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Regional Currency Arrangements: Insights from Europe

Josef Christl

with a comment by Lars Jonung

Main Findings of the International Workshop "Regional and International Currency Arrangements" (Vienna, February 24 to 25, 2006)

Eduard Hochreiter and George Tavlas

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Editorial

On February 24 - 25, 2006 an international workshop on "Regional and International Currency Arrangements" was held in Vienna. It was jointly organized by George Tavlas (Bank of Greece) and Eduard Hochreiter (Oesterreichische Nationalbank). Academic economists and researchers from central banks and international organizations presented and discussed current research and tried to review and assess the past experience with and the future challenges for international currency arrangements. A number of papers and the contributions by the discussants presented at this workshop are being made available to a broader audience in the Working Paper series of the Oesterreichische Nationalbank and simultaneously also in the Working Paper Series of the Bank of Greece. The papers and the discussants comments will be published in *International Economics and Economic Policy*. This volume contains the forth of these papers. The first ones were issued as OeNB Working Paper No. 120 to 122. In addition to the paper by Josef Christl the Working Paper also contains the contribution of the designated discussant Lars Jonung. Furthermore, the Working Paper also contains the concluding remarks and main findings of the workshop by the two organizers Eduard Hochreiter and George Tavlas.

June 1, 2006

International Workshop

“Regional and International Currency Arrangements”

Vienna, February 24 – 25, 2006

Regional Currency Arrangements: Insights from Europe

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Abstract:

This paper focuses on the requirements and features of a successful monetary union on the basis of the optimum currency area theory, the “logical roadmap” for integration as proposed by Balassa as well as the economic and institutional framework of the European Economic and Monetary Union (EMU). The analysis suggests that monetary union is contingent upon high economic integration and strong political commitment. However, political union is not an ex-ante requirement. Outside factors such as systemic shocks and globalization seem to speed up the pooling of sovereignty in the economic domain. A firm commitment to stability-oriented monetary and fiscal policies is a precondition for gaining credibility and trust within and outside a monetary union. Last, but not least, convergence criteria, fiscal rules and strong institutions are necessary to help ensure and monitor the participants’ compliance. However, the European experience is not a blueprint for regional integration that can be directly and entirely applied to other regions.

Keywords: Economic and Monetary Integration; International Monetary Arrangements and Institutions; Monetary Policy and Central Banking; Macroeconomic Policy Formation.

JEL classifications: E50, E61, F02, F33

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1. Introduction

Ever since the European Union (EU) decided to implement a monetary union, interest in regional currency arrangements and their theoretical foundation has surged. Up to this day, the basic theoretical foundation for this kind of analysis is the optimum currency area (OCA) literature. In the late 1990s, OCA theory was complemented by the finding that the criteria for successful monetary integration need not necessarily be fulfilled ex ante but that they can be fulfilled ex post owing to the workings of a monetary union. OCA criteria can thus be seen as endogenous by nature. This proposition suggests there are different possible paths to a monetary union.

This paper will briefly highlight some aspects of the OCA literature, review the sequencing of economic integration, investigate the steps taken in Europe and draw some conclusion for the evolution and creation of currency arrangements in other regions of the world.

2. OCAs and the Role of Institutions

2.1 OCAs

The classical theory of OCAs was developed by Mundell, McKinnon and Kenen as early as the 1960s. It defines an optimum currency area as a geographical region in which it is advantageous for member countries to use absolutely fixed exchange rates or have a common currency. The key factors determining whether countries belong to an OCA include the degree of economic diversification, openness, labor and capital mobility as well as wage and price flexibility. The idea behind the OCA theory is well known. If the participating countries do not meet OCA criteria, real adjustment in a fixed exchange rate regime takes a long time and can be very costly in the event a shock. In this case, a flexible exchange rate facilitates faster adaptation and minimizes costs.

More recent works (e.g. Frankel, 1999) discuss another advantage of flexible exchange rates based on the "impossible trinity", i.e. the impossibility of having a fixed exchange rate, capital mobility and monetary independence at the same time. In the presence of high capital mobility,

flexible exchange rates allow policymakers to conduct an independent monetary policy for domestic purposes[1]. If, however, national policymakers cannot make good use of the independence of monetary policy, it may be better to give it up and import stability from other countries. Indeed, monetary independence can be a curse rather than a blessing (Tavlas, 2003). Furthermore, other factors (e.g. central bank independence, administrative capacity, depth and liquidity of foreign exchange markets) can influence the tradeoff between monetary independence and exchange rate stability.

The question whether OCA criteria are exogenous or endogenous has also been debated. Frankel and Rose (1998) argue that several criteria, such as the synchronization of business cycles or trade relationships, are endogenous. These criteria can be self-validating insofar as countries joining a currency union will in fact move closer together by increasing trade among them and business cycle correlations. Indeed, the Oesterreichische Nationalbank (OeNB) has for a long time argued that Austria's hard currency peg to the Deutsche mark (which had been pursued for two decades prior to the start of EMU) was a showcase of a currency peg that created the conditions for its own credibility and sustainability over time: when Austria opted for an exchange rate peg in 1974, the two countries did not yet meet OCA requirements. The Austrian schilling's appreciation relative to the Deutsche mark between 1979 and 1981 served as a signal, thus increasing the credibility of the hard currency regime. This "hard-currency-option" triggered off adjustment processes which ultimately made Austria part of an OCA with Germany (Hochreiter and Winckler, 1995). In our own terminology we coined the term "structural whip" for this mechanism, arguing that a fixed exchange rate policy creates strong incentives for structural reforms which make the exchange rate peg beneficial and sustainable. For a recently published summary of the reasoning behind the hard currency policy, see Gnan et al (2005).

There are several ways how a country's membership in a monetary union may contribute to the ex-post fulfillment of OCA criteria:
(1) it can stimulate trade, which

[1] Lipschitz et al. (2005) argue that in open catching-up economies, which are well-endowed with labor but lack capital, monetary independence is limited also in a flexible exchange rate regime.

(2) can affect a member's trade and production patterns by making it less vulnerable to industry-specific shocks (symmetry of shocks and synchronization of outputs);
(3) increased competition can contribute to making product and labor markets more flexible, and
(4) membership in a monetary union will stimulate the integration of capital markets, which may increase the abilities for absorbance and risk sharing in the event of a shock.

3. European Experiences

Monetary arrangements are closely connected to the degree of economic and political regional integration. According to Balassa's famous "logical roadmap" for integration (Balassa, 1962), countries first create a free trade area. In a next step, they introduce a common external tariff, thus de facto creating a customs union. In a third step, they further improve efficiencies by creating an internal market. And finally, to make full use of the benefits of the internal market, the member countries introduce a common currency to achieve a further deepening of the integration process. This, in turn, generates incentives for further political integration. While Balassa's roadmap is plausible and, to a certain extent, reflects the European experience, it is certainly impossible to derive straightforward "laws" governing regional integration in the global political economy.

