of the domestic economy. In 1934, it signed bilateral free trade agreements with Greece and Yugoslavia. In 1935, the Albanian and the Italian governments also signed a free trade agreement followed by economic aid provided by Italy. From 1936 onwards, exports to Italy grew considerably, as seen in Figure 2.

In 1937, the Albanian Agricultural Bank and the Banca di Napoli-Albania began operations. Both banks held Italian capital only. Thus, the banking system of Albania was dominated by Italian investments in the country. Starting 1936, the Albanian gold franc became legal tender and, unlike other foreign currencies, maintained a fixed parity with gold.

#### 1.4 FOREIGN OCCUPATION AND THE MONETARY SYSTEM, 1939–1944

During World War II, Albania was under Italian occupation and its banking system underwent many changes as the country's monetary system was reformed to be brought in line with the Italian one. The Agreement of 20 April 1939 strengthened the economic and financial collaboration between the two countries and led to the formation of a trade and monetary union, albeit in favour of Italy (Official Bulletin 1939). The Agreement assigned to the NBA full control of foreign exchange. The agreement unpegged the Albanian franc from gold and pegged to the Italian lira at a fixed rate of 6.25 liras per one Albanian franc. Under the Agreement, the gold standard was abandoned. The NBA was no longer authorised to exchange banknotes for gold francs and the gold franc was renamed Albanian franc. It fully followed the lira's movements against all other currencies. Hard gold-based foreign currencies were replaced by lira banknotes or other credits by the Bank of Italy. The Albanian franc had the same gold coverage as the lira. Treasury bills of the Italian State were also issued in Albanian francs. Even though the Albanian franc continued to be legal tender, it was unpegged from gold. Currency in circulation was covered by Italian banknotes. In 1936, the lira was pegged to gold at a fixed parity (1 lira was equivalent to 0.04677<sup>10</sup> grams of fine gold<sup>11</sup>) as Italy joined the Gold Bloc and the Albanian franc thus kept an indirect link to gold. To make the agreement binding, all correspondence from 1939 onwards referred to the Albanian gold franc simply as the Albanian franc. The Italian government imposed restrictions on all commercial and bank transactions in Albania. The NBA expanded money supply to finance Italy's invasion of the Balkans, leading to high inflation. Custom duties were removed and more than 85% of foreign trade during 1939–1943 was conducted with Italy. Trade with other countries vastly decreased to an almost insignificant volume as the restrictions imposed required NBA authorisation in order to execute a trade transaction (Fishta 1971). Even though Italy subsidised<sup>12</sup> Albania to compensate for the losses it incurred from not collecting taxes due to the Trade Agreement, this was not enough to make up for these losses. Albania was annexed to Italy and the Albanian franc suffered the consequences.

<sup>10</sup> League of Nations (1939–1940) provisional parity subject to change under certain conditions.

<sup>11</sup> Considering that, prior to the agreement, one Albanian franc was equivalent to 0.290323 grams of fine gold, the currency was sharply devalued.

<sup>12</sup> In order to cover the budget losses incurred as a result of a decline in customs revenues, Italy provided to Albania an annual subsidy of 15 million Albanian francs. Nonetheless, this subsidy was not sufficient to cover the losses incurred as a result of the Trade Agreement arrangements.

In September 1943, when Italy retreated from the Balkans and Germany took over the country, the domestic banks were forced to suspend lending activity and all deposit accounts were frozen, while the NBA was forced to cover the German military expenditures through expansion of money supply (Lubonja et al. 2002).<sup>13</sup> Gold and foreign exchange reserves were kept first at the Bank of Italy in Rome and later at the Reichsbank in Berlin. In the aftermath of the country's liberation (29 November 1944), the new State Bank of Albania was founded (see the law of 13 January 1945). Its capital was 10 million gold francs. All earlier conventions concluded between Albania and Italy were rescinded and the State did not legally recognise the liabilities of the ex-NBA out of gold and foreign exchange deposits towards third parties. The new bank was granted the exclusive privilege of note issuance, which should be gold or foreign exchange-backed by 1/3 of total. It also had the right to extend short- and long-term loans both to private and public entities. The total amount of currency in circulation was not known precisely.

## 2 DEFINITION AND DESCRIPTION OF VARIABLES

We present a comprehensive historical database of key macroeconomic time series classified in six groups of variables, namely monetary variables; interest rates; exchange rates; government finances; prices, output and labour; national accounts and population. The accompanying index table provides important information on the list of variables, the series' codes and the list of tables, the unit of account, and the time span and data frequency. Series cover different time spans depending on the availability of the data.

### INDEX TABLE - Country: ALBANIA

*continue*

List of Variables	Time Span	Data Frequency	Unit of account	Series Code
<b>1. MONETARY VARIABLES</b>				
<i>Total reserves</i>	1925–1942	annual	in national currency (thous.), end-of-period	AL1A_A
	Dec. 1925–Dec. 1942	monthly		AL1A_M
<i>Gold reserves</i>	1925–1942	annual	in national currency (thous.), end-of-period	AL1B_A
	Dec. 1925–Dec. 1942	monthly		AL1B_M
<i>Silver reserves</i>	1925–1942	annual	in national currency (thous.), end-of-period	AL1C_A
	Dec. 1925–Dec. 1942	monthly		AL1C_M
<i>Foreign exchange and 3-month Treasury bills reserves</i>	1925–1942	annual	in national currency (thous.), end-of-period	AL1D_A
	Dec. 1925–Dec. 1942	monthly		AL1D_M
<i>Banknotes in circulation</i>	1926–1944	annual	in national currency (thous.), end-of-period	AL1E_A
	March 1926–Dec. 1944	monthly		AL1E_M
<i>Gold coins in circulation</i>	1926–1938	annual	in national currency (thous.), end-of-period	AL1F_A
<i>Fractional metallic coins in circulation</i>	1926–1938	annual	in national currency (thous.), end-of-period	AL1G_A
<i>Total currency in circulation</i>	1926–1937	annual	in national currency (thous.), end-of-period	AL1H_A
<i>Ordinary clients' current accounts</i>	1926–1937	annual	in national currency (thous.), end-of-period	AL1I_A
<i>Banks and financial entities' current accounts</i>	1926–1937	annual	in national currency (thous.), end-of-period	AL1J_A

<sup>13</sup> See the convention of 27 December 1943 between the German Army and the Ministry of Finance of the Quisling Albanian government. The Albanian economy plunged further with this second conquest as the young state had not recovered yet from the Italian one. In 1944, while retreating, German troops broke into many safe-deposit boxes of the banks and of the NBA itself.

## INDEX TABLE - Country: ALBANIA

continue

List of Variables	Time Span	Data Frequency	Unit of account	Series Code
<b>1. MONETARY VARIABLES</b>				
<i>Banks and financial entities' current accounts</i>	1926–1937	annual	in national currency (thous.), end-of-period	AL1J_A
<i>Public entities' current accounts</i>	1926–1937	annual	in national currency (thous.), end-of-period	AL1K_A
<i>Traveller's checks</i>	1926–1937	annual	in national currency (thous.), end-of-period	AL1L_A
<i>Ordinary clients' savings and time deposits in national currency</i>	1926–1937	annual	in national currency (thous.), end-of-period	AL1M_A
<i>Ordinary clients' savings and time deposits in foreign currency</i>	1929–1937	annual	in national currency (thous.), end-of-period	AL1N_A
<i>Narrow money (M0)</i>	1926–1937	annual	in national currency (thous.), end-of-period	AL1O_A
<i>Broad money (M3)</i>	1926–1937	annual	in national currency (thous.), end-of-period	AL1P_A
<b>2. INTEREST RATES</b>				
<i>Discount rate</i>	1930–1939	annual	per cent, end-of-period	AL2A_A
	Jan. 1930–June 1940	monthly		AL2A_M
	1925–1940	annual	per cent, period average	AL2B_A
<b>3. EXCHANGE RATES</b>				
<i>Pound sterling</i>	1927–1939	annual	as a percentage of the 1929 gold parity, period average	AL3A_A
	Dec. 1928–Dec. 1939	monthly	as a percentage of the 1929 gold parity, end-of-period	AL3A_M
<i>French franc</i>	1927–1939	annual	as a percentage of the 1929 gold parity, period average	AL3B_A
	Dec. 1928–Dec. 1939	monthly	as a percentage of the 1929 gold parity, end-of-period	AL3B_M
<i>US dollar</i>	1927–1940	annual	as a percentage of the 1929 gold parity, period average	AL3C_A
	Jan. 1927–Dec. 1939	monthly	as a percentage of the 1929 gold parity, end-of-period	AL3C_M
<i>Swiss franc</i>	1927–1939	annual	as a percentage of the 1929 gold parity, period average	AL3D_A
	Dec. 1928–Dec. 1939	monthly	as a percentage of the 1929 gold parity, end-of-period	AL3D_M
<i>Italian lira</i>	1927–1939	annual	as a percentage of the 1929 gold parity, period average	AL3E_A
	Dec. 1928–Dec. 1939	monthly	as a percentage of the 1929 gold parity, end-of-period	AL3E_M
<i>Albanian gold franc</i>	1927–1940	annual	as a percentage of the 1929 gold parity, end-of-period	AL3F_A
	Dec. 1927–Dec. 1940	monthly	as a percentage of the 1929 gold parity, period average	AL3F_M
<i>Albanian gold francs in US cents</i>	1927–1939	annual	value of the Albanian gold franc in US cents, period average or end-of-period	AL3G_A
	Jan. 1927–Dec. 1939	monthly		AL3G_M
<b>4. GOVERNMENT FINANCES</b>				
<i>Government revenue</i>	1921–1943	annual	in national currency (thous.)	AL4A_A
<i>Government expenditure</i>	1921–1943	annual	in national currency (thous.)	AL4B_A
<i>Tax revenue (direct taxes)</i>	1921–1942	annual	in national currency (thous.)	AL4C_A

## INDEX TABLE - Country: ALBANIA

List of Variables	Time Span	Data Frequency	Unit of account	Series Code
<b>5. PRICES, PRODUCTION AND LABOUR</b>				
<i>Wholesale price index (1927=100)</i>	1927–1939	annual	index, period average	AL5A_A
	Jan. 1930–June 1940	monthly	last week or end-of-month	AL5A_M
<i>Retail price index (1927=100)</i>	1929–1937	annual	index, period average	AL5B_A
	Jan. 1935–Dec. 1937	monthly		AL5B_M
<i>Wholesale price index (1929=100)</i>	1927–1939	annual	index, period average	AL5C_A
	March 1930–June 1940	monthly		AL5C_M
<i>Wholesale price index (March 1939=100)</i>	1939–1944	annual	index, period average	AL5D_A
			index, end-of-period	AL5E_A
<i>Retail price index (March 1939=100)</i>	1939–1944	annual	index, yearly average	AL5F_A
			index, end-of-period	AL5G_A
<b>6. NATIONAL ACCOUNTS AND POPULATION</b>				
<i>Exports</i>	1920–1943	annual	in national currency (thous.)	AL6A_A
<i>Imports</i>	1920–1943	annual	in national currency (thous.)	AL6B_A
<i>Population</i>	1920–1950	annual	in million inhabitants	AL6C_A

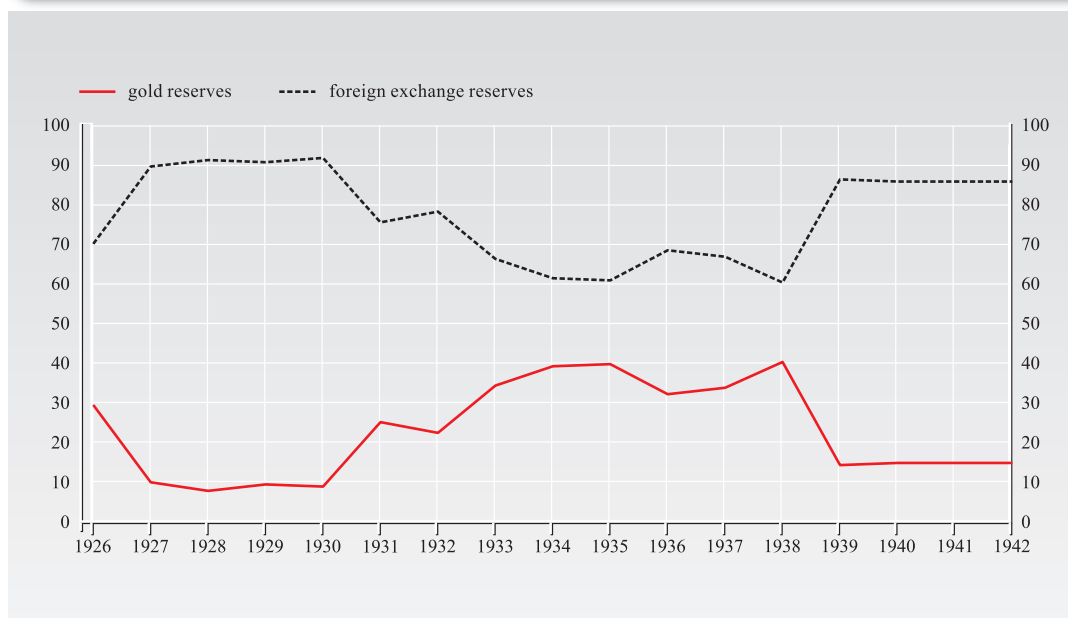
Notes: The statistical data refer to the information available to the authors at the time of writing this chapter. Further research and studies may result in additional data. National currency refers to the Albanian gold franc as legal tender from 1926 to 1939. From 1939 onwards, it refers to the new currency, named Albanian franc. The code of each variable comprises a country prefix (AL), a number of the variable group (1, 2,...) and a letter identifying the respective time series within the group (A, B, C,...); at the end, A stands for annual and M for monthly time series. Monthly time series are available in the CDs accompanying the volume.

## 2.1 MONETARY VARIABLES

*Currency reserves*

Table AL1\_A depicts annual data on currency reserves from 1925 to 1942. Currency reserves consisted of metallic holdings of gold and silver and foreign exchange. Foreign exchange consisted of foreign currency and Italian 3-month Treasury Bills (TB) from 1937 onwards. Series (AL1) contains data on total reserves and their components for the period from 1925 to 1942, on an annual basis. Monthly data (AL1A\_M) refer to the period from December 1925 to December 1942, but the information is not continuous; for several years the monthly figures refer only to the end of December.