In Europe, political cooperation and exchange rate stability have been regarded as key elements in preventing beggar-thy-neighbor policies through competitive devaluations, and thus as preconditions for sustainable trade integration. This is why the EU Member States furthered political cooperation, institution building, regional integration and exchange rate stability before introducing capital mobility and monetary union. It can also be argued that the objective of the European regional integration process encompassed more than just creating a common market. The political will was underpinned by an ambitious vision which included, from the very start, the establishment of a monetary union and eventually of a kind of "United States of Europe" in order to achieve a permanent reconciliation of the continent after centuries of war.

The move towards monetary union in Europe, which was driven by political as well as economic considerations, involved several steps. The final moves before the adoption of the euro in 1999

were made in a relatively short period of time: the Treaty of Rome was signed in 1957, the exchange rate mechanism ERM I was put in place in 1979, capital flows were fully liberalized by 1990, the Maastricht Treaty was signed in 1991 and the establishment of the internal market was realized by 1992.

The debate on macroeconomic policymaking in general, and on the creation of a monetary union in particular, was stimulated by the breakdown of the Bretton Woods System and, between 1979 and 1987, by the frequent and very significant realignments in the newly created ERM I. In June 1988, an important decision was taken with regard to establishing the single market: to remove all exchange controls impeding the movement of capital by the mid-1990s. This decision made it possible for capital to move across borders without restrictions and to react to divergent economic performances. As a result, central banks lost much of their ability to control exchange rates, which could possibly have amplified exchange rate volatility and hence posed a serious threat to the functioning of the internal market. In this crucial situation, the Delors Report (which was adopted by the European Council in June 1989) forged a common understanding of macroeconomic policymaking and the creation of a monetary union. This process resulted in the Maastricht Treaty of December 1991 – a milestone on the road toward European integration.

In the political arena, the agreement to establish EMU was attributable to two reasons: (1) the firm commitment of several EU member states to the ongoing process of European integration, mainly driven by France and Germany (Maes, 2002), and (2) the shared vision of a European economic power that has overcome "Eurosclerosis" and is able to strengthen its position in the global economy.

There were, however, also other reasons for the establishment of EMU: the process of integration had acquired a life and a history of its own over some 50 years, individual governments were bound by the commitments made by their predecessors and none of the member states wished to be left behind as the EU embarked on one of the most consequential institutional innovations in its history. Another factor was the realization that, even though the continued commitment to EMU and the implementation of policies to achieve the EMU criteria were at times costly, these efforts would serve national interests in the end. This is what distinguishes the European experience from other regional integration processes observed today.

No matter whether the OCA criteria were fulfilled in a strict sense from the start of EMU – the stakeholders involved expected the participating countries to achieve a sufficient degree of convergence in the process. Especially in the second half of the 1990s, the prospect of EMU considerably accelerated the convergence process. Even though the difference in real convergence was still considerable, nominal convergence improved notably supported by a strong institutional framework geared to monetary and fiscal stability, as well as the four freedoms within the single market.

Notwithstanding the existence of several masterplans with predefined deadlines (e.g. for the single market or EMU), the process of European integration can probably be better described as "muddling through" or – to use a more positive metaphor – an evolutionary process which included serious and lingering differences up until the final outcome. Yet, it follows from (neo-) functionalist theory that each integration step makes the next one more likely. Hence, European integration can be described as a dynamic process that has never been predetermined and in which unplanned moves become possible when the occasion arises. It appears that, contrary to opportunities, time has not always been of essence.

3.1 Requirements and Long-Run Sustainability

The Maastricht Treaty specifies the conditions EU Member States have to fulfill in order to be eligible for joining EMU. These requirements include the well-known macroeconomic convergence criteria and legal requirements such as central bank independence. These criteria were a driving force for nominal convergence and helped ensure and monitor compliance, as governments showed their willingness to follow stability-oriented policies without imposing costs on other members.

The experience with the ERM I showed that the road toward a common currency is paved with difficulties. ERM I made painfully clear that the internal adaptability of some participating economies was insufficient and therefore not credible for a smooth working of the peg. The periodic crises and the recurring need for realignments within the ERM demonstrated that a currency union is only sustainable if (1) the economic policies of its member countries are

oriented toward promoting competitiveness and growth and (2) if they are coordinated at least to the extent that they are not contradictory, thus leading to economic convergence rather than divergence in the long run.

As McCallum already noted in 1995, a common currency requires a firmer and lasting commitment than other forms of hard pegs given that policy consistency and credibility have to increase over time (McCallum, 1995).

3.2. The Role of Institutions

The idea that economic institutions affect a society's functioning and prosperity is not new at all. As a matter of fact, one of the first scholars to promote it was nobody else than Adam Smith. He accurately identified the following key drivers of national prosperity: capital accumulation, free trade and efficient markets, personal initiative, an appropriate role for government and a good institutional infrastructure (Smith, 1776). The pioneering fundamentals in the modern empirical literature were laid by Nobel laureate Douglas North, who maintained that well-functioning institutions are the decisive determinant of an economy's long-run performance (North, 1990).

In a monetary union as complex as EMU, supranational institutions, such as the European Council, the European Parliament, the European Commission and the ECB are of central importance in addition to the national institutions. The actual performance of EMU hinges upon the principles and political objectives of the treaties on which EMU is founded and on the design of the supranational institutions which are entrusted with implementing, monitoring, interpreting and further developing this body of rules.

In this context, it is important to point out that the incentive structure of national macroeconomic policymaking and structural reforms in EMU are somewhat different from the pre-EMU period. Being a member of the EU, but not yet part of the euro area, the probably greater differentiation by financial markets, as the exchange rate risk is still real, and the sustainable fulfillment of the convergence criteria as a precondition for joining EMU, have proven to be effective instruments to promote economic reforms, sound macroeconomic policy making and thus nominal and real economic convergence. These rather direct incentive mechanisms outside EMU transform once a

country has joined the euro area. Hence, EMU members need to comply with more stringent rules, most notably the Stability and Growth Pact, which becomes an even more powerful inmstrument in EMU. In addition, a rather insidious economic process is inherent in every monetary union, as a result of which badly designed policies lead to a loss of competitiveness. This is a development which is costly to reverse. Actually, such an economic divergence within EMU would run counter to the idea that the OCA process is endogenous.

Hence, the participating member states and policymakers in EMU have to have an even higher level of awareness, responsibility and self-discipline when it comes to structural and macroeconomic policymaking. In this respect, the Broad Economic Policy Guidelines, the Employment Guidelines, and the Lisbon National Reform Programs, along with the associated surveillance and peer pressure mechanisms, are essential institutional instruments.

3.3 Fiscal Rules

Fiscal rules are another very important factor for the long-run sustainability of a monetary union (Christl, 2003; Hochreiter et al, 2002). Since fiscal policies remain the responsibility of national governments, fiscal rules are based on political economy considerations and are intended to restrict the deficit bias of national governments. Public expenditure is often financed by issuing debt owing to inter-temporal redistribution considerations, as this type of financing shifts fiscal burdens from the present to the future.

Fiscal rules are also important because membership in a monetary union can give rise to moral hazard and free-rider problems (Bruni, 2004). Moral hazard occurs when a member country expects to be bailed out by the others when it is faced with unsustainable debt levels. Free-riding, on the other hand, refers to a situation in which the adverse impact of fiscal laxity is not entirely borne by those national authorities which embark on fiscal expansion, but driving up the union-wide interest rate. In addition, free-riding might induce others to relax their fiscal discipline, too, and weaken EU fiscal rules in general.

In addition to making monetary policymaking more complicate owing to demand effects on prices, excessive deficits also entail significant medium- and long-run costs (e.g. higher real

interest rates and tax burdens). Moreover, if the monetary authorities in a currency union are not sufficiently independent, political pressure may be exerted upon the central bank to monetize government debt. The resulting loss in central bank credibility can drive up inflation expectations and steady-state inflation.

It appears that financial market agents apply a non-linear risk function to government debt and/or simply do not believe that the no-bail-out clause is irrevocable (Treaty establishing the European Community, Art. 103). Hence, interest rate spreads are only a minor punishment for excessive deficits, at least in the context of the current debt dynamics in the euro area. However, this is no reason for complacency, as a sudden change in the financial market's assessment may cause abrupt and strong corrections in the financial markets at some point in time. Once fiscal imbalances have built up, higher interest rates can quickly trigger a vicious circle of growing debt and increasing interest rates.

Finally, fiscal rules are important because they provide some type of agreed benchmark. Policymakers have to justify their fiscal stance in relation to the benchmark in international bodies (e.g. the Eurogroup and the ECOFIN in the EU), national bodies (e.g. parliaments) and the public at large.

For all these reasons, fiscal rules are a necessary feature in a credible, sustainable and successful monetary union. Watering down the Stability and Growth Pact would not at all be helpful in this respect.

3.4 Benefits and Costs

Eliminating transaction costs and exchange rate risks increases economic growth by reducing real interest rates and stimulating the international division of labor and capital, which in turn unlocks efficiency gains. Some of the main benefits of monetary union so far can be summarized as follows:

1) reduced transaction costs,
2) increased price transparency and, therefore, increased cross-border competition,

3) immediately integrated EMU money markets,
4) increased liquidity und product structure of European bond markets,
5) sped-up consolidation in the European financial sector,
6) slowly but permanently increased international role of the euro as an transaction and reserve currency,
7) much higher potential of shock absorption, as unwarranted exchange rate fluctuations in response to an outside shock (such as the tragic events of September 11, 2001) are not possible any longer,
8) stable exchange relations for investment and trade within Europe,
9) high degree of price stability in all member countries and
10) existence of a surveillance system for public debt and fiscal deficits.

Empirical studies (e.g. Faruqee, 2003) indicate that the establishment of EMU has led to an increase in trade among its members by 10% since 1999. Faruqee also showed that the associated dynamic growth effects have been rising over time and are still increasing, although the gains are not evenly distributed. Trade creation is not necessarily guaranteed: structural policies such as facilitating sectoral reallocation and market entry are needed to help realize the full potential arising from monetary union. Overall, Rose (2000) concluded that a one-percent increase in trade between the countries of a currency union leads to an increase of per-capita income by 0.3 percent.

But EMU has also incurred indirect costs, the most important of which are related to a serious loss of price competitiveness of the export industries in some countries (especially in Italy and Spain). Obviously, fiscal laxity has also increased, mainly in some of the larger countries. Moreover, the political commitment to Europe and to the common currency, which is an important condition for the long-run sustainability of the monetary union, has suffered in recent years.

There is some evidence that, for small countries, the benefits of EMU outweigh its costs by a relatively large margin, mainly because losing the exchange-rate instrument is not connected to significant costs. Small countries (such as Belgium or Austria) are generally more open and more exposed to the effects of globalization and international competition. This is why they tended to

be more diligent in undertaking ambitious structural reforms. By contrast, larger countries are often more concerned about the domestic effects of reforms and are thus more reluctant to proceed with their implementation. However, also these countries have eventually made the experience that relying on the domestic economy alone is a short-sighted approach. Structural rigidities combined with the lack of autonomous monetary policy makes adjustment to asymmetric shocks a painful and tedious process.

Furthermore, the net benefits of monetary union are not the same for all members. In the long run, especially EMU members at the periphery, which do not completely fulfill the OCA criteria, cannot be expected to benefit from EMU to the same extent as the states of the U.S. (Kouparitsas, 1999).

4. Closer Monetary Integration in Other Regions?

4.1 Central and Eastern European Countries

The first of the new EU Member States from Central and Eastern European countries (CEECs) are expected to join the euro area in 2007. Their experience with monetary integration may, however, be only partially applicable to other parts of the world, given their geographic proximity, their close historical and economic ties with Western Europe as well as broader geopolitical considerations. Some aspects may still be of relevance.

The prospect of EU membership stimulated the adjustment of economic policies in the CEECs as well as an overhaul of institutions. Other reasons for the obvious economic success in this part of Europe include the early liberalization of trade, the proper sequencing of macroeconomic stabilization measures, the liberalization of capital flows and serious structural reforms. Given the considerable differences in nominal and real convergence with the euro area in some of the new Member States, however, there is still some way to go before they can join the euro area. In order to comply with EMU requirements, they need to undertake further reforms and implement sound fiscal policies.

4.2 Asia, Latin America and the Middle East

According to the Balassa sequencing, stronger regional integration has two consequences: First, when a free trade area becomes a single market, it is important to maintain intra-regional exchange rate stability in order to reap the full benefits from such a move. Second, a converging stability orientation of monetary policies in the countries involved promotes exchange rate stability.

The conditions for establishing EMU in Europe were in several respects different from the current situation in Asia and Latin America.

In Asia and in Latin America it is difficult to define homogenous regions, as they tend to be pluralistic and overlapping. Furthermore, there are no central bodies in place to design and promote the integration process, such as the European Commission and the Council of the EU, which have been instrumental in the EU. MERCOSUR and ASEAN are only a first step in terms of the Balassa sequencing. The Chiang Mai Initiative can be seen as just a further step toward a higher level of institutional regional integration.

In Asia and Latin America, the political and economic regimes as well as the levels of nominal and real convergence are more heterogeneous than in Europe. Therefore, the benefits of monetary integration would be lower and the associated costs and risks would be higher on both continents.

In the Middle East, the Gulf Cooperation Council (GCC) is preparing a monetary union between Bahrain, Kuwait, Oman, Qatar, Saudi Arabia and the United Arab Emirates. Following the creation of a free trade area and a customs union, the completion of a common market is envisaged for 2007, and the single currency should be introduced by 2010. While monetary integration is remarkably advanced in these countries owing to a long-standing USD peg of the currencies involved, fiscal convergence remains a challenge, and structural convergence might actually diminish as a result of the ongoing process of diversification from oil and gas extraction industry in the GCC economies (Sturm and Siegfried, 2005).