Until 1930, the Albanian monetary system was based on the gold-exchange standard. Therefore, total reserves were mainly made up of foreign currencies (such as the US dollar, the Italian lira and the pound sterling). As Figure 3 shows, only 10% were held in gold before 1930. Afterwards, the percentage of gold reserves to total reserves increased rapidly, jumping to 24.6% in 1931, and grew continuously until 1938. As the economy was meeting its market needs for currency, gold reserves peaked at a high of 40.1%. Even though the gold reserve threshold was set at 11.1% of total currency in circulation, it went up to over 70% in 1938. Scholars explain these changes with the phenomenon observed during the Great Depression, when countries in order to preserve a stable economy hoarded gold instead of foreign currency reserves which were losing value (Iaselli 2004).

**FIGURE 3 Reserves Composition, 1926–1942**

Sources: Data adopted from the NBA annual report (1937), the League of Nations and Borgatta (1941).

### *Currency in circulation*

Currency in circulation is defined as the total amount of banknotes (AL1E\_A), gold coins (AL1F\_A) and fractional metallic coins (AL1G\_A) in circulation (see the NBA annual report 1938). Annual data on banknotes in circulation are displayed for the period 1926–1944, and monthly data for the period from January 1926 to December 1944. The data on gold coins in circulation are displayed from 1926 up to 1938, i.e. the year of the Agreement of 20 April 1939 whereby the gold standard was abandoned. The data on fractional metallic coins in circulation cover the period from 1926 to 1938. The figures are in thousands of Albanian gold francs and refer to the end of the period (i.e. as at the last day of the calendar year). After 1939, the Albanian gold franc was renamed Albanian franc, as a direct consequence of the uncoupling of the domestic currency from the gold-exchange standard (Fishta 1971). The new banknotes in circulation were printed in new style by the Bank of Italy and were put into circulation in the domestic market considering the needs of the Italian government, thus explaining the sharp rise in the AL1E\_A series.

During 1926–1939, the NBA tightened its monetary policy with the goal of maintaining exchange rate stability. The reserve-banknotes ratio was set at 1/3. From 1933 to 1938, money squeeze was apparent. Following 1939, banknote circulation was defined as the total amount of Albanian francs in circulation.

### *Monetary aggregates*

The data entries on monetary aggregates are the authors' estimations utilising the information retrieved from the NBA annual reports and balance sheet. The data series has been constructed on an annual basis and figures are expressed in thousands of Albanian gold francs. The monetary aggregate M0 (narrow money; AL1O\_A), according to modern international

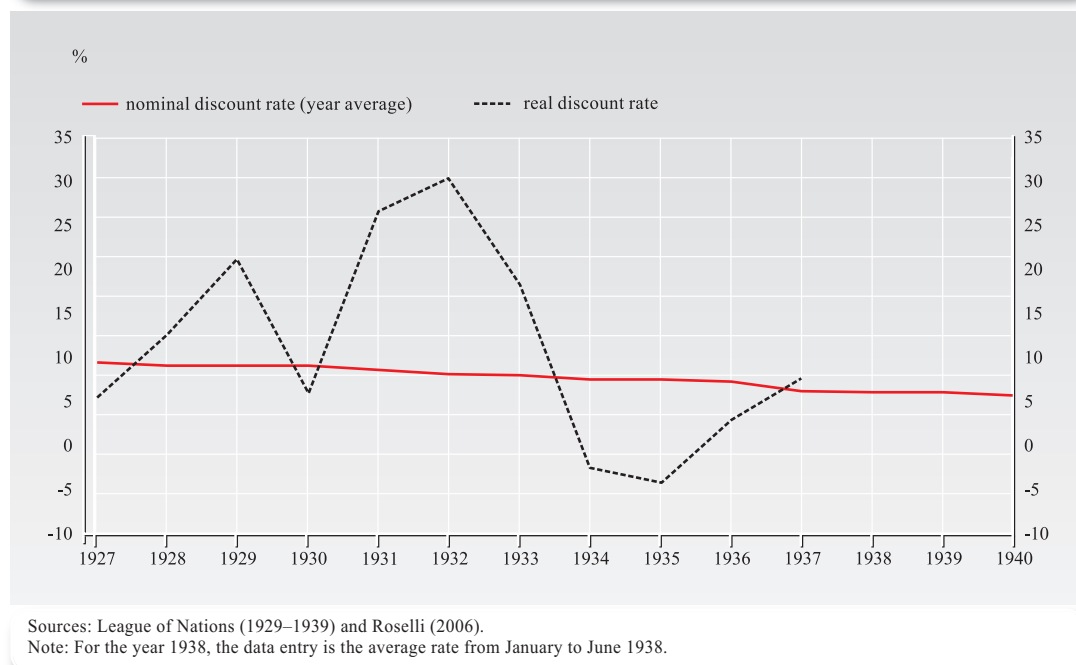
monetary statistical standards, comprises (1) total currency in circulation (banknotes, gold and fractional coins in circulation) and (2) demand; deposits of banks and financial institutions. The constructed M3 aggregate (broad money, AL1P\_A) comprises (1) total currency in circulation outside the banking system plus (2) savings and time deposits of ordinary clients (in domestic and foreign currencies) plus (3) demand deposits of public entities. As we do not have detailed information on the deposits' breakdown, we cannot construct M1 and M2 monetary aggregates.

## 2.2 INTEREST RATES

### *Official interest rate: the discount rate*

The interest rate series displays the interest rate on loans provided by the NBA to the public. The applied interest rates were higher than those set by other European countries, thus having a negative impact on the economy as lending activity shrank (Fishta 1971). The data on the nominal discount rate are annual averages and cover the period from 1925 to 1940, while the data for the period 1930–1939 refer to the end of the year. Figure 4 shows the annual nominal discount rates drawn from the League of Nations and the real discount rates compiled by using the percentage change in the wholesale price index (1929=100) (Roselli 2006). The NBA imposed high interest rates in line with the tight monetary policy pursued aiming at preserving the stability of the exchange rate.

**FIGURE 4** The Discount Rate, 1927–1940



## 2.3 EXCHANGE RATES

In the National Bank of Albania reports (see, in particular, the section on the exchange rates), foreign currencies were listed as percentages of their 1929 gold parity. We follow here the same

convention. Annual averages are available from 1927 to 1940 and are extracted from the NBA annual report (1938) and the League of Nations (1929–1939). The exchange rate data for the Albanian gold franc and the other currencies for the period 1928–1937 are extracted from the data published in the annual reports of the bank, which date up to 1938, while the remaining data are taken from the League of Nations. In addition, the monthly series refer to the data extracted from the League of Nations (1929–1939). The monthly data refer to the end of the period and are displayed from January 1927 to December 1940. All figures are displayed as percentages of the 1929 gold parity. Following the dollar's devaluation in 1933, the rates were recalculated in gold by means of the quotation of the French franc in New York or based on the rates of the country itself, as it was the case for Albania (League of Nations 1929–1939). With the monetary reform of 1925, the Albanian franc was set at 0.290323 grams of gold content. As indicated by the statistical data of that time, the stability of the Albanian franc was noticeable. It was impressive that the Albanian currency, for several months in succession, recorded nominal rates even higher than hard foreign currencies on the international stock markets (Lubonja et al. 2002). On the National Bank of Albania's initiative, the Albanian franc was regularly quoted (priced) on the international Stock Exchanges of Milan, Trieste, Switzerland and Vienna (see Table 2).

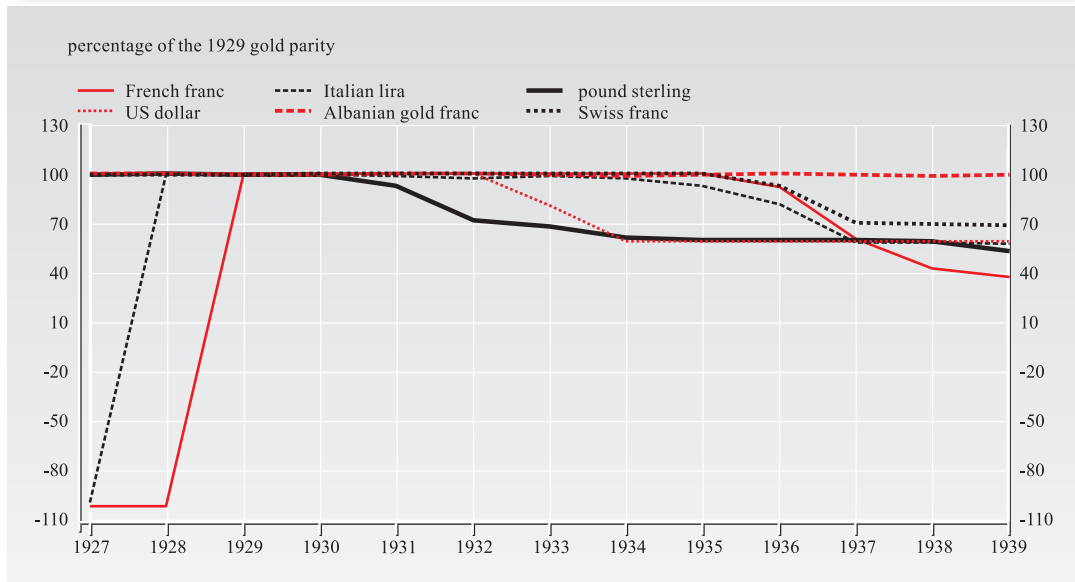
**TABLE 2 Exchange rate parity in gold, in US cents**

Year	Exchange rate (Albanian franc = 19.30 cents)	Year	Exchange rate (Albanian franc = 19.30 cents)
1927	100.60	1934	99.1
1928	100.0	1935	99.5
1929	99.6	1936	100.2
1930	99.8	1937	99.4
1931	100.2	1938	99.1
1932	100.3	1939	99.5
1933	99.4	1940	100.2

Notes: Value of the Albanian gold franc as a percentage of the 1929 gold parity, where 1 Albanian franc = 19.30 gold cents. The calculation has been made on the basis of the official rates in US cents in New York, adjusted to take into account the depreciation of the gold value of the dollar. Values over 100% signify appreciation and values below 100% signify depreciation of the domestic currency.  
Source: Statistical Yearbook of the League of Nations.

The Albanian economy suffered from the interwar crisis and its impact was felt until the first half of 1935. As Fishta (1971) and Bank of Albania (2003) pointed out, the Albanian franc manifested depreciation rates of 5–6 per cent per month throughout the crisis period. However, on an annual basis it preserved its strong value. As shown in Figure 5, the Albanian franc is the only currency, among other hard currencies, that preserved its value during the period from 1927 to 1939. This was achieved because the NBA reduced the money supply and increased the share of gold in currency reserves. This policy, however, resulted in a short-lived strengthening of the Albanian franc against the pound sterling, the dollar, the Italian lira and the Swiss franc. Soon, it was artificially overvalued against its nominal value partly because of the other currencies' depreciation, as is evident in Figure 5.

**FIGURE 5 Exchange Rates, 1927–1939**

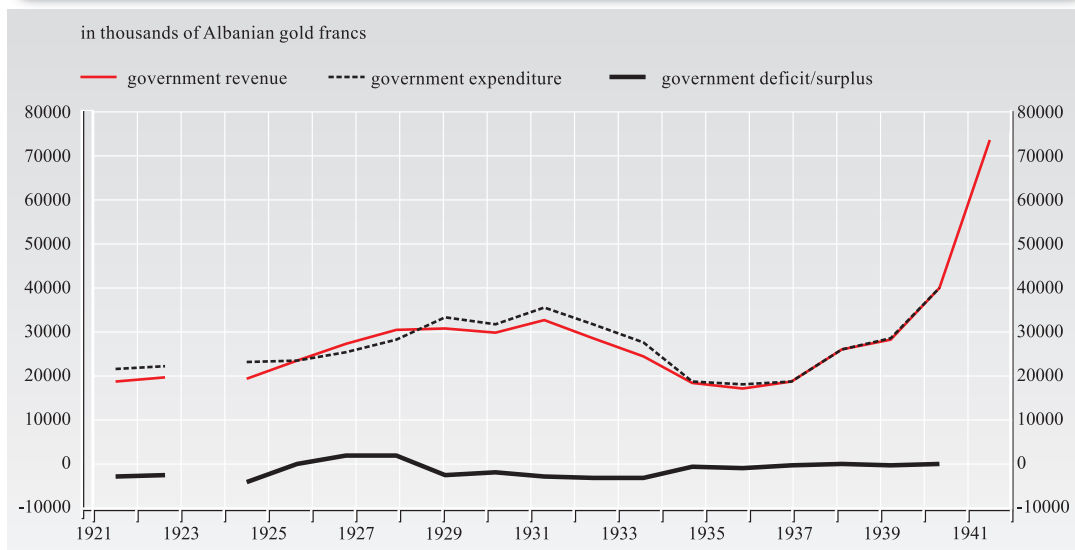


Sources: NBA annual report (1938) and the League of Nations (1929–1939).

## 2.4 GOVERNMENT FINANCES

Fiscal indicators consist of budget revenue and expenditure of the general government. Annual data from 1921–1943 are submitted in Table AL4\_A. From 1933, data are preliminary. Total revenue includes tax revenue and other government revenue, while expenditure refers to primary spending by ministries.

**FIGURE 6 Government Finances, 1921–1942**



Sources: Calmés (1922), NBA annual report (1938) and Di Nardi (1940).



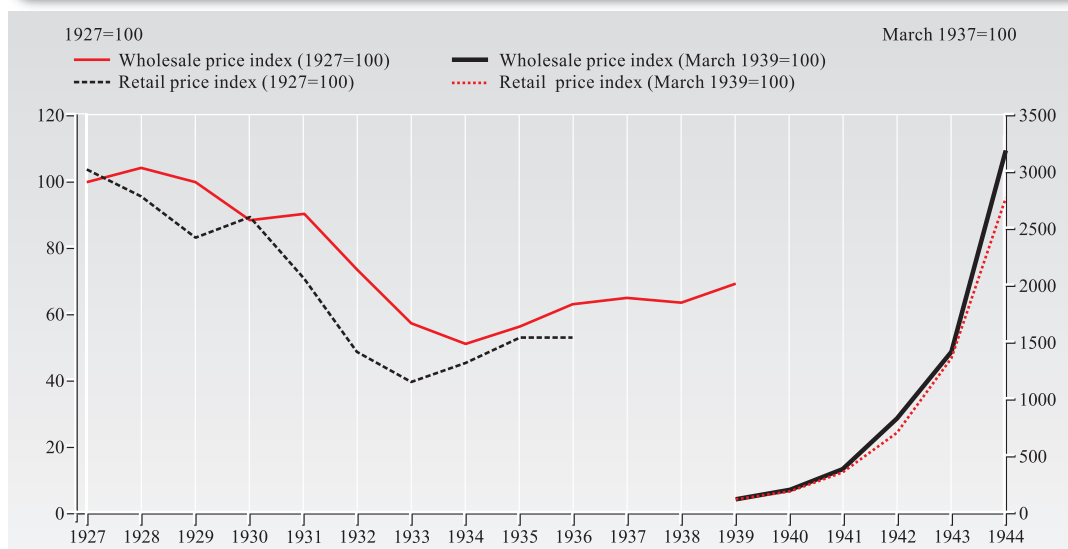
Monthly indicators were not available. At the very beginning, fiscal years 1921 and 1922 coincided with the calendar year. Afterwards, fiscal years captured the period from 31 March to 1 April of the next calendar year. The annexation of Albania by Italy also required the unification of the fiscal periods, now running from 1 July to 30 June of the next calendar year. For example, the fiscal year 1939–40 covers a 15-month period, from 1 April 1939 to 30 June 1940 (Di Nardi 1941). For the two consecutive years before 1930, government budget revenue in nominal terms was sufficient to cover public expenditure, conducting therefore to a positive fiscal balance. During the Great Depression, the deficit rose sharply, to peak at 2.8 million Albanian gold francs in 1931–32. Following 1934, the fiscal balance improved in line with the economy's recovery after 1935. In 1940, the budget was balanced. The series for the fiscal year 1942–43 relies on budget data published in the official bulletin (September 1942).

## 2.5 PRICES, PRODUCTION AND LABOUR

### *Consumer price indices*

During 1925–1939, the NBA pursued a tight, deflationary monetary policy causing a credit squeeze in the domestic economy. As a consequence, domestic prices dropped partly as a result of the relative appreciation of the currency. 1934 was the year of the strongest deflation (see Figure 7). From 1939 to 1943, Italy adopted a loose monetary policy to cover war needs, thus allowing strong depreciation pressures on the franc to re-appear. The ultimate result was high inflation. Wholesale and retail price indices are published in the Albanian State Bank's reports and cover roughly the data until November 1944. In particular, they refer to the average indices of 16 main groups with base year 1927=100 for the period 1928–1933. We could detect a new data series on wholesale prices, shifted to the base 1929=100 for the period January 1930 to June 1940. Meanwhile, the data found in the Albanian State Bank's reports for the years 1939–1944 refer to the end-of-year indices and the year average of annual indices of seven main groups, with base period March 1939=100. The various sources of information used may explain the differences in the displayed data series.

**FIGURE 7 Price indices, 1927–1944**



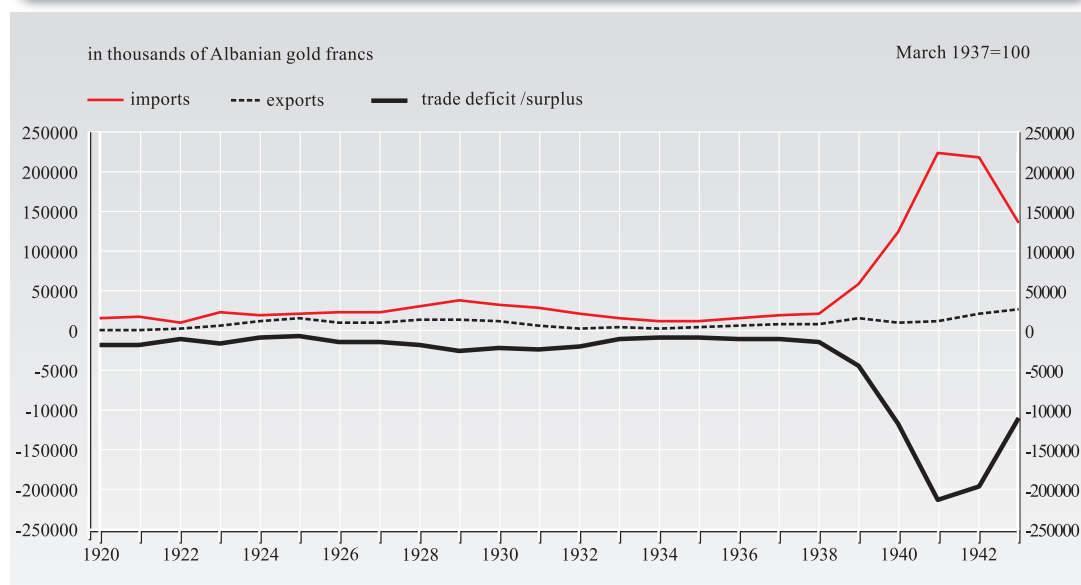
Sources: NBA annual report (1937), Fishta (1971) and the League of Nations (1929–1939).

## 2.6 NATIONAL ACCOUNTS AND POPULATION

### *Imports and Exports*

The data on foreign trade refer to exports and imports of goods. Annual data on foreign trade are displayed in thousands of Albanian currency for the period 1920 to 1943. Monthly data are not available. During the years before the Great Depression, the Albanian foreign trade increased considerably, mainly imports. However, the Great Depression affected the external trade sector as well, among other macroeconomic indicators. This was reflected in the sharp decline in import spending, which continued until 1934. The same holds true for export receipts. Signs of a rebound in trade were shown only in the second half of 1935, when both imports and exports improved. Nevertheless, imports increased dramatically during the Italian conquest due to the Free Trade Agreement between the two countries, which rendered the country an internal market of the Italian Empire, being treated like the other colonies. More than 85% of foreign trade during 1939–1943 was with Italy, while trade with other countries decreased to an almost insignificant volume. The data series are on an annual basis and are available until 1943 (Ministry of Finance 1936, Fishta 1971).

**FIGURE 8 External Sector, 1920–1943**

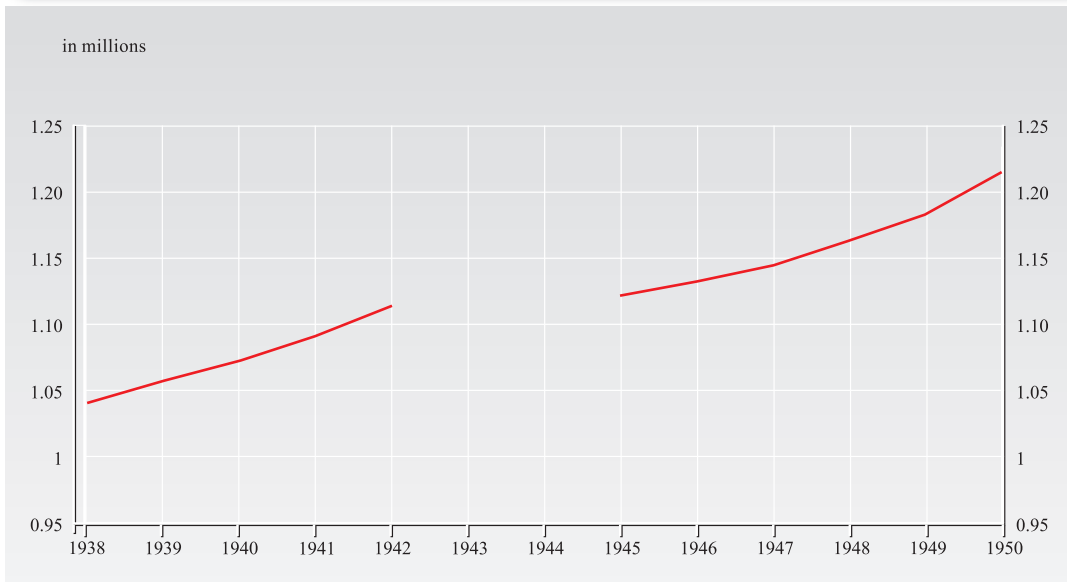


Sources: Ministry of Finance (1929, 1936), Calmés (1922), NBA annual report (1937) and Fishta (1971).

### *Population*

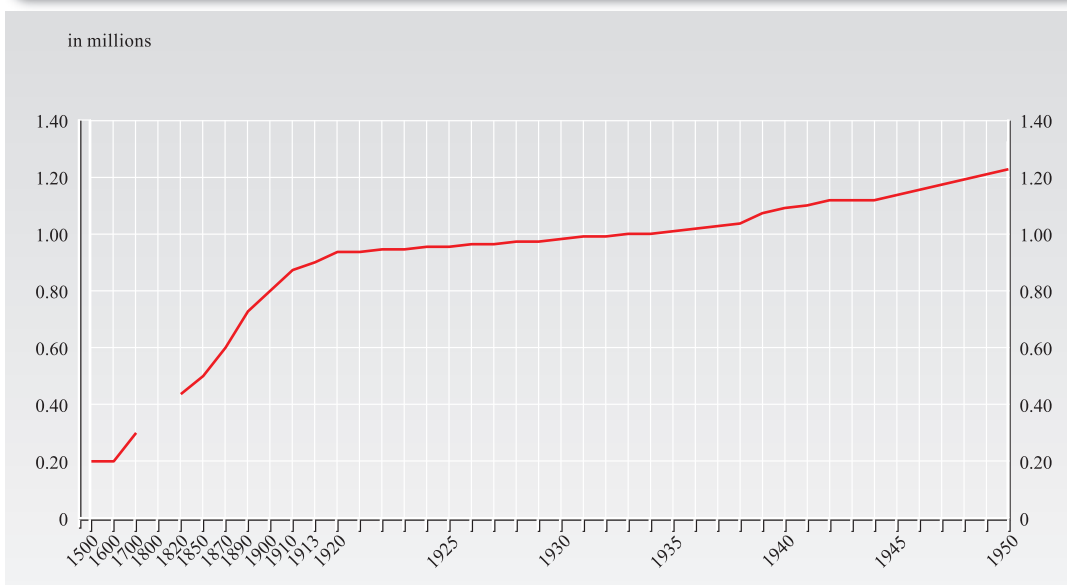
The official data on population, as shown in Figure 9, have been retrieved from the Statistical Yearbook of the People's Republic of Albania (1958), and correspond only to the period 1938–1950. The national population statistics are still incomplete, especially birth statistics. Other data sources exist for the period prior to 1938, which are estimates. A population series that displays data prior to 1938, as shown in Figure 10, is available in the Data Market provided by Gapminder Foundation and Maddison (2003). This projection explains the difference between our primary data source and the secondary source employed in this study.

**FIGURE 9 Population, 1938–1950**



Source: Statistical Yearbook (1958).

**FIGURE 10 Total Population**



Source: Maddison (2003).

### 3 DATA SOURCES

The data sources used are divided into primary and secondary ones and comprise qualitative and quantitative statistical data. The primary data sources are the Albanian State’s Central Archives

(A.Q.SH.F), Archive fund 179 (National Bank of Albania fund) and Archive fund 406 (State Bank of Albania fund). The data figures on currency reserves, banknotes in circulation, monetary aggregates, exchange rates, and retail and wholesale prices (1939–1944) were retrieved from these sources. The data on the state budget were retrieved from the above-mentioned data sources too. Moreover, qualitative data were extracted from Fishta (1971), *Monetary and Credit System in Albania* (1925–1944), which helped us gain insights on major monetary events during the sample period and supports other research findings.

The foreign trade statistics are drawn from the annual publications of the Ministry of Finance of the Albanian Kingdom (1929, 1936). Moreover, the international publication by Borgatta (1941), Di Nardi (1941) and Lenti (1941) *Principi di economia Albanese* was also used to complete the information data set. The data on the exchange rate as a percentage of the gold parity in 1929 and on the interest rates are drawn from the *Statistical Yearbook* of the League of Nations.

The data series on reserves, banknotes in circulation and monetary aggregates come from the *NBA balance sheet and statistical and graphical review* in the Albanian State's Central Archives (A.Q.SH.F) and Archive fund 179 (National Bank of Albania fund). The balance sheets were published both in Albanian and Italian. These data have been compared with those retrieved from the League of Nations report (1929–1939) by Gino Borgatta in *Moneta e Credito in Albania, Principi di economia Albanese*, and Fishta's (1971) study.

The interest rates data are retrieved from the League of Nations *International Statistical Yearbook* (1926–1944), Economic and Financial Section. The data have been compared with those from Fishta's study and the NBA annual reports, as well.

The primary source for the exchange rate data is the League of Nations. The data are reported as the value of the currency as a percentage of the gold parity in 1929. These data are provided, furthermore, in the NBA annual reports. The data entries for the period 1935–1937 are from the 1937 annual report of the NBA, while for the period 1939–1944 they are drawn from the State Bank of Albania archive document entitled *Price Indicators* (1945).

The fiscal data have been collected from different sources. For the years 1921–1922, the primary source is the Calmés (1922) report on the economic and financial situation of Albania (League of Nations). For the period 1921–1928 and 1938–1940, the source used refers to the findings of Di Nardi (1941). For the years 1929–1937, the data are drawn from the annual reports of the NBA. The data for 1941–1942 are collected from the *Official Bulletin and Economic Summary* No. 7, 8, Kingdom of Albania. Detailed data on revenue for the period 1926–1931 were found in Shkoza (1935).

The foreign trade data come from the Annual Office of International Trade report on *Foreign Trade Statistics* and the publication of the Ministry of Finance of the Albanian Kingdom for the years 1929 and 1936. The 1920 data entry is drawn from the Calmés (1922) report. For the period 1935–1937, the data come from the balance sheet report of the NBA Albanian State's Central Archives (1937), Archive fund 179, File 14. The same information data set is compared with data from Lenti (1941) and Fishta (1971).

The primary data source for post-1938 population data is the *Statistical Yearbook* of the People's Republic of Albania (1958). Prior to 1938, the only available source is the secondary data source of Maddison (2003).

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*Note: In the following tables “..” indicates that the item did not exist; in case of reconstructed data, that the entry was not calculated for that point in time; “.” indicates a missing value. An absolute zero is coded as “-“, while “0.0” codes a rounded zero. For details on the unit of the series, see index table in section 2.*

**TABLE AL I.1\_A Total Reserves, 1925–1942***(end-of-year, thousands of Albanian francs)*

Year	Total reserves	Gold reserves	Silver reserves	Foreign exchange and 3- month Treasury bills reserves
	ALIA_A	ALIB_A	ALIC_A	ALID_A
1925	2600	1100	.	1500
1926	5421	1572	56	3793
1927	13310	1302	115	11893
1928	16870	1249	315	15306
1929	19016	1760	99	17157
1930	22401	1933	3	20465
1931	20450	5038	3	15409
1932	24162	5407	2	18753
1933	21052	7225	2	13825
1934	18421	7122	3	11296
1935	19071	7556	-	11515
1936	23811	7556	-	16255
1937	22571	7583	-	14988
1938	18894	7574	-	11320
1939	52996	7567	-	45429
1940	52200	7600	-	44600
1941	52200	7600	-	44600
1942	52200	7600	-	44600

**TABLE AL I.2\_A Currency in circulation, 1926–1944***(end-of-year; thousands of Albanian francs)*

Year	Banknotes in circulation	Gold coins in circulation	Fractional metallic coins in circulation
	ALIE_A	ALIF_A	ALIG_A
1925	2600	1100	.
1926	5421	1572	56
1927	13310	1302	115
1928	16870	1249	315
1929	19016	1760	99
1930	22401	1933	3
1931	20450	5038	3
1932	24162	5407	2
1933	21052	7225	2
1934	18421	7122	3
1935	19071	7556	.
1936	23811	7556	.
1937	22571	7583	.
1938	18894	7574	.
1939	52996	7567	.
1940	52200	7600	.
1941	52200	7600	.
1942	52200	7600	.