4.3 Stability-Oriented Macro-Policies as an Alternative?

For the reasons mentioned earlier, establishing a currency union in the near future is neither desirable nor realistic for many countries or regions of the world. Still, relatively stable exchange rates in line with economic fundamentals, which stimulate world trade and the international division of labor, support a prosperous development of the world economy. Stability-oriented monetary and fiscal policies are necessary preconditions in this context.

Traditional monetary policy frameworks designed to achieve low inflation and sustainable growth rested upon intermediate variables such as monetary aggregates to anchor expectations. This concept is often not suitable for emerging market economies (EMEs) mainly because of instable money demand functions. Experience in some EMEs has shown that an explicit inflation target can provide a credible anchor for inflation expectations. Thus, inflation targeting[i] may be a successful strategy for larger EMEs to foster the desired macroeconomic stability, while at the same time remaining flexible enough to cope with external shocks. Price stability and sound fiscal policy are clearly a precondition for further monetary integration in the future.

The inflation-targeting experience of Brazil and Chile shows that it is indeed possible for a country to make progress in reducing inflation and gain credibility. Another benefit, as pointed out by Bernanke et al. (1999), is that an inflation-targeting framework is not based on an automatic Friedman-type rule but rests on constrained discretion: Chile and Brazil, for example, proceeded gradually and flexibly in implementing inflation targeting, which helped reduce inflation without incurring substantial output costs. Therefore, a case can be made for adopting an inflation targeting policy framework, especially in larger EMEs, since it forces policymakers to step up reform, enhance transparency and improve the fiscal stance, while promoting convergence to (by international standards) low levels of inflation.

5. Conclusions

The successful completion of EMU and the introduction of the euro have substantially increased the general interest in regional integration and especially in regional monetary arrangements. The experience with monetary integration in Europe so far suggests that

- monetary union is contingent upon a high level of economic integration and a firm political commitment;
- political union is not at all an ex-ante requirement;
- outside factors, such as systemic shocks and globalization, seem to speed up the pooling of sovereignty in the economic domain;
- a clear stability orientation in the monetary and fiscal field is a precondition for gaining credibility and trust within and outside a monetary union;
- convergence criteria, fiscal rules and strong institutions are necessary to ensure and monitor compliance.

However, the EU experience is not a blueprint for regional integration that can be directly and entirely applied to other regions. Unreflective comparison will most likely lead us into the dangerous trap of Eurocentrism.

Although a number of studies argue that OCA criteria are at least to a certain extent endogenous, I strongly believe that the Balassa sequencing provides us with a meaningful pattern of how to achieve a higher level of regional integration. Successfully anchoring inflation expectations in the field of monetary policy and sound fiscal policies are key aspects of such a development. If all these preconditions are fulfilled, currency unions may, at some point in the future, also be an option in the Gulf region, in Asia, Latin America or another region of the world.

References

Balassa, B. (1962). The Theory of Economic Integration. Allen and Unwin, London.

Barro, R. and X. Sala-i-Martin (1992). Convergence. Journal of Political Economy, April.

Bayoumi, T. (1994). A Formal Model of Optimum Currency Areas. IMF Staff Papers 41:4.

Bernanke, B. S., T. Laubach, F. S. Mishkin and A. S. Posen (1999). Inflation Targeting. Lessons from the International Experience. NJ. Princeton University Press, Princeton.

Bordo, M. and L. Jonung (2002). The Future of EMU: What Does the History of Monetary Unions Tell Us? NBER Working Paper No. 7365. National Bureau of Economic Research, Cambridge, MA.

Bruni, F. (2004). Fiscal Discipline in a Monetary Union: Issues for the Euro Area. European Monetary and Financial Integration; SUERF Studies 2004/2.

Calvo, G. and C. Reinhart (2002). Fear of Floating. Quarterly Journal of Economics, Vol. 117:2, 379–408.

Christl, J. (2003). Why We Need Fiscal Rules in a Monetary Union. Speech delivered at the Winckler Symposium, Oesterreichische Nationalbank, on November 7, 2003. Retrievable from www.oenb.at.

Committee for the Study of Economic and Monetary Union (1989). Report on Economic and Monetary Union (Delors Report).

Faruqee, H. (2003). Measuring the Trade Effects of EMU. IMF Working Paper 04/154. 23–44.

Frankel, J. A. (1999). No Single Currency Regime is Right for all Countries or at All Times. NBER Working Paper No. 7338. National Bureau of Economic Research, Cambridge, MA.

Frankel, J. A. and A. K. Rose (1998). The Endogeneity of the Optimum Currency Area Criteria. Economic Journal, 108:449, 1009–1025.

Gnan, E., C. Kwapil and M. Valderrama (2005). EU and EMU Entry: A Monetary Policy Regime Change for Austria? In: Monetary Policy and the Economy, Q2/05. 53–68.

Hausmann, R. and A. Velsaco (2002). Hard Money's Soft Underbelly: Understanding the Argentine Crisis. Mimeo. Retrieved from ksghome.harvard.edu/~.AVelasco.Academic.Ksg/Research.html.

Hochreiter, E., K. Schmidt-Hebbel and G. Winckler (2002). Monetary Union: European Lessons, Latin American Prospects. OeNB Working Paper 68. Oesterreichische Nationalbank, Vienna, Austria.

Hochreiter, E. and G. Winckler (1995). The advantages of tying Austria's hands: The success of the hard currency strategy. European Journal of Political Economy 11. 83–111.

International Monetary Fund (2003). Exchange Arrangements and Foreign Exchange Markets – Developments and Issues. World Economic and Financial Surveys. IMF, Washington.

Kouparitsas, M. A. (1999). Is the EMU a viable common currency area? A VAR analysis of regional business cycles. Chicago Fed Letter 146. The Federal Reserve Bank of Chicago. October.

Lipschitz, L., T. Lane and A. Mourmouras (2005). Real Convergence, Capital Flows, and Monetary Policy. In: Schadler, S. (ed:) Euro Adoption in Central and Eastern Europe: Opportunities and Challenges. International Monetary Fund, Washington D.C.

Maes, I. (2002). Economic Thought and the Making of European Monetary Union. Edward Elgar, Cheltenham, Northampton.

McCallum, J. (1995). National Borders Matter: Canada-U.S. Regional Trade Patterns. American Economic Review 85(3). American Economic Association. June.

Mundell, R. A., R. McKinnon and P. Kenen (1961). A theory of optimum currency areas. American Economic Review 51. 657–665.

North, D. C. (1990). Institutions, Institutional change, and Economic Performance. Cambridge University Press, New York.

North, D. C. (1993). Economic Performance through Time. Lecture to the memory of Alfred Nobel given on December 9, 1993.