TABLE AL 1.3\_A Monetary aggregates, 1926–1937

(end-of-year; thousands of Albanian francs)

Year	Total currency in circulation	Ordinary clients' current accounts	Banks' and financial entities' current accounts	Public entities' current accounts	Traveller's checks	Ordinary clients' savings and time deposits in national currency	Ordinary clients' savings' and time deposits in foreign currency	Narrow money (M0)	Broad money (M3)
Year	ALIH_A	ALII_A	ALIJ_A	ALIK_A	ALIL_A	ALIM_A	ALIN_A	ALIO_A	ALIP_A
1926	2664	1154*	.	.	12	43	.	2664	3873
1927	7282	1521	1673	265	64	66	.	8955	9198
1928	11302	2516	1665	1025	99	221	.	12967	15163
1929	12849	2689	2302	2638	226	605	183	15151	19190
1930	14563	3827	3519	3523	368	939	298	18082	23518
1931	13763	4094	2998	7907	461	651	288	16761	27164
1932	15259	3637	3196	12615	339	870	255	18455	32975
1933	14341	3364	915	11059	281	896	139	15256	30080
1934	13299	2687	774	8769	230	846	66	14073	25897
1935	15100	3633	1879	2607	283	1116	39	16979	22778
1936	13555	3937	1711	10166	389	1084	65	15266	29196
1937	14414	4303	3195	5372	530	1390	20	17609	26029

Note: Data on ordinary clients' current accounts for the year 1926 include banks' and financial entities' current accounts and public entities' current accounts.

TABLE AL 2\_A Discount rate, 1925–1940

(in percentage points per annum)

Year	Nominal discount rate (end-of-year) (%)	Nominal discount rate (average) (%)	Year	Nominal discount rate (end-of-year) (%)	Nominal discount rate (average) (%)
Year	AL2A_A	AL2B_A	Year	AL2A_A	AL2B_A
1925	.	12.0	1933	7.5	7.9
1926	.	12.0	1934	7.5	7.5
1927	.	9.4	1935	7.5	7.5
1928	.	9.0	1936	7.0	7.2
1929	.	9.0	1937	6.0	6.1
1930	9.0	9.0	1938	6.0	6.0
1931	8.0	8.5	1939	6.0	6.0
1932	8.0	8.0	1940	.	5.6



TABLE AL 3\_A Exchange rates, 1927–1940

(annual averages, unless otherwise indicated)

Year	Value of currencies as a percentage of their gold parity in 1929						Albanian gold franc in US cents (Fr. alb=19.30c)
	Pound sterling	French franc	US dollar	Swiss franc	Italian lira	Albanian gold franc	average or end-of-period
	AL3A_A	AL3B_A	AL3C_A	AL3D_A	AL3E_A	AL3F_A	AL3G_A
1927	99.90	-100.20	100.00	99.80	-98.00	100.60	19.40
1928	100.00	-100.10	100.00	99.80	99.90	100.00	19.30
1929	99.80	100.00	100.00	99.90	99.40	99.60	19.20
1930	99.90	100.20	100.00	100.50	99.50	99.80	19.30
1931	93.20	100.10	100.00	100.60	98.90	100.20	19.36
1932	72.00	100.30	100.00	100.60	97.40	100.30	19.32
1933	68.10	100.00	80.70	100.20	99.00	99.40	30.03
1934	61.80	100.00	59.60	100.10	97.00	99.10	32.32
1935	59.80	100.00	59.40	100.00	93.00	99.50	32.39
1936	60.50	92.40	59.20	92.60	82.00	100.20	32.74
1937	60.00	61.00	59.10	70.20	59.00	99.40	32.74
1938	59.30	43.40	59.10	70.00	59.00	99.10	32.70
1939	53.80	37.80	59.10	69.00	58.00	99.50	31.57
1940	.	.	59.10	.	.	100.20	.

TABLE AL 4\_A Government finances, 1921–1943

(thousands of Albanian francs)

Year	Government revenue	Government expenditure	Tax revenue (direct taxes)
	AL4A_A	AL4B_A	AL4C_A
1921	18809	21471	.
1922	19747	22196	.
1923–1924	.	.	.
1925–1926	19300	23200	7687
1926–1927	23375	23410	9299
1927–1928	27362	25370	12085
1928–1929	30273	28167	12380
1929–1930	30801	33125	10823
1930–1931	29818	31655	9608
1931–1932	32720	35511	9696
1932–1933	28500	31588	9159
1933–1934	24527	27527	6545
1934–1935	18507	18888	4800
1935–1936	17237	18035	3780
1936–1937	18584	18879	3963
1937–1938	26058	26058	4594
1938–1939	28230	28560	5484
1939–1940	40000	40000	4176
1941–1942	73406	.	7347
1942–1943	74500	74500	.

TABLE AL 5\_A Price indices, 1927–1944

Year	Wholesale price index (1927=100)	Retail price index (1927=100)	Wholesale price index (1929=100)	Wholesale price index (March 1939=100)	Wholesale price index (March 1939=100)	Retail price index (March 1939=100)	Retail price index (March 1939=100)
	AL5A_A	AL5B_A	AL5C_A	AL5D_A	AL5E_A	AL5F_A	AL5G_A
1927	100.00	.	100.00	..	..	..	..
1928	104.08	103.79	103.60	..	..	..	..
1929	99.99	95.72	100.00	..	..	..	..
1930	88.11	82.82	88.00	..	..	..	..
1931	90.25	89.19	90.30	..	..	..	..
1932	73.57	70.79	73.60	..	..	..	..
1933	57.26	48.41	57.20	..	..	..	..
1934	51.07	39.52	51.10	..	..	..	..
1935	56.19	45.02	56.20	..	..	..	..
1936	62.67	53.03	62.60	..	..	..	..
1937	64.94	52.75	64.60	..	..	..	..
1938	63.55	.	63.60	..	..	..	..
1939	69.15	.	62.57	116.40	147.40	115.10	143.50
1940	.	.	.	192.30	272.50	184.30	262.20
1941	.	.	.	374.40	559.20	351.10	496.80
1942	.	.	.	826.10	1096.00	695.90	945.20
1943	.	.	.	1413.50	2507.90	1353.60	2355.60
1944	.	.	.	3195.50	3337.30	2770.70	3134.90

TABLE AL 6\_A National accounts and population, 1920–1943

continue

(thousands of Albanian francs)

Year	Exports	Imports	Population (millions)
	AL6A_A	AL6B_A	AL6C_A
1920	1522.00	17533.00	0.932
1921	2189.79	18235.79	0.937
1922	2962.00	12099.52	0.942
1923	8137.92	23418.04	0.947
1924	12379.41	20489.59	0.952
1925	17122.77	21799.41	0.956
1926	11963.98	24864.73	0.962
1927	11106.90	24681.89	0.967
1928	14694.20	32311.58	0.972
1929	14682.60	38643.90	0.977
1930	12352.06	33288.90	0.982
1931	7509.00	29513.30	0.988
1932	4500.36	22814.50	0.993
1933	5746.48	15938.22	0.998
1934	4284.33	12332.71	1.003
1935	6037.00	13730.00	1.009

**TABLE AL 6\_A National accounts and population, 1920–1943***(thousands of Albanian francs)*

Year	Exports	Imports	Population (millions)
	AL6A_A	AL6B_A	AL6C_A
1936	7435.00	16778.00	1.014
1937	10175.07	20342.00	1.030
1938	9749.96	22979.89	1.040
1939	16907.00	60530.00	1.056
1940	10290.00	125800.00	1.072
1941	13450.00	223650.00	1.091
1942	23139.00	217708.00	1.114
1943	27397.00	136017.00	.
1944	.	.	.
1945	.	.	1.122
1946	.	.	1.132
1947	.	.	1.145
1948	.	.	1.163
1949	.	.	1.183
1950	.	.	1.215



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# IX

## Turkey: from 1923 to 1947

Yüksel Görmez<sup>1</sup> and Serkan Yiğit<sup>2</sup>  
*Central Bank of the Republic of Turkey*

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### I MAJOR MONETARY EVENTS

#### I.1 FOUNDATION OF THE REPUBLIC OF TURKEY

Analysing the monetary history of Turkey the interested reader needs to pay special attention to the initial conditions that the young Republic had to face when it came into existence in the early 1920s. The collapse of the Ottoman Empire at the beginning of the 20<sup>th</sup> century with long-running but unsuccessful re-trials of recovery in an attempt to sustain its past super-power position caused a loss in human capital, chiefly arising from the sufferings of both local conflicts and World War I. There was not much to inherit from the demised Ottoman Empire. Instead, a high foreign public debt was transferred as a burden to the new Republic, which was eventually repaid in the mid-20<sup>th</sup> century. The Ottoman Empire was blamed for having opportunities to rapidly raise productivity in view of the technology advances following the industrial revolution. As the country had failed to create a strong capital base, stimulate sustainable development and increase welfare, the economic gap between the Ottoman Empire and the other economies of the time was widening further. The decaying Empire's continuous losses in territory as well as widespread corruption and an ineffective public administration were the key causes of backwardness. Another reason given by Kazgan (1997) concerns the Empire's misjudgement of the key importance of banking and finance for sustainable welfare gains in the long-run. Kazgan argued that the unlawful practices followed by the Empire, sometimes by taking even the lives of rich people with forged accusations in order to take over their wealth whenever there was a budget deficit, prevented the capital accumulation process.

Therefore, the monetary history of Turkey began almost from scratch and might be best described as a build-up story of survival. Compared with neighbouring countries, Asia Minor was underdeveloped, lacking public infrastructures such as railways, roads and schools. Moreover, primary health services were inadequate due to the scarcity of doctors and the lack of treatment facilities. Manufacturing was underdeveloped too, and agriculture dominated national output. Hence, weather conditions were the main determinant of output volatility.

Almost immediately after gaining its independence in 1923, after the fall of the Ottoman Empire, the key priority of the Turkish government was to build political, financial and administrative institutions for improving governmental capacity. During those years, hard currency foreign exchange

<sup>1,2</sup> *Research and Monetary Policy Department*. The chapter extends earlier data releases of the South-eastern European historical database edited by the OeNB, *Proceedings of OeNB Workshops no. 13* (2008) and the Bank of Greece, *Working Paper no. 94* (2009). We would like to thank all SEEMHN DCTF participants for their useful comments and suggestions on how to present long-run historical economic time series in a consistent and harmonised way, and report methodologies applied to different time intervals and different individual series. The views expressed herein are strictly those of the authors and do not necessarily reflect the views of the Central Bank of the Republic of Turkey. The authors alone are responsible for any remaining errors.

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TABLE I Chronology of Major Monetary Events in Turkey

1920	A floating exchange rate regime was established.
1923	The Ottoman gold-backed banknote (140 million Turkish liras) and the Ottoman coins (10 million liras) became the legal tender.
1923	Tight monetary policies were pursued to maintain price stability.
1925	Law no 701 was enacted regarding the exchange of the Ottoman banknotes for the new legal tender, i.e. the Turkish lira, until the end of 1928.
1926	Preparations were undertaken to set up a national central bank.
1927	The first Turkish lira banknotes were issued.
1930	Law no 1567 was enacted regarding the protection of the value of the Turkish currency.
1930	Law no 1715 on the establishment of the Central Bank of the Republic of Turkey was enacted.
1932	The Central Bank was founded in October 1931 and started operations in January 1932.
1933	Law no 2243 on the protection of bank deposits was enacted.
1937	With law no 3290 the Turkish banknotes issued by the newly established Central Bank became the country's new legal tender.

Source: Authors' compilation.

reserves were extremely limited and money capital was scarce. There was no central bank either, and financial stability was outsourced to the Ottoman Bank, which had already provided central banking services during the era of the Ottoman Empire. However, it was not a central bank under state control or state ownership. This pragmatic approach turned out to be successful and prevented a banking and financial crisis that could have arisen from the lack of capital during the first years of the Republic.

In the early years of the new State, economic performance was extremely poor. Governmental policies mostly focused on providing for the basic needs of the society. In the 1920s, the domestic economy had not much to offer in foreign trade; exports consisted only of agricultural produce such as dried grapes and nuts. Hard currency inflows were quite limited; nevertheless, the trade balance was in surplus, chiefly due to the very low level of imports. At the same time, adverse international conditions did not allow the new State to follow an export-led recovery strategy because of the weak foreign demand for Turkish goods and services. The country also faced serious difficulties in its access to international capital markets. In this unfavourable economic setting, the government concentrated on introducing law and order and developing public infrastructure. However, the country's efforts faced a turbulent world environment shaped by excess economic instability in Europe as well as discussions on war reparations. Furthermore, the United States was heading to the worst depression of its history. Overall, the developed world of the time pursued contractionary economic policies and counter-productive devaluations supported by strict capital controls. World trade had declined and the global monetary transmission mechanism was not effective any more.

Without accumulating effective and efficient human capital to engineer a jump-start for fast recovery and sustainable growth, the Turkish Republic also faced many challenges in finding resources to repay its high foreign debt. To sustain sound monetary conditions, an option was to make a deal with the Ottoman Bank which was founded in 1856 as a joint venture between British interests, the Banque de Paris et des Pays-Bas of France, and the Ottoman government. Since the domestic currency was not fully backed by gold or hard currency foreign exchange, any potential finan-

cial stress would be prevented by extending the Ottoman bank's license. This policy option did prevent large-scale banking and financial crises from arising in the early years of the new State and seemed quite successful in the country's financial deepening.

After the War of Independence and the proclamation of the Republic of Turkey, the regulation of the relations with the new State was set up on 10 March 1924. The name of the bank was changed, from Imperial Ottoman Bank to Ottoman Bank. The bank's role as a state-owned bank maintained; it was however extended on a temporary basis due to the government's intention to establish its own central bank, which was finally realised in 1931. In 1933, the Ottoman Bank turned into a purely commercial bank.

Financial deepening in the late Ottoman period was poor. Most of the banks suffered massive capital losses and therefore went bankrupt. Apparently, the environment was not favourable for financial growth to translate into stronger economic growth, since money transactions were low, banking services were limited and trade was largely based on barter. Foreign banks formed the domestic banking system, whereas a couple of local banks with few branches emerged, albeit at a slow pace. However, the establishment of a strong financial infrastructure held a lower place on the policy agenda of the early governments of the young Republic, after hunger prevention and poverty reduction.

After the Republic was founded, the main purpose of the government was to establish economic, financial, juridical, military and cultural independence, and free speech, as well. In the second half of the 1920s, nationalisation motives against foreign capital were strong, further intensified by the bad experience in the Ottoman years. Nevertheless, foreign banks did not close down and continued to operate, as they had a strong capital base and could provide cheap and long-term lending. Between 1923 and 1932, more than 20 domestic banks went bust mostly because of the adverse impact of the Great Depression. Until the creation of a national central bank in 1930, there were around 22 small domestic and 13 big foreign banks with a total of 419 branches.

## 1.2 FOUNDATION OF THE CENTRAL BANK OF THE REPUBLIC OF TURKEY

As mentioned above, the Ottoman Empire never had a national central bank based on domestic capital. The privilege of note issue was instead granted to a French entity in 1863. The Ottoman Bank (*Osmanlı Bankası*), formerly Imperial Ottoman Bank (*Bank-ı Osmani-i Şahane*) carried out the functions of a central bank during the period of the Ottoman Empire. It was founded as a joint venture between British and French interest and the Ottoman government and retained its privilege of note issue from 1863 until the collapse of the Empire in 1923. After the declaration of the Republic of Turkey, preparations for a new national central bank started in 1926. The Law on the Central Bank of the Republic of Turkey (*Türkiye Cumhuriyet Merkez Bankası, TCMB*) was eventually enacted in 1930, and the monopoly of note issue was transferred to the new bank, which ultimately started operations in 1932.

Monetary policy during the 1930s was based on a discount facility, which largely portrays the country's central banking activity of the time as a growth stimulator. The government tried to boost industrialisation, and therefore the monetary policy pursued was accommodative. However, short-term advances to the Treasury were not allowed. Even though public finances were not in order because of the lack of a strong tax base, public deficits were not monetised. This was because the TCMB put an upper limit on the monetisation of the public deficit in an attempt to safeguard monetary and price stability.

The main characteristics of the economic policy pursued in the 1930s and 1940s were strict controls imposed on foreign trade, manipulation of interest rates and exchange rate devaluation. Real interest rates stood at positive figures, however. A fixed exchange rate regime had been introduced before the country joined Bretton Woods and became a member of the International Monetary Fund. In 1946, the government devalued heavily the lira (by 54% against the US dollar), seeking to gain a comparative advantage in terms of competitiveness before its entry into the Bretton Woods system.

It may be worth mentioning the smooth transfer of the central banking activities from a privately-owned foreign institution, i.e. the Ottoman Bank, to a national central bank, the TCMB. This transfer took place in an environment where global trade shrank and the supply-side-effects of the competitive devaluations were still at work. Worse than that, the young Republic had to rely exclusively on domestic resources for growth without any access to foreign capital markets. Against this backdrop, the smooth transfer of the central banking functions of the Ottoman Bank to the newly established TCMB with only subdued inflationary pressures and financial stability can be considered successful.

Closely related to the country's choice of founding a new central bank was also its choice of an exchange rate regime. Görmez and Yılmaz (2007) provide evidence that the TCMB thoroughly weighed the advantages and disadvantages of alternative monetary regimes to find out which regime fitted best its policy objectives. This is because it is not always possible to identify straightforward rules or criteria: a particular regime might be appropriate for a given macroeconomic structure in a certain period of time. Additionally, a specific regime choice might not be the best option forever because of various external and internal shocks. More importantly, a country's choice would also be influenced by the prevailing international monetary system or the global monetary and financial outlook.

In the 1920s, Turkey followed a floating rate regime, and the foreign exchange market was managed by the Ottoman Bank. Obviously, exchange rate volatility was not so high, because cover rules required the bank to back at least one third of notes in circulation by gold. This regime thus effectively limited the free floating of the exchange rate. As shown in Görmez and Yılmaz (2007), in the early 1930s after the establishment of the TCMB that regime switched to fixed rates. However, in times of heightened pressure on foreign exchange, capital controls were imposed and the state-owned banks directly intervened in the market. Moreover, in 1930 a law on defending the value of the lira was enacted.

The period of a low exchange rate volatility ended abruptly with the beginning of the Great Depression in 1929. Domestic monetary authorities reacted by funding a 'banks consortium' after the enactment of the 1930 law on defending the value of the lira. Buying and selling foreign exchange was strictly regulated. At the same time, capital controls were imposed. On 1 January 1932, the banks consortium's mission to defend the value of the currency was transferred to the TCMB, and keeping exchange rate stability was now one of its main responsibilities. In 1933, the lira's convertibility was eventually suspended. Up to 1938, the international price of the lira was kept stable chiefly through the imposition of extensive exchange and capital controls.

From 1939 onwards, however, the supposedly 'golden age' of the lira ('stable lira') started crumbling. In the wake of WWII, even the price of the bread was controlled and the continuation of strong and wide-ranging capital controls was unavoidable in order to defend the value of the currency. As expected, after the war, the lira started to depreciate heavily. This was the reason why the Turkish authorities decided to capture a competitive advantage by devaluing the lira in 1946,



well before the country's participation in the Bretton Woods agreement. This policy response might be viewed as a regime shift from fixed rates to an adjustable peg system.

The monetary policy pursued in the TCMB's first years of operation was not really complicated, since banking and finance had a limited impact on the domestic economy, which was characterised by a relatively weak financial depth. Banks' deposit base was rather limited, as the capital accumulation process went at a slow pace and the low saving rate could not support the emergence of a strong and healthy banking system. The lack of financial deepening itself led to low deposit rates and implied that the TCMB was the main credit provider. Selective credits for keeping domestic credit expansion under control were among the main monetary policy tools in the context of a heavily regulated system. There was a strong intention to direct scarce resources to the sectors that produced basic social goods, thereby supporting the survival of the population and economic development.

During the second half of the 1940s, several small private banks suffered from capital inadequacy and ultimately failed. On the other hand, as documented by Akgüç (1989), many privately- and domestically-owned banks started to emerge; their number reached 30 by the late 1950s. The government had successfully directed private capital flows to the financial sector in an attempt to accelerate its development which had remained poor for many decades in the past.

## 2 DEFINITION AND DESCRIPTION OF VARIABLES

The accompanying index table shows the list of variables (unit, frequency, time span and variable's code) reported. Namely, six groups of variables are presented. The first group refers to monetary variables. Total reserves (based on our assessments) consist of gold holdings held by the TCMB in its vault and in foreign banks (*ecnebi bankalar*), as well as domestic correspondent accounts (*dahildeki muhabirler*) and clearing accounts (*kliring bakiyeleri*). Data on banknotes in circulation (*tedavülde bulunan banknotlar*), bank deposits (*tevdia*) and narrow and broad monetary aggregates are also presented. The second group refers to interest rates, namely the short-term official discount rate and short- and long-term deposit interest rates (*tevdia faizleri*). Monthly exchange rates (*aylık kambiyo fiyatları*) against the pound sterling, the French franc, the Reichsmark and the US dollar come next. Government finances include government tax revenues (*devlet varidatı, vergiler*) and expenditures (*devlet masrafları*) as well as foreign and domestic public debt. Prices, production and labour include data series on the consumer price index, industrial production, labour force and school enrolment. The last group of the data set includes national accounts and population, i.e. nominal and real GNP, exports and imports, and mid-year population estimates.

### INDEX TABLE - Country: TURKEY

*continue*

List of Variables	Time Span	Data Frequency	Unit of Account	Series Code*
<b>I. MONETARY VARIABLES</b>				
<i>Total reserves</i>	1932–1947	annual	in Turkish lira (thous.), end-of-period	TR1A_A
<i>Gold (cash)</i>	1932–1947	annual	in Turkish lira (thous.), end-of-period	TR1B_A
<i>Gold (in foreign banks)</i>	1932–1947	annual	in Turkish lira (thous.), end-of-period	TR1C_A
<i>Gold (domestic correspondent accounts)</i>	1932–1947	annual	in Turkish lira (thous.), end-of-period	TR1D_A
<i>Other FX and Clearing accounts balances</i>	1932–1947	annual	in Turkish lira (thous.), end-of-period	TR1E_A

## INDEX TABLE - Country: TURKEY

List of Variables	Time Span	Data Frequency	Unit of Account	Series Code*
<b>1. MONETARY VARIABLES</b>				
<i>Banknotes in circulation</i>	1924–1947	annual	in Turkish lira (thous.), end-of-period	TR1F_A
<i>Sight deposits (TL)</i>	1933–1947	annual	in Turkish lira (thous.), end-of-period	TR1G_A
<i>Time deposits (TL)</i>	1933–1947	annual	in Turkish lira (thous.), end-of-period	TR1H_A
<i>Savings deposits</i>	1933–1947	annual	in Turkish lira (thous.), end-of-period	TR1I_A
<i>M1</i>	1933–1947	annual	in Turkish lira (thous.), end-of-period	TR1J_A
<i>M2</i>	1933–1947	annual	in Turkish lira (thous.), end-of-period	TR1K_A
<i>M3</i>	1933–1947	annual	in Turkish lira (thous.), end-of-period	TR1L_A
<b>2. INTEREST RATES</b>				
<i>Short-term official discount rate</i>	1932–1947	annual	in per cent, end-of-period	TR2A_A
<i>Short-term deposit interest rate</i>	1934–1947	annual	in per cent, end-of-period	TR2B_A
<i>Long-term deposit interest rate</i>	1934–1947	annual	in per cent, end-of-period	TR2C_A
<b>3. EXCHANGE RATES</b>				
<i>Pound sterling</i>	1923–1947	annual	in pound sterling, period average	TR3A_A
	Jan.1923–Dec.1947	monthly		TR3A_M
<i>French franc</i>	1923–1947	annual	in French francs, period average	TR3B_A
	Jan.1923– Feb.1941	monthly		TR3B_M
<i>(German) mark (Reichsmark)</i>	1928–1940	annual	in German marks, period average	TR3C_A
	Jan.1932–Dec.1940	monthly		TR3C_M
<i>US dollar</i>	1923–1947	annual	in US dollars, period average	TR3D_A
	Jan.1923– Dec.1947	monthly		TR3D_M
<b>4. GOVERNMENT FINANCES</b>				
<i>Flows</i>				
<i>Total government tax revenue</i>	1923–1947	annual	in Turkish lira (thous.)	TR4A_A
<i>Government expenditure</i>	1923–1947	annual	in Turkish lira (thous.)	TR4B_A
<i>Stocks</i>				
<i>Foreign public debt</i>	1934–1947	annual	in Turkish lira (thous.)	TR4C_A
<i>Domestic public debt</i>	1934–1947	annual	in Turkish lira (thous.)	TR4D_A
<b>5. PRICES, PRODUCTION AND LABOUR</b>				
<i>Consumer price index (1923=100)</i>	1923–1947	annual	index	TR5A_A
<i>Industrial production</i>	1923–1947	annual	in Turkish lira (millions), at current prices	TR5B_A
<i>Labour force</i>	1923–1947	annual	million inhabitants	TR5C_A
<i>School enrolment</i>	1923–1947	annual	million inhabitants	TR5D_A
<b>6. NATIONAL ACCOUNTS AND POPULATION</b>				
<i>GNP, nominal terms</i>	1923–1947	annual	in Turkish lira (thous.), at current prices	TR6A_A
<i>GNP, real terms</i>	1923–1947	annual	in Turkish lira (thous.), at 1948 prices	TR6B_A
<i>Exports</i>	1923–1947	annual	in Turkish lira (thous.)	TR6C_A
	Jan.1924–Dec.1947	monthly	in Turkish lira (thous.)	TR6C_M
<i>Imports</i>	1923–1947	annual	in Turkish lira (thous.)	TR6D_A
	Jan.1924–Dec.1947	monthly	in Turkish lira (thous.)	TR6D_M
<i>Population</i>	1923–1947	annual	mid-year, million inhabitants	TR6E_A

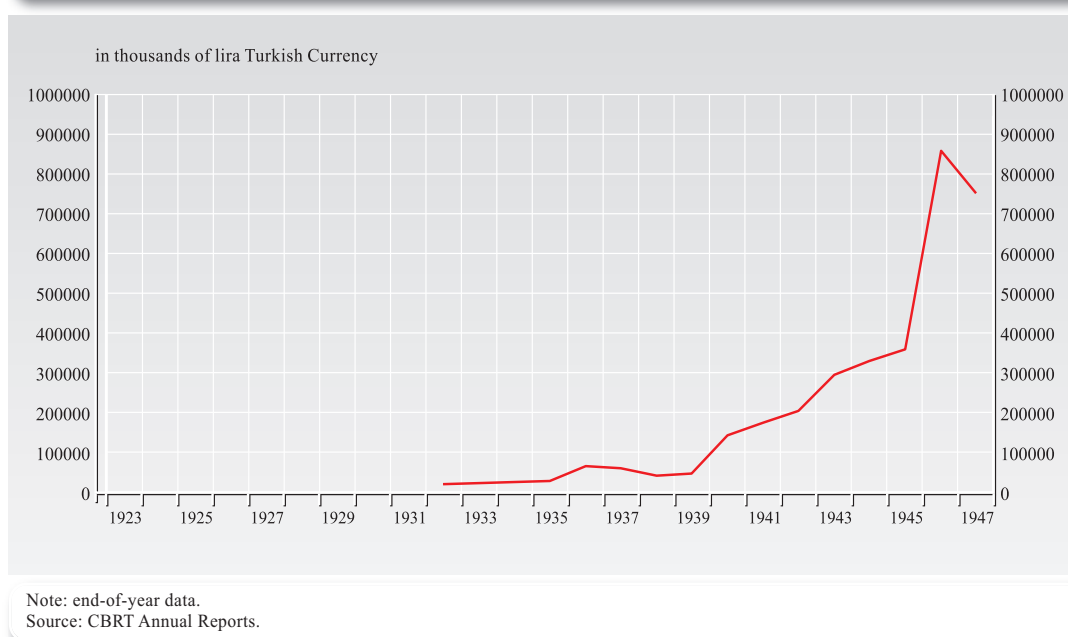
\* The code of each variable comprises a country prefix (TR), a number of the variable group (1, 2,...) and a letter identifying the respective time series within the group (A, B, C,...); at the end, A stands for annual and M for monthly time series. Monthly time series are provided in the volume's CD.