Rose, A. K. (2000). One Money, One Market: Estimating the Effect of Common Currencies on Trade. Economic Policy 30, 7–45.

Smith, A. (1776). An Inquiry into the Nature and Causes of the Wealth of Nations. Methuen & Co. Ltd.

Sturm, M., and N. Siegfried (2005). Regional Monetary Integration in the Member States of the Gulf Cooperation Council. Occasional Paper Series 31. ECB.

Tavlas, G. S. (2003). The Economics of Exchange Rate Regimes: A Review Essay. The World Economy 26. 1215–1246.

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[i] Monetary targeting is an attempt to stabilize the inflation rate around the target value, presupposing a stable empirical relationship of the monetary target to the inflation rate and its relationship to the instruments of monetary policy. Owing to price shocks, money demand is, however, very instable in many emerging markets. Monetary policy is constrained in a system with an exchange rate rule, so that it cannot react to domestic or external shocks. In developing countries/EMEs the exchange rate itself can be a source of instability e.g. owing to a real appreciation of the exchange rate (Harrod-Balassa-Samuelson effect).

Discussion

Lars Jonung

European Commission

The paper by Josef Christl covers a large number of monetary policy issues in a limited space. He deals with the OCA literature, the European experience of monetary unification, the Maastricht treaty, fiscal rules, the benefits of the euro, the monetary situation of Eastern Europe, Asia and Latin America and the rise of inflation targeting as an alternative to monetary unions. The purpose of his panorama is to draw lessons from the European experience of monetary unification for the rest of the world.

He summarizes these lessons in four points:
1. Monetary unification rests on economic and political integration
2. Political union is not required in advance of monetary unification
3. There is an ongoing international trend towards pooling of economic sovereignty
4. Convergence criteria and fiscal rules are necessary for successful monetary unification

These conclusions are roughly in line with the conventional wisdom today. I will not challenge this body of mainstream thinking. Instead, I would like to add to Christl's discussion by bringing in four additional aspects that I feel deserve attention.

1. The political economy of monetary unification
2. The endogeneity of monetary unions
3. Fiscal rules and fiscal independence
4. 'Muddling through' or policy-learning

1. *The political economy of monetary unification*. Christl's discussion is based on the theory of optimum currency areas (OCA). The OCA approach is based upon a trade-off between efficiency and stabilization. This is the standard tool used by economists when analyzing monetary unification. Here the unit of observation is traditionally the nation state. Nation states make decisions to join or to abstain from joining monetary unions.

Of course, this approach is a simplification of real world conditions. In modern democracies, the decision to join or not to join a monetary union is made in the political sphere, ultimately by the public in their capacities of voters. Voters commonly ask: what is in it for me? They focus on the effects of any policy proposal on the distribution of income and wealth. This holds for monetary unification as well.

Thus, to get a better understanding of the outlook for monetary unification outside Europe we should look at the distributive issues involved in joining a monetary union. These issues were clearly brought out in the election that took place in Sweden on

Sunday September 14, 2000. That day Swedish voters went to the polls to answer this question: "Do you think that Sweden should introduce the euro as its official currency?'

The Swedish referendum in September 2003 on adopting the euro or keeping the domestic currency, the krona, represents a unique opportunity to examine the perceptions of the different groups in society of the benefits and costs of monetary unification. The voters chose between the two polar cases of exchange rate regimes (the corner solutions): either a freely floating exchange rate combined with inflation targeting or membership in a monetary union, the euro area.[1]

How did the voters cast their votes? Let us first assume that voters act in their self-interest and are well-informed – that they calculate the respective costs and benefits of the common currency and the national currency.

The question underlying differences in voting patterns among voters is: Who will benefit and who will lose from membership in a monetary union? Thus, distributional issues immediately take centre stage. The OCA approach provides a number of testable hypotheses. Voters in the tradable sector or in other sectors exposed to the international economy could be expected to be more in favour of the euro than voters in the non-tradable sector or other sectors sheltered from international influences. Voters with no or little exposure to the international economy, who depend primarily on domestic economic and political developments, are likely to prefer national policy autonomy. Such independence gives them better insurance against domestic and international disturbances, both symmetric and asymmetric, than an irrevocably fixed rate. Voters who depend on the public sector (the welfare state) could be expected to favour the krona, as euro membership is viewed as a threat to a large public sector.

High income earners and well educated voters would be expected to vote yes to the euro as they have insurance through the private sector. Low income voters would be expected to vote no as their insurance and protection against shocks comes primarily from the public sector. Women tend to prefer public sector solutions; hence, more women than men could be expected to vote against the euro.

The outcome of the Swedish referendum confirms these predictions of the OCA approach. However, political attitudes and ideology influenced voters as well. The outcomes of the various referenda on membership in the European Union in other European countries are also consistent with these predictions. Consequently, we should expect similar patterns to hold for the rest of the world. Thus, domestic political conditions are likely to be important determinants of membership in any future monetary union.

2. *The endogeneity of monetary unions*. Christl gives considerable credence to the idea that monetary union performance is endogenous. In other words, the longer you are a member of a club, the better you will fit into it. There is considerable evidence that such

[1] The discussion of the Swedish euro referendum is based on Jonung (2004).

mechanisms are at work. However, today we also notice a number of tendencies that challenge this interpretation in the euro area.

First of all, "Maastricht fatigue" on the budgetary side is clearly evident in several countries. Fiscal discipline has been difficult to maintain once countries have entered the euro area. This fatigue contributed to the modifications of the initial Stability and Growth Pact.

We also see real interest rate differentials arising across the euro area. There is no consensus regarding the role of these developments. Some economists argue that they simply reflect the workings of a monetary union, and thus should not be viewed as a source of tension. Others argue that they demonstrate that a common nominal interest rate across the euro area will foster different growth rates across the unions and thus strengthen imbalances.

The success of the common currency depends on the flexibility of the real economy of the euro area. For this reason economic reforms are important to make the euro area move towards an optimal monetary area. However, since the downturn of economic activity in Europe following the stock market bust in 2000-2001, political resistance towards economic reforms has been strong. Interest groups across EU have mobilized the public and politicians against productivity-enhancing reforms, thus preventing EU from reaping the full advantages of a common currency.

There is presently a risk that the euro is turning into a scapegoat for the economic problems facing Europe. In this blame-game, some politicians may be tempted to question euro-membership instead of tackling the domestic roots of slow growth and high unemployment. This type of behaviour has a long tradition in history. It is not the first time that international cooperation has been exploited for domestic purposes by populist forces.

Christl shows that Austria created the necessary domestic fiscal and monetary discipline prior to entry into the euro-area by using the "structural whip". This whip worked successfully in Austria *before* euro-membership. However, the challenge is to maintain a well-functioning whip now that Austria is inside the monetary union. This holds not only for Austria, but for all members of the euro area.