## 2.1 MONETARY VARIABLES

### 2.1.1 Reserves

Data on total reserves are only available from 1932 onwards. The data reported in Table TR1.1A\_A were mainly determined by gold holdings held in cash in domestic accounts and in foreign banks over the first decade of the Republic of Turkey. Even though the share of foreign exchange accounts and clearing accounts in total reserves went up, the average share of gold holdings remained above 70% in the period between 1936 and 1947. As seen in Figure 1, total reserves remained stable throughout the 1930s, increasing thereafter. In 1940 and again in 1946, reserves rose considerably due to an increase in gold holdings both domestically and abroad. An explanation for this upward movement was the devaluation of the lira during that period, which was especially dominant in the case of 1946, as well as the strict capital controls which were put in place to stop outflows. As access to foreign capital markets was limited, the economic policies pursued relied chiefly on domestic capital to finance growth. Incentives to implement open trade policies were quite limited at that period. Therefore, strict capital controls were imposed on money outflows in an attempt to resist the post World War II global financial turmoil.

**FIGURE I Monetary Aggregates for Turkey, 1923–1947**



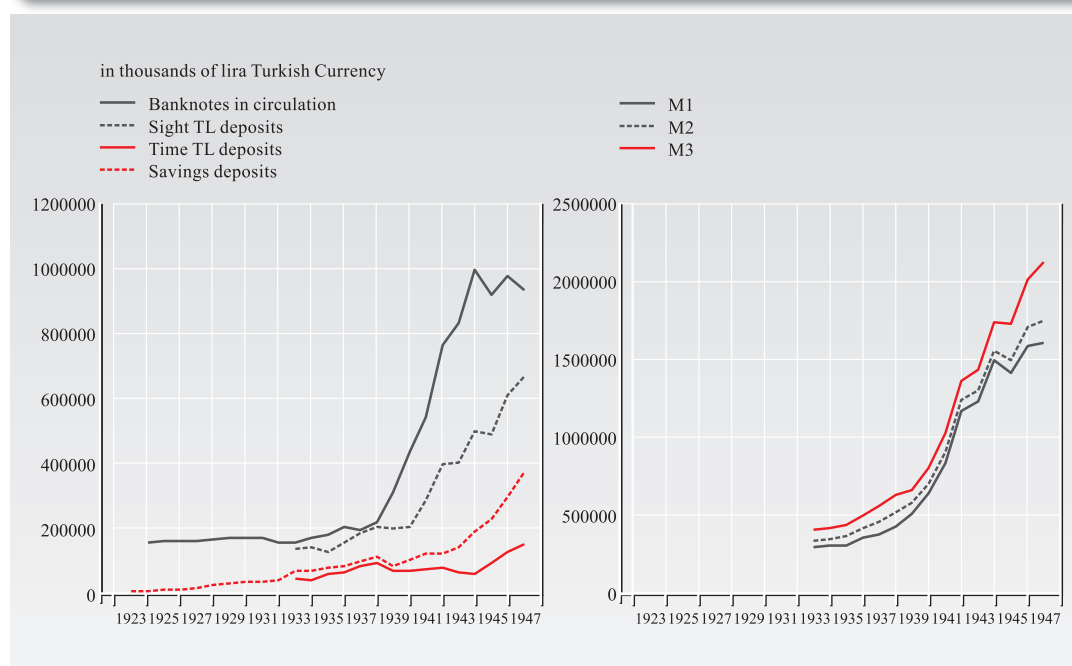
### 2.1.2 Banknotes in circulation

The 1715 Law on the Central Bank of the Republic of Turkey came in effect in 1930 and the bank was founded in 1931, while operations only began officially on 1 January 1932. A license to issue the national money for a period of 30 years was granted to the new bank. Hence, the data series availability starts in 1933. The series of banknotes in circulation refers to the notes issued by the Ottoman Bank up to 1932 and by the TCMB from 1933 to 1947. Its starting point is 1924 since data are available only for that year onwards. It is shown at annual intervals (end-of-year). 1933 is the starting point for the notes issued by the newly established central bank.

### 2.1.3 Monetary aggregates: money supply

M1, M2 and M3 definitions of money supply for Turkey have been assessed based on their components of banknote circulation, private sight, time and savings bank deposits in the domestic currency only. Specifically, M1 money supply consists of currency in circulation and sight deposits. M2 includes M1 and time deposits in domestic currency. M3 is defined as M2 plus savings deposits. As seen in Figure 2, the growth of money supply accelerated during World War II. Furthermore, the high levels of banknotes in circulation prevailing in almost every year in our sample as compared to the low levels of deposits signal the weak financial development of the country. After 1943, however, banknote circulation seems to remain stable, whereas money supply continues its increasing time path mainly driven by rising sight and savings deposits.

**FIGURE 2 Monetary Aggregates for Turkey, 1923–1947**



Note: end-of-year data.

Sources: CBRT Annual Reports and Tezel (1994) for the data on banknotes in circulation before 1933.

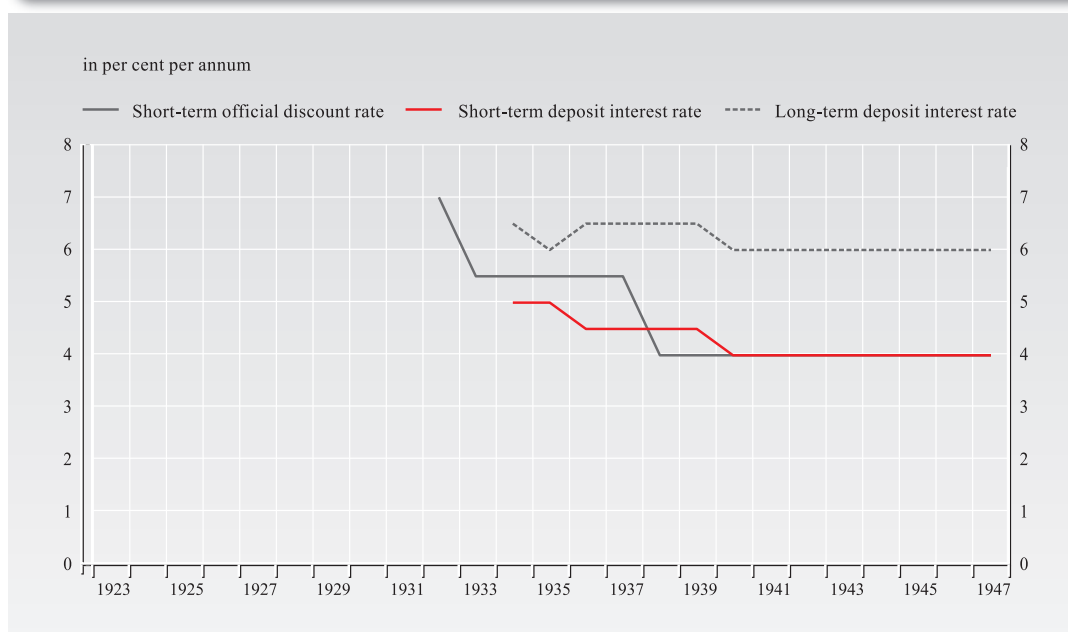
## 2.2 INTEREST RATES

The interest rates reported in Table TR2\_A refer to the central bank's discount rate, the short-term and long-term deposit interest rates. 3-month bank deposit rates are considered as short-term rates, while deposit rates for maturities of over 2-years are considered as long-term interest rates. From 1940 onwards, the short-term official discount rate and the 3-month bank deposit rate were the same, since interest rates were manipulated by governmental authorities (see Figure 3).

The fact that interest rates were kept unchanged for a long time (especially after 1940) is revealing about the monetary policy framework of the time: the central bank did not really consider the interest rate as a monetary policy tool. Instead, credit facilities were the favoured monetary policy instrument during the very early years of the young Republic. Since the government's prior-

ity was the implementation of economic policies for hunger prevention and poverty reduction, the already scarce money sources were to be channelled to those sectors that produced basic consumption goods and services. Moreover, WWII emergencies put a burden on the budget due to increased military spending<sup>3</sup> and thus high public spending had to be covered through credit facilities provided by the bank.

**FIGURE 3 Interest Rates, 1923–1947**



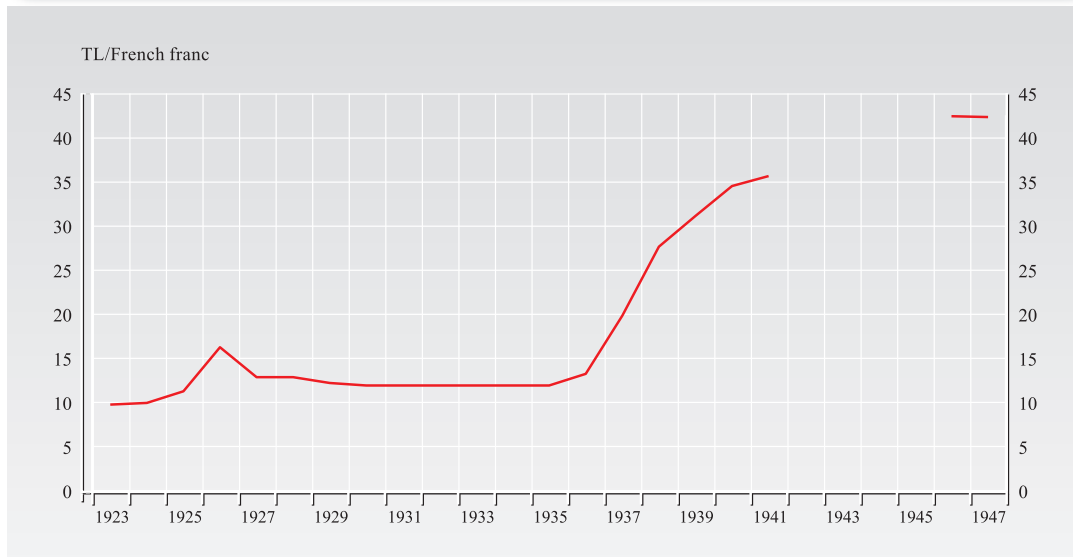
Note: end-of-year data.  
Source: CBRT Annual Reports.

### 2.3 EXCHANGE RATES

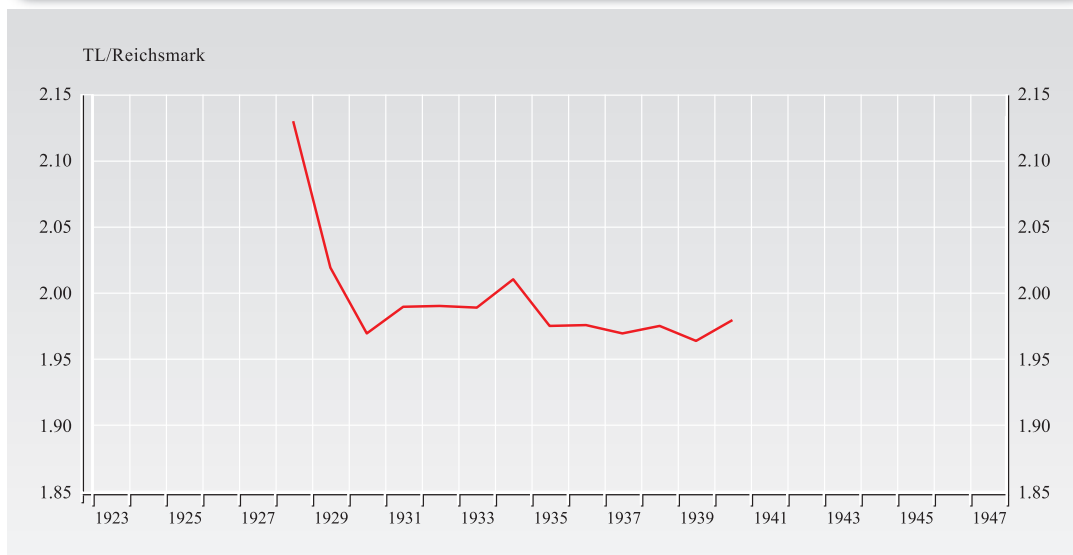
The exchange rate series refers to the nominal exchange rate of the Turkish lira against the pound sterling, the French franc and the US dollar since 1923 and against the Reichsmark since 1928 (Table TR3\_A). However, some observations against the French franc and the Reichsmark are missing during and after wartime. The exchange rates are expressed as the price of one unit of the Turkish lira in terms of the foreign currency. Therefore, an increase means appreciation of the domestic currency against foreign currency and *vice versa*. Monthly data are also reported, even though some observations are still missing.

Major foreign exchange movements during that period become also apparent, especially against the US dollar, as seen in Figure 6. Strong appreciation pressures are evident in 1932, which were driven by external developments related to the US recession and its impact on the dollar. In 1946, the government heavily devalued the lira by 54% against the dollar, and afterwards kept it fixed at 2.80 dollars per lira. As mentioned above, this policy action aimed at strengthening the resilience of the Turkish economy to the newly emerging Bretton Woods gold-dollar standard by trying to gain an export competitive advantage before the irrevocable fixing of the conversion rates occurred.

<sup>3</sup> Turkey entered the war in 1945.

**FIGURE 4 Exchange Rates for Turkey, 1923–1947**

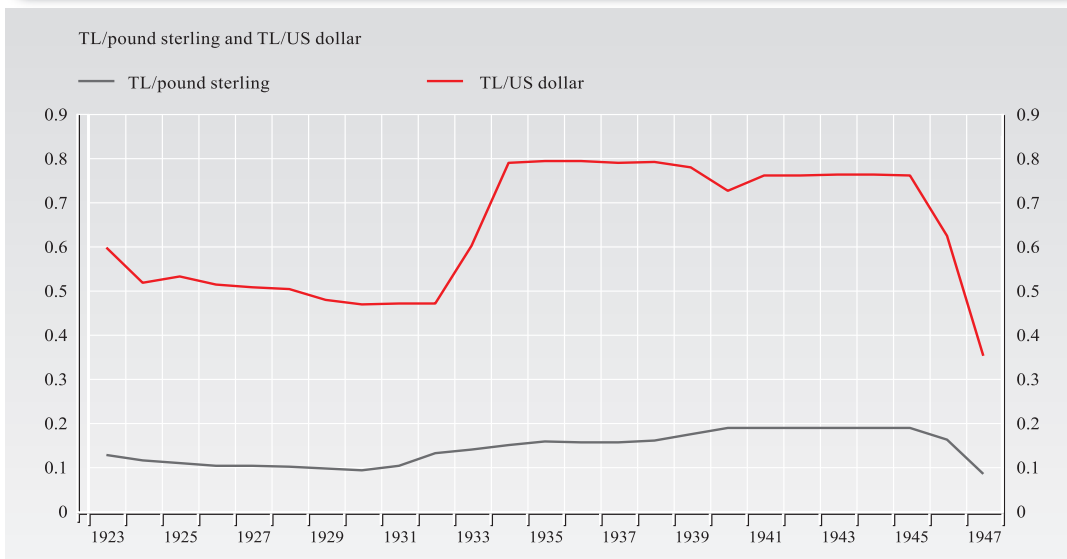
Note: Annual averages based on monthly averages.  
Source: CBRT Annual Reports.

**FIGURE 5 Exchange Rates for Turkey, 1923–1947**

Note: Annual averages based on monthly averages.  
Source: CBRT Annual Reports.

Against all expectations, however, devaluation did not yield the initially forecasted results, i.e. an increase in exports and a decrease in imports. Since domestic production was dependent on imports of raw materials and energy, the high rise in the prices of imported goods was financed first by depletion of the country's foreign exchange reserves and then by foreign aid that the country received until 1953.

**FIGURE 6 Exchange Rates for Turkey, 1923–1947**



Note: Annual averages based on monthly averages.  
Source: CBRT Annual Reports.

## 2.4 GOVERNMENT FINANCES

The data series on government finances consist of government expenditures, realised tax revenues and public debt, both foreign and domestic. All series are depicted in nominal annual terms. During the early years of the young Republic, governments placed much emphasis on balancing the budget; still, the

**FIGURE 7 Government Expenditures and Tax Revenues, 1923–1947**



Note: Annual data.  
Sources: CBRT Annual Reports, Turkish Finance Ministry and TURKSTAT

tax/GNP ratio was relatively low. The time series on foreign and domestic debt look consistent with the budget deficit series. The co-movement of both variables means that governments used to cover excess spending through debt issue (Figure 7). The steadily increasing size of government spending as revealed by the data figures over those years, can be explained by two factors: first, the continuous rise in military expenditures, which became more intense after 1937, and, second, the urgent need for urbanisation investment and infrastructure spending in order to eliminate the effects of decades of wars and their impact on social services, including water, electricity, schooling and health services provision. Unfortunately, as evident in the figure, tax revenues were not increasing as fast as government expenditures, reflecting a lack of taxable income. Series TR4C\_A and TR4D\_A report data on public foreign and domestic debt.

## 2.5 PRICES, PRODUCTION AND LABOUR

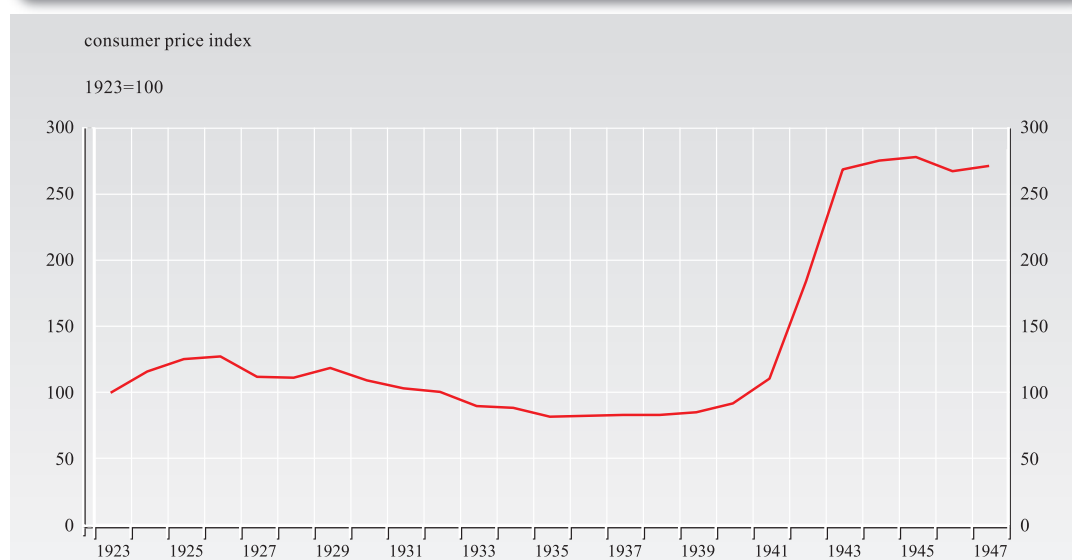
### 2.5.1 Prices

This group of variables contains data on the consumer price index, industrial production, labour force and school enrolment. Series TR5\_A reports the consumer price index (1923=100) at annual frequency, covering the period from 1923 to 1947. The data figures are annual averages. Monthly data do not exist. As seen in Figure 8, inflationary pressures remained relatively moderate until 1929. From then on and until the eve of WWII, moderate deflationary pressures prevailed. However, starting from 1940, inflationary pressures resurfaced; by end-1943, consumer prices almost tripled within a 2-year period. As price controls, which were imposed on large scale during wartime, were partially or totally removed, goods prices started adjusting upwards.

### 2.5.2 Industrial production

Series TR5\_B displays the values of industrial production as a proxy for domestic economic activity. The data series refers to real prices and covers annual intervals from 1926 to 1947. Figure 9

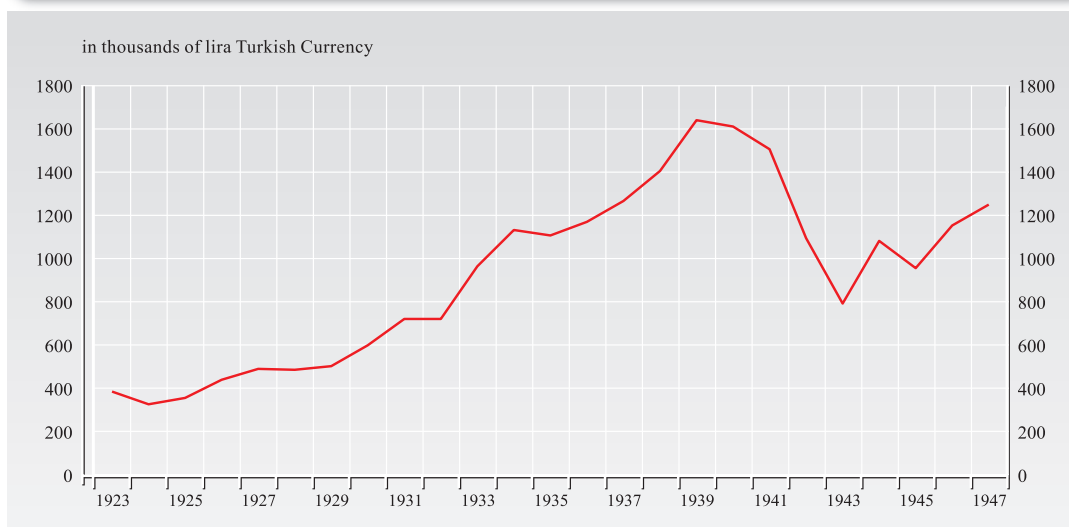
**FIGURE 8 Price Developments, 1923–1947**



Note: Annual averages.  
Source: TURKSTAT.



**FIGURE 9 Industrial Production (at constant prices), 1923–1947**



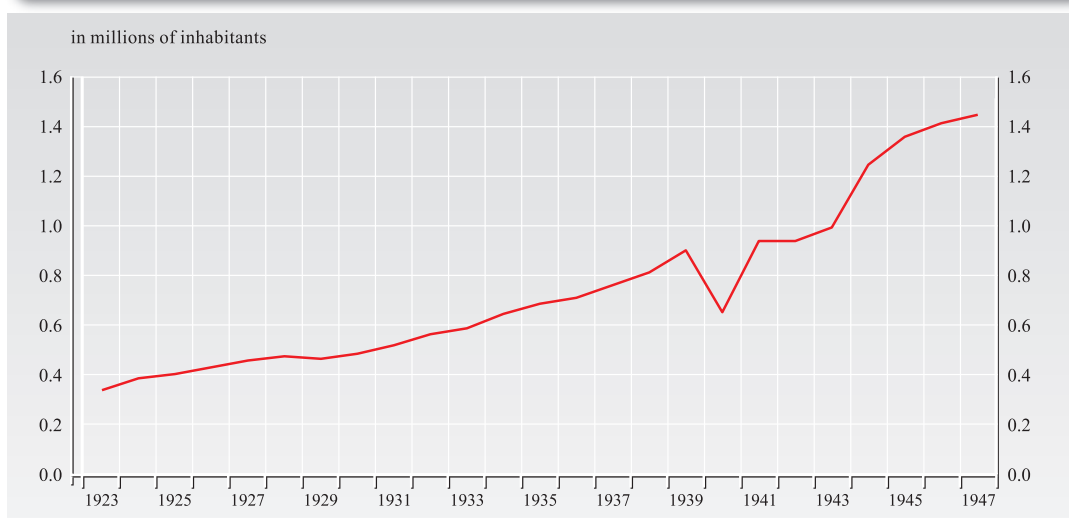
Note: CPI (1923=100) has been used as deflator.  
Source: TURKSTAT.

depicts developments over time. As shown, industrial production exhibited a continuous upward trend up to WWII. In its aftermath, a sharp drop occurred, followed by a fast rebound afterwards.

### 2.5.3 Labour force and school enrolment

Series TR5C\_A and TR5D\_A depict the labour force and school enrolment data, respectively. Both series cover the period from 1923 to 1947 and are measured in millions of inhabitants. The school enrolment series is depicted in Figure 10. What is interesting to note is that the number of pupils

**FIGURE 10 School Enrolment, 1923–1947**



Source: TURKSTAT.

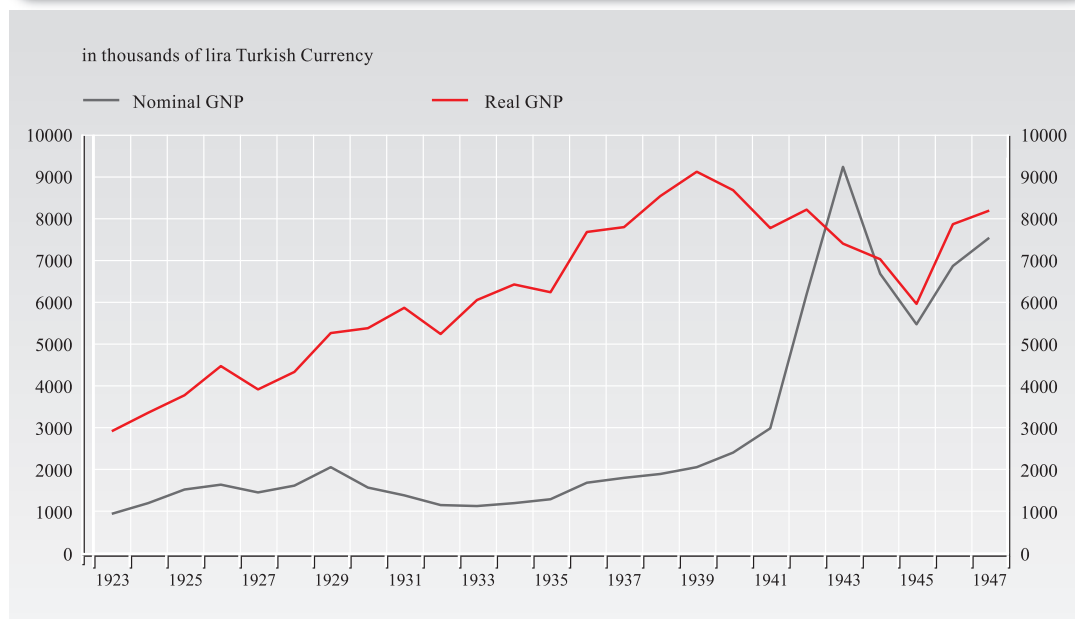
fell sharply in 1939. Hence, the data figures for that year should be used with due caution, although the sharp fall might be explained by the extensive militarisation of the school-aged population pending a possible involvement of Turkey in the war.

## 2.6 NATIONAL ACCOUNTS AND POPULATION

### 2.6.1 Gross national product

Due to the structure of the domestic economy that was dominated by agricultural production, GNP which is depicted by series TR6A\_A, exhibits high volatility chiefly driven by weather conditions. The data entries are in current prices and cover the whole sample period (1923–1947). The high rate of increase in nominal GNP which was particularly marked over the years 1941–1943 mainly stemmed from price increases. Series TR6B\_A displays real GNP data points for the same sample period, at 1948 constant prices. As shown in Figure 11, well until 1939, both real and nominal GNP exhibited an upward trend; afterwards and until 1945 it was continuously falling reflecting the adverse impact of the wartime. Monthly data on nominal and real GNP do not exist. Data on the GNP deflator are not available, either.

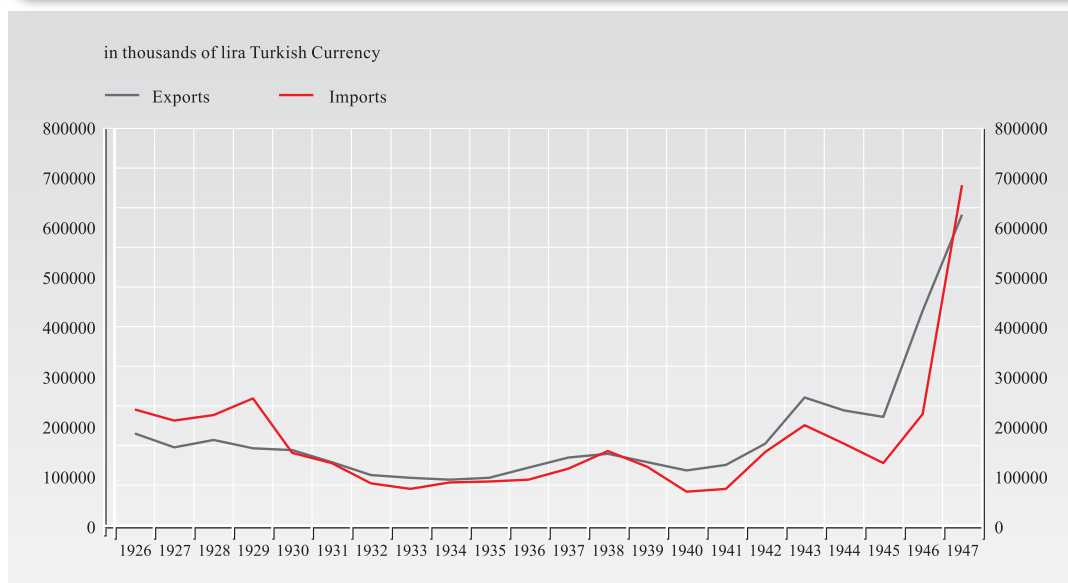
FIGURE II GNP, 1923–1947



Source: TURKSTAT.

### 2.6.2 Foreign trade

Foreign trade data include exports and imports data on goods and services. Series TR6C\_A and Series TR6D\_A report annual values for exports and imports, respectively. The data figures are in nominal terms and in domestic currency, and the sample period is from 1923 to 1947 for the annual data and from January 1924 to December 1947 for the monthly data. Both exports and imports increased between 1923 and 1929, chiefly due to the liberal foreign trade policy which was dominant during that period. After the Great Depression, protectionist policies were adopted

**FIGURE I2 Exports and Imports, 1923–1947**

Source: TURKSTAT.

worldwide, and trade volumes thus decreased. From 1940 onwards, trade values increased sharply again; although largely reflected high inflation rates that prevailed after the war (Figure 12).