3. *Fiscal rules and fiscal independence*. Christl argues forcefully for the use of fiscal rules. However, experience has proved that such rules are difficult to enforce, since policy-makers are innovative and tend to develop techniques to circumvent any straitjacket constructed to rein them in.

Much suggests that fiscal rules should be complemented by other techniques to foster fiscal performance. Fiscal governance may be improved through reforms of the institutions involved in the framing of fiscal measures. Let me give some examples. Within the EU, statistical offices may be more independent from the executive power. In

a similar way, independent forecasting authorities, such as exist in Austria, Belgium and the Netherlands, can be set up in countries where the ministry of finance has systematically biased its forecasts concerning future growth and thus ex post created a budget deficit bias.[2] Independent budgetary offices may also be part of an institutional reform of fiscal policy-making.

The idea of independent fiscal bodies that are not under the immediate control of the ministry of finance and the government is an attractive one, regardless of the specific exchange rate arrangement adopted. It is an idea worth exporting from Europe to the rest of the world.

4. *Muddling through or policy-learning*. Christl views Europe and the euro area as involved in a process of muddling through. I would like to suggest a more positive interpretation. The euro area is going through a learning process. As Christl stresses, European monetary unification is not following a master plan. Instead Europe is adjusting to new disturbances and new challenges as they emerge while at the same time learning about the new economic and political landscape.

The euro is a large full-scale experiment – unique in monetary and economic history. As long as there is a learning process going on, new lessons will be learnt and thus improvements can be made. This flexibility is important to ensure the sustainability of the monetary unification process.[3] This message should be conveyed to the rest of the world.

References:

Jonung, Lars (2002), "EMU – the first 10 years: Challenges to the sustainability and price stability of the euro-area – what does history tell us?" Chapter 16 in Marco Buti and André Sapir, eds., *EMU and Economic Policy in Europe. The Challenge of the Early Years,* Edward Elgar, 2002.

Jonung, Lars (2004), "The political economy of monetary unification: The Swedish euro referendum of 2003", pp. 123-149, *Cato Journal*, vol. 24, numbers 1-2.

Jonung, Lars and Martin Larch (2004), "Improving fiscal policy in the EU. The case for independent forecasts", working paper, DG ECFIN, July, 2004. Available at: http://europa.eu.int/comm/economy_finance/publications/economic_papers/2004/ecp210en.pdf.

[2] The case for independent forecasting authorities in the EU is given in Jonung and Larch (2004).
[3] This argument is developed in Jonung (2002).

International Workshop "Regional and International Currency Arrangements"

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Main Findings and Concluding Remarks

by

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We began with discussions of what has been, to date, a surprisingly successful monetary union - - EMU - - though it has not been without problems. In his paper, Otmar Issing assessed the applicability of optimum-currency-area analysis to the euro zone context. He noted that euro area countries do not perform well relative to the US in terms of the OCA criteria. This finding - - that the OCA area criteria do not support the formation of a currency block - - was a general conclusion of the workshop. It also applied to Latin America, North America, and Asia. Issing also noted, however, that in light of the endogeneity of the OCA criteria, a large part of the cost of monetary union appears to be early on, but the benefits appear gradually. In view of the implications of the OCA criteria for EMU, why did European countries nevertheless proceed with EMU? Issing cited the open economy trilemma in the European context. With the move to a single market, the trilemma became a dilemma. Either fix the exchange rate and lose monetary policy independence or pursue an independent monetary policy and float. Given historical factors, however, the second option was not feasible. Moreover, in view of the bipolar hypothesis stabilizing the exchange rate meant giving up national currencies and adopting a hard fix.

Josef Christl reminded us that Europe went through a Balassa sequencing (Free Trade Area – common external tariff – customs union) that took half a century before arriving at EMU. He underlined the unequal distribution of benefits within EMU, with smaller countries having lower costs than larger ones and core countries than the periphery. Christl also stressed the political dimension of the monetary integration process, a view that was echoed by others during the conference. An important insight for other regions was that they were more

heterogeneous than Europe and were lacking a strong region-minded center. Central and eastern European countries were in a special position as the prospects for EU-membership and the euro provided an important driving force for structural adjustment, institution building and political support. Thus, Europe does not constitute a blueprint for other regions.

How relevant is EMU for other regions? In his discussion of North America Sven Arndt noted that North America differs from Europe in terms of (1) the diversity in size of the economies, (2) diversity of economic development, and (3) the relative importance of trade. The European context suggests the need for deeper real sector integration, a point also emphasized by Issing in terms of the role played by the European single market. Still, Arndt sees some emerging signs for the conditions of an OCA in North America because of the increase of network-based trade. This increase is leading to a decline in the buffer role of floating rates. Nevertheless, a monetary union in North America appears to be some distance in the future based on what Arndt describes as the tendency of the Bank of Canada to pursue an independent monetary policy though keeping an eye on the exchange rate, while political conditions within Mexico for a permanent fix are not yet in place.

Moving south, Sebastian Edwards does not see the feasibility of a monetary union in South America. For one thing, his literature review shows conclusively that the countries in the region do not satisfy the OCA criteria either as a group or as subgroups. For another thing, his empirical analysis leads to the finding that, for a large panel of countries, currency unions were associated with a higher frequency of sudden stops of capital flows and current account reversals. This finding is especially relevant in the Latin American context since many of the countries in the region have traditionally been subject to large fluctuations in capital account crises. Moreover, in a separate panel estimation Edwards found that external shocks had a greater negative impact on GDP growth for countries belonging to a currency union.

What about Asia? Hans Genberg sees some possibility of a move toward greater monetary integration, but such integration, he believes, should not follow the European model in which the EMS and the lifting of capital controls eventuated in an exchange rate crisis. Instead, Genberg presented an evolutionary proposal. As financial markets in the region become more fully integrated over time and if inflation-targeting frameworks produce inflation objectives that are sufficiently similar, interest rates are likely to be more highly-correlated. Once interest rates converge monetary union can proceed. The advantages of this approach are that it is compatible with increasing financial integration, it allows central banks to pursue similar objectives in their self interest and it is flexible in the sense of which

countries decide to participate. He foresees three satellite currency blocks comprised of the renminbi, the won and the yen. The corresponding central banks would gear monetary policies toward internal stability objectives. Genberg also presents a second scenario in which the smaller countries in the region move to a common currency with a common central bank.

What about exchange rate management? Both John Williamson and Richard Cooper presented proposals for greater monetary integration among major currencies. A common point of departure for both authors is that flexible exchange rates, while potentially useful as shock absorbers have also been a source of misalignment, creating uncertainty for trade and capital formation. Indeed, Williamson questioned whether in an era of price stability, in which inflation differentials among major currencies are small, whether swings in exchange rates of 50 per cent in short periods of time are reasonable. He proposes a reference rate system, a main feature of which is an obligation not to intervene in a way that pushes the market rate away from the reference rate, while intervention is allowed to push the rate toward the reference rate. A main benefit of this proposal is that it would provide more focused surveillance since the reference rate would have to be endorsed by the international community. Indeed, at a time of increased reflection about the role of the IMF, Williamson's proposal would provide needed focus for the role of the Fund, because under the proposal the Fund's staff would be in charge of monitoring compliance with reference rates.

Richard Cooper proposes a vision for the second or third decade of the 21st century. In particular his proposal involves a common currency for the US, the EU, and Japan. The implementation of his proposal involves a transition period involving the targeting of exchange rates within 10 per cent bands, to be narrowed over time, based on purchasing power parity with regard to wholesale prices à la McKinnon. Europe, Japan and the US are deemed suitable candidates because asymmetric shocks are likely to diminish in the light of the size and diversification of the particular economies while fiscal policy would deal with the shocks that do occur. Correspondingly, with the continued rise in international financial transactions relative to the rise in international trade in goods and services expected to continue in the future, financial factors will dominate exchange rate determination, rendering swings in exchange rates subject to even greater misalignment than at present. Cooper presents blueprints of his vision including governance and accountability.

Michael Bordo and Harold James provide a historical context for their assessment about the prospects of a world currency in the future. They note that the European context is not very relevant as EMU was driven by a political agenda. History shows, they argue, that

political integration is necessary for successful monetary integration. In the 19th century, the costs of forming a monetary union were relatively small because countries were in a better position than today to place restrictions on sovereignty. Moreover, the real cost of giving up an independent monetary policy and joining a currency union was small since the gold standard already imposed a common monetary policy. Monetary unions they believe are becoming less attractive for several reasons. First, with the advance of democracy, sovereignty is becoming more important. Second, transaction costs of exchanging currencies are declining. Third, monetary policy is better understood. For example, central bank independence has been accompanied by the discipline imposed by inflation targeting. Fourth, the specific European context is not applicable elsewhere. For example, Asia does not have two equal powers the likes of France and Germany. For these reasons, they argue, proposals for a world currency fail to address the issue of who is making policy and in whose interest it is being made.

In a series of influential papers, Michael Dooley, David Folkerts-Landau and Peter Garber (DFG) have argued that the present international monetary arrangements constitute a new Bretton Woods system under which the Asian economies peg their currencies to the dollar. According to DFG, by maintaining pegged, undervalued real exchange rates Asian economies have promoted manufactured exports and, therefore, real growth. Reserve accumulation by Asian central banks allows the US to rely on domestic demand to drive its growth and run large current account deficits. In their paper for the workshop, DFG present a portfolio balance analysis of the dynamics of the new Bretton Woods system. The analysis leads to the inference that real interest rates in the US and Europe will remain low relative to historical norms for an extended period of time as Asian countries continue to intervene, accumulating US dollars, in foreign exchange markets. Real interest rates in the US and Europe will converge slowly toward more normal rates during an adjustment interval, a feature of which has the US absorbing a disproportionate share of world savings. In real terms, while the dollar and other floating currencies will eventually have to depreciate relative to pegged currencies, most of the adjustment in the US trade account will result from a response of US absorption to increases in real interest rates.

Nouriel Roubini takes issue with the DFG thesis. In particular, he argues that the new Bretton Woods system is fundamentally different from the original Bretton Woods regime. The new system is unstable and fragile and will unravel in the next few years and not over a period of a decade or longer as posited by DFG. Roubini points out that the structure of the

new regime has undergone changes in the past few years that contribute to its fragility. Whereas in the earlier years of the new regime US dollar reserves were primarily accumulated by Asian economies running current account surpluses, in the past few years those surpluses have been shrinking partly because of the effects of oil price increases. In the past year or so, the large US current account deficits have been partly sustained by pegged exchange rates and reserve accumulations by oil exporting countries, a situation which Roubini believes is not sustainable. Consequently, the new Bretton Woods system could unravel in the next few years with the dollar falling sharply, the consequences of which would be a disorderly rebalancing of the global economy

Index of Working Papers:

January 2, 2002	Sylvia Kaufmann	56	Asymmetries in Bank Lending Behaviour. Austria During the 1990s
January 7, 2002	Martin Summer	57	Banking Regulation and Systemic Risk
January 28, 2002	Maria Valderrama	58	Credit Channel and Investment Behavior in Austria: A Micro-Econometric Approach
February 18, 2002	Gabriela de Raaij and Burkhard Raunig	59	Evaluating Density Forecasts with an Application to Stock Market Returns
February 25, 2002	Ben R. Craig and Joachim G. Keller	60	The Empirical Performance of Option Based Densities of Foreign Exchange
February 28, 2002	Peter Backé, Jarko Fidrmuc, Thomas Reininger and Franz Schardax	61	Price Dynamics in Central and Eastern European EU Accession Countries
April 8, 2002	Jesús Crespo-Cuaresma, Maria Antoinette Dimitz and Doris Ritzberger-Grünwald	62	Growth, Convergence and EU Membership
May 29, 2002	Markus Knell	63	Wage Formation in Open Economies and the Role of Monetary and Wage-Setting Institutions
June 19, 2002	Sylvester C.W. Eijffinger (comments by: José Luis Malo de Molina and by Franz Seitz)	64	The Federal Design of a Central Bank in a Monetary Union: The Case of the European System of Central Banks
July 1, 2002	Sebastian Edwards and I. Igal Magendzo (comments by Luis Adalberto Aquino Cardona and by Hans Genberg)	65	Dollarization and Economic Performance: What Do We Really Know?

July 10, 2002	David Begg (comment by Peter Bofinger)	66	Growth, Integration, and Macroeconomic Policy Design: Some Lessons for Latin America
July 15, 2002	Andrew Berg, Eduardo Borensztein, and Paolo Mauro (comment by Sven Arndt)	67	An Evaluation of Monetary Regime Options for Latin America
July 22, 2002	Eduard Hochreiter, Klaus Schmidt-Hebbel and Georg Winckler (comments by Lars Jonung and George Tavlas)	68	Monetary Union: European Lessons, Latin American Prospects
July 29, 2002	Michael J. Artis (comment by David Archer)	69	Reflections on the Optimal Currency Area (OCA) criteria in the light of EMU
August 5, 2002	Jürgen von Hagen, Susanne Mundschenk (comments by Thorsten Polleit, Gernot Doppelhofer and Roland Vaubel)	70	Fiscal and Monetary Policy Coordination in EMU
August 12, 2002	Dimitri Boreiko (comment by Ryszard Kokoszczyński)	71	EMU and Accession Countries: Fuzzy Cluster Analysis of Membership
August 19, 2002	Ansgar Belke and Daniel Gros (comments by Luís de Campos e Cunha, Nuno Alves and Eduardo Levy-Yeyati)	72	Monetary Integration in the Southern Cone: Mercosur Is Not Like the EU?
August 26, 2002	Friedrich Fritzer, Gabriel Moser and Johann Scharler	73	Forecasting Austrian HICP and its Components using VAR and ARIMA Models
September 30, 2002	Sebastian Edwards	74	The Great Exchange Rate Debate after Argentina
October 3, 2002	George Kopits (comments by Zsolt Darvas and Gerhard Illing)	75	Central European EU Accession and Latin American Integration: Mutual Lessons in Macroeconomic Policy Design

October 10, 2002	Eduard Hochreiter, Anton Korinek and Pierre L. Siklos (comments by Jeannine Bailliu and Thorvaldur Gylfason)	76	The Potential Consequences of Alternative Exchange Rate Regimes: A Study of Three Candidate Regions
October 14, 2002	Peter Brandner, Harald Grech	77	Why Did Central Banks Intervene in the EMS? The Post 1993 Experience
October 21, 2002	Alfred Stiglbauer, Florian Stahl, Rudolf Winter-Ebmer, Josef Zweimüller	78	Job Creation and Job Destruction in a Regulated Labor Market: The Case of Austria
October 28, 2002	Elsinger, Alfred Lehar and Martin Summer	79	Risk Assessment for Banking Systems
November 4, 2002	Helmut Stix	80	Does Central Bank Intervention Influence the Probability of a Speculative Attack? Evidence from the EMS
June 30, 2003	Markus Knell, Helmut Stix	81	How Robust are Money Demand Estimations? A Meta-Analytic Approach
July 7, 2003	Helmut Stix	82	How Do Debit Cards Affect Cash Demand? Survey Data Evidence
July 14, 2003	Sylvia Kaufmann	83	The business cycle of European countries. Bayesian clustering of country-individual IP growth series.
July 21, 2003	Jesus Crespo Cuaresma, Ernest Gnan, Doris Ritzberger-Gruenwald	84	Searching for the Natural Rate of Interest: a Euro-Area Perspective
July 28, 2003	Sylvia Frühwirth-Schnatter, Sylvia Kaufmann	85	Investigating asymmetries in the bank lending channel. An analysis using Austrian banks' balance sheet data
September 22, 2003	Burkhard Raunig	86	Testing for Longer Horizon Predictability of Return Volatility with an Application to the German DAX
May 3, 2004	Juergen Eichberger, Martin Summer	87	Bank Capital, Liquidity and Systemic Risk

June 7, 2004	Markus Knell, Helmut Stix	88	Three Decades of Money Demand Studies. Some Differences and Remarkable Similarities
August 27, 2004	Martin Schneider, Martin Spitzer	89	Forecasting Austrian GDP using the generalized dynamic factor model
September 20, 2004	Sylvia Kaufmann, Maria Teresa Valderrama	90	Modeling Credit Aggregates
Oktober 4, 2004	Gabriel Moser, Fabio Rumler, Johann Scharler	91	Forecasting Austrian Inflation
November 3, 2004	Michael D. Bordo, Josef Christl, Harold James, Christian Just	92	Exchange Rate Regimes Past, Present and Future
December 29, 2004	Johann Scharler	93	Understanding the Stock Market's Response to Monetary Policy Shocks
Decembert 31, 2004	Harald Grech	94	What Do German Short-Term Interest Rates Tell Us About Future Inflation?
February 7, 2005	Markus Knell	95	On the Design of Sustainable and Fair PAYG - Pension Systems When Cohort Sizes Change.
March 4, 2005	Stefania P. S. Rossi, Markus Schwaiger, Gerhard Winkler	96	Managerial Behavior and Cost/Profit Efficiency in the Banking Sectors of Central and Eastern European Countries
April 4, 2005	Ester Faia	97	Financial Differences and Business Cycle Co-Movements in A Currency Area
May 12, 2005	Federico Ravenna	98	The European Monetary Union as a Committment Device for New EU Member States
May 23, 2005	Philipp Engler, Terhi Jokipii, Christian Merkl, Pablo Rovira Kalt-wasser, Lúcio Vinhas de Souza	99	The Effect of Capital Requirement Regulation on the Transmission of Monetary Policy: Evidence from Austria
July 11, 2005	Claudia Kwapil, Josef Baumgartner, Johann Scharler	100	The Price-Setting Behavior of Austrian Firms: Some Survey Evidence

July 25, 2005	Josef Baumgartner, Ernst Glatzer, Fabio Rumler, Alfred Stiglbauer	101	How Frequently Do Consumer Prices Change in Austria? Evidence from Micro CPI Data
August 8, 2005	Fabio Rumler	102	Estimates of the Open Economy New Keynesian Phillips Curve for Euro Area Countries
September 19, 2005	Peter Kugler, Sylvia Kaufmann	103	Does Money Matter for Inflation in the Euro Area?
September 28, 2005	Gerhard Fenz, Martin Spitzer	104	AQM – The Austrian Quarterly Model of the Oesterreichische Nationalbank
October 25, 2005	Matthieu Bussière, Jarko Fidrmuc, Bernd Schnatz	105	Trade Integration of Central and Eastern European Countries: Lessons from a Gravity Model
November 15, 2005	Balázs Égert, László Halpern, Ronald MacDonald	106	Equilibrium Exchange Rates in Transition Economies: Taking Stock of the Issues
January 2, 2006	Michael D. Bordo, Peter L. Rousseau (comments by Thorvaldur Gylfason and Pierre Siklos)	107	Legal-Political Factors and the Historical Evolution of the Finance-Growth Link
January 4, 2006	Ignacio Briones, André Villela (comments by Forrest Capie and Patrick Honohan)	108	European Banks and their Impact on the Banking Industry in Chile and Brazil: 1862 - 1913
January 5, 2006	Jérôme Sgard (comment by Yishay Yafeh)	109	Bankruptcy Law, Creditors' Rights and Contractual Exchange in Europe, 1808-1914
January 9, 2006	Evelyn Hayden, Daniel Porath, Natalja von Westernhagen	110	Does Diversification Improve the Performance of German Banks? Evidence from Individual Bank Loan Portfolios
January 13, 2006	Markus Baltzer (comments by Luis Catão and Isabel Schnabel)	111	European Financial Market Integration in the Gründerboom and Gründerkrach: Evidence from European Cross-Listings

January 18, 2006	Michele Fratianni, Franco Spinelli (comments by John Driffill and Nathan Sussman)	112	Did Genoa and Venice Kick a Financial Revolution in the Quattrocento?
January 23, 2006	James Foreman-Peck (comment by Ivo Maes)	113	Lessons from Italian Monetary Unification
February 9, 2006	Stefano Battilossi (comments by Patrick McGuire and Aurel Schubert)	114	The Determinants of Multinational Banking during the First Globalization, 1870-1914
February 13, 2006	Larry Neal	115	The London Stock Exchange in the 19th Century: Ownership Structures, Growth and Performance
March 14, 2006	Sylvia Kaufmann, Johann Scharler	116	Financial Systems and the Cost Channel Transmission of Monetary Policy Shocks
March 17, 2006	Johann Scharler	117	Do Bank-Based