### 2.6.3 Population

Population is shown at annual intervals and is measured in millions of inhabitants (Series TR6E\_A). The population time series was estimated by using the formula  $P = P_0 e^{r \times n}$  based on the annual rate of increase, where  $r$  is the annual rate of increase,  $n$  is the number of years and  $P_0$  is the initial value. Over the whole sample period, population grew very fast, from 12.4 to 20.8 million people.

## 3 DATA SOURCES

The historical data series on total reserves and their main components, the monetary aggregates and the interest rates are collected from the TCMB's *Annual Reports*. The data series on the government finances are also taken from the TCMB's *Annual Reports* and the *Statistical Indicators Volume 1923–2011* of the Turkish Statistical Institute. The data entries on foreign trade are retrieved from the TURKSTAT databases as well. The data on GNP, consumer prices, industrial production, population, labour force and school enrolment are collected from the TURKSTAT's and TCMB's *Annual Reports*. Secondary sources have also been used: Tezel (1994) and Fatma and Suut (2005).

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**Note:** In the following tables “..” indicates that the item did not exist; in case of reconstructed data, that the entry was not calculated for that point in time. “.” indicates missing value. An absolute zero is coded as “-“, while “0.0” codes a rounded zero. For details on the unit of the series, see index table in section 2.

**TABLE TR I.1\_A Total reserves and monetary base, 1923–1947***(thousands TL, end-of-year balance sheet entries).*

Year	Total reserves	Gold holdings (in metallic)	Gold holdings (in foreign banks)	Gold holdings (in domestic correspondent accounts)	Foreign exchange and clearing accounts balances	Banknotes in circulation
	TR1A_A	TR1B_A	TR1C_A	TR1D_A	TR1E_A	TR1F_A
1923	.	.	.	.	.	.
1924	.	.	.	.	.	156000.0
1925	.	.	.	.	.	159000.0
1926	.	.	.	.	.	159000.0
1927	.	.	.	.	.	159000.0
1928	.	.	.	.	.	165000.0
1929	.	.	.	.	.	168000.0
1930	.	.	.	.	.	169000.0
1931	.	.	.	.	.	170000.0
1932	20580.0	18483.0	0.0	2097.0	0.0	157154.0
1933	25022.0	17237.0	5270.0	2515.0	0.0	155398.0
1934	27458.0	19588.0	5355.0	2515.0	0.0	167436.0
1935	29495.0	23304.0	6191.0	0.0	0.0	178755.0
1936	65692.0	24042.0	8030.0	0.0	33620.0	201840.0
1937	61634.0	27604.0	9119.0	0.0	24911.0	193989.0
1938	42621.0	24136.0	12736.0	0.0	5749.0	219432.0
1939	48199.0	21802.0	14084.0	954.0	11359.0	308050.0
1940	142918.0	101720.0	8423.0	0.0	32775.0	433801.0
1941	176256.0	102125.0	13280.0	0.0	60851.0	543503.0
1942	206004.0	104954.0	38116.0	0.0	62934.0	765545.0
1943	296969.0	109244.0	92454.0	0.0	95271.0	833664.0
1944	331027.0	109240.0	167142.0	0.0	54645.0	994541.0
1945	360132.0	109241.0	191685.0	0.0	59206.0	918567.0
1946	859890.0	220863.0	442414.0	0.0	196613.0	975437.0
1947	752711.0	217794.0	258511.0	0.0	276406.0	932804.0

**TABLE TR I.2\_A Monetary aggregates, 1923–1947***continue**(thousands TL; end-of-year balance sheet entries)*

Year	Sight deposits (TL)	Time deposits (TL)	Savings deposits	M1	M2	M3
	TR1G_A	TR1H_A	TR1I_A	TR1J_A	TR1K_A	TR1L_A
1923	.	.	3897.7	.	.	.
1924	.	.	5767.7	.	.	.
1925	.	.	7525.5	.	.	.
1926	.	.	10349.8	.	.	.
1927	.	.	16855.1	.	.	.
1928	.	.	22467.7	.	.	.
1929	.	.	27171.1	.	.	.
1930	.	.	32286.9	.	.	.

TABLE TR 1.2\_A Monetary aggregates, 1923–1947

(thousands TL; end-of-year balance sheet entries)

Year	Sight deposits (TL)	Time deposits (TL)	Savings deposits	M1	M2	M3
	TR1G_A	TR1H_A	TR1I_A	TR1J_A	TR1K_A	TR1L_A
1931	.	.	35913.4	.	.	.
1932	.	.	39651.5	.	.	.
1933	137213.0	43596.0	69451.1	292611.0	336207.0	405658.1
1934	139873.5	40270.3	68159.2	307309.5	347579.8	415739.0
1935	125307.2	58448.2	75383.1	304062.2	362510.4	437893.6
1936	154326.3	62076.9	84117.0	356166.3	418243.2	502360.2
1937	185238.7	82645.4	96815.9	379227.7	461873.1	558689.1
1938	205045.3	94240.5	112390.1	424477.3	518717.8	631108.0
1939	200778.4	69503.0	83135.0	508828.4	578331.4	661466.4
1940	202116.1	69492.2	99380.6	635917.1	705409.3	804789.8
1941	284856.3	72845.2	123174.4	828359.3	901204.5	1024378.9
1942	398585.9	75868.9	118742.6	1164130.9	1239999.7	1358742.3
1943	400003.6	62608.0	140854.9	1233667.6	1296275.6	1437130.4
1944	499757.7	56006.6	187800.4	1494298.7	1550305.3	1738105.7
1945	489287.0	89643.0	229510.2	1407854.0	1497497.0	1727007.2
1946	610015.0	126302.0	297356.0	1585452.0	1711754.0	2009110.0
1947	668291.2	150807.7	371686.0	1601095.2	1751902.9	2123588.9

TABLE TR 2\_A Interest rates, 1932–1947

Year	Short-term official discount rate	Short-term bank deposit interest rate	Long-term bank deposit interest rate
	TR2A_A	TR2B_A	TR2C_A
1932	7.0	.	.
1933	5.5	.	.
1934	5.5	5.0	6.5
1935	5.5	5.0	6.0
1936	5.5	4.5	6.5
1937	5.5	4.5	6.5
1938	4.0	4.5	6.5
1939	4.0	4.5	6.5
1940	4.0	4.0	6.0
1941	4.0	4.0	6.0
1942	4.0	4.0	6.0
1943	4.0	4.0	6.0
1944	4.0	4.0	6.0
1945	4.0	4.0	6.0
1946	4.0	4.0	6.0
1947	4.0	4.0	6.0

**TABLE TR 3\_A Exchange rates, 1923–1947**

Exchange rates against foreign currencies are reported in foreign currencies per one Turkish Lira (TL). Data are based on monthly averages.

Year	TL/ Pound sterling	TL/ French franc	TL/ Reichsmark	TL/ US dollar
	TR3A_A	TR3B_A	TR3C_A	TR3D_A
1923	0.131	9.887	.	0.600
1924	0.119	10.092	.	0.520
1925	0.112	11.414	.	0.534
1926	0.107	16.377	.	0.517
1927	0.105	12.997	.	0.510
1928	0.105	12.959	2.130	0.507
1929	0.099	12.291	2.020	0.482
1930	0.097	12.001	1.970	0.471
1931	0.105	12.047	1.990	0.473
1932	0.135	12.047	1.991	0.474
1933	0.143	12.051	1.989	0.604
1934	0.153	12.055	2.011	0.792
1935	0.162	12.047	1.976	0.795
1936	0.160	13.305	1.976	0.796
1937	0.160	19.925	1.970	0.792
1938	0.162	27.733	1.976	0.794
1939	0.177	31.150	1.964	0.782
1940	0.191	34.538	1.980	0.729
1941	0.191	35.714	.	0.762
1942	0.191	.	.	0.764
1943	0.191	.	.	0.765
1944	0.191	.	.	0.765
1945	0.192	.	.	0.763
1946	0.166	42.463	.	0.626
1947	0.088	42.409	.	0.355

**TABLE TR 4\_A Government finances, 1923–1947***continue*

(thousands TL)

Year	Total tax revenue	Government expenditure	Foreign public debt	Domestic public debt
	TR4A_A	TR4B_A	TR4C_A	TR4D_A
1923	101150.0	105926.9	.	.
1924	121400.0	131628.0	.	.
1925	145200.0	201449.7	.	.
1926	125600.0	172186.9	.	.
1927	128827.0	198951.2	.	.
1928	138700.0	201133.0	.	.
1929	143681.0	213367.4	.	.
1930	127221.0	210129.7	.	.

TABLE TR 4\_A Government finances, 1923–1947

(thousands TL)

Year	Total tax revenue	Government expenditure	Foreign public debt	Domestic public debt
	TR4A_A	TR4B_A	TR4C_A	TR4D_A
1931	106633.0	181861.0	.	.
1932	120374.0	212011.1	.	.
1933	123340.0	173608.8	.	.
1934	142129.0	228858.7	242805.8	214787.7
1935	153065.0	259589.2	238118.7	241576.1
1936	174275.0	252402.0	248079.7	257682.8
1937	197376.0	287183.7	205237.9	303386.0
1938	177515.0	303889.0	187461.0	346152.7
1939	172514.0	387229.4	191766.1	365620.0
1940	197468.0	535863.8	303338.7	484468.5
1941	258582.0	574594.5	325021.4	687617.6
1942	637927.0	885102.3	329571.6	865756.2
1943	578351.0	1019036.9	338679.8	980996.6
1944	583546.0	1077456.3	359277.7	1136063.6
1945	376441.0	600676.0	356695.6	1126639.8
1946	621110.0	1018854.1	707400.2	1216826.5
1947	949976.0	1564240.5	724597.1	1025622.2

TABLE TR 5\_A Prices, production and labour, 1923–1947

continue

(TR5B\_A in thousands TL; TL5C\_A and TR5D\_A are in millions of inhabitants)

Year	Consumer price index	Industrial production (value)	Labour force	School enrolment
	TR5A_A	TR5B_A	TR5C_A	TR5D_A
1923	100.0	125.7	5.5	0.3
1924	116.4	118.2	5.6	0.4
1925	125.6	145.2	5.8	0.4
1926	127.7	162.8	5.9	0.4
1927	112.1	186.1	6.1	0.5
1928	111.7	184	6.6	0.5
1929	118.7	199.2	6.8	0.5
1930	109.4	176.1	6.5	0.5
1931	103.4	171.0	6.6	0.5
1932	100.8	161.4	6.7	0.6
1933	90.0	181.5	6.8	0.6
1934	88.6	214.2	7.0	0.6
1935	82.3	232.6	7.2	0.7
1936	82.6	258.5	7.4	0.7
1937	83.8	293.1	7.6	0.8



**TABLE TR 5\_A Prices, production and labour, 1923–1947***(TR5B\_A in thousands TL; TL5C\_A and TR5D\_A are in millions of inhabitants)*

Year	Consumer price index	Industrial production (value)	Labour force	School enrolment
	TR5A_A	TR5B_A	TR5C_A	TR5D_A
1938	83.5	311.4	7.8	0.8
1939	85.3	370.6	8.0	0.9
1940	92.5	446.1	7.9	0.7
1941	110.6	578.5	7.9	0.9
1942	184.5	824.5	8.0	0.9
1943	268.9	985.6	8.1	1.0
1944	275.6	1026.4	8.3	1.2
1945	278.1	878.2	8.4	1.4
1946	267.5	1006.6	8.6	1.4
1947	271.5	1149.4	8.8	1.4

**TABLE TR 6\_A National accounts and population, 1923–1947***(TR6A\_A, TR6B\_A, TR6C\_A and TR6D\_A are in thousands of TL. TR6E\_A are mid-year estimates, in millions of inhabitants)*

Year	Nominal GNP	Real GNP	Exports	Imports	Population
	TR6A_A	TR6B_A	TR6C_A	TR6D_A	TR6E_A
1923	952600.0	2928100.0	84651.0	144789.0	12.43
1924	1203800.0	3363800.0	158868.0	193611.0	12.70
1925	1525600.0	3793300.0	192428.2	241618.7	12.98
1926	1650500.0	4484000.0	186422.8	234699.7	13.26
1927	1471200.0	3909600.0	158421.0	211398.2	13.56
1928	1632500.0	4341300.0	173537.5	223531.8	13.85
1929	2073100.0	5278200.0	155214.1	256296.4	14.15
1930	1580500.0	5393900.0	151454.4	147361.1	14.45
1931	1391600.0	5865700.0	127274.8	126659.6	14.76
1932	1171200.0	5235200.0	101301.4	85983.7	15.07
1933	1141400.0	6063900.0	96161.9	74675.9	15.39
1934	1216100.0	6429600.0	92149.1	86789.9	15.72
1935	1310000.0	6233800.0	95861.1	88823.5	16.05
1936	1695000.0	7679800.0	117733.2	92531.5	16.35
1937	1806500.0	7798200.0	137983.6	114379.0	16.63
1938	1895700.0	8537500.0	144946.5	149836.7	16.92
1939	2063100.0	9117800.0	127389.0	118248.9	17.37
1940	2403400.0	8667900.0	111446.5	68922.7	17.72
1941	2992300.0	7780400.0	123080.9	74814.8	17.95
1942	6195900.0	8217400.0	165034.0	147714.0	18.14
1943	9231700.0	7412900.0	257152.0	203045.0	18.34
1944	6684700.0	7037900.0	232529.0	164947.0	18.53
1945	5469800.0	5960100.0	218929.0	126166.0	18.66
1946	6857600.0	7864000.0	432096.0	223931.0	19.07
1947	7542600.0	8192400.0	625245.0	685003.0	19.49



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## Notes on Contributors

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## **Promoting knowledge about South-Eastern European monetary history**

The South-East European Monetary History Network (SEEMHN) brings together financial and monetary historians and economists with the objective of promoting knowledge about South-Eastern European monetary history and policy, which is an integral part of European history.

## **Establishing a unique historical database**

Recognising the need for reliable data to carry out empirical studies, a group of central banks – the Bank of Albania, the Bank of Greece, the Bulgarian National Bank, the Central Bank of the Republic of Turkey, the National Bank of Romania, the National Bank of Serbia, and the Oesterreichische Nationalbank – have cooperated since 2006 to establish a historical database of 19th and 20th century financial and monetary data for the countries of South-Eastern Europe. This volume represents a milestone in the joint endeavour to publish harmonised long-run time series on monetary, financial and other macroeconomic variables.

## **With forewords by**

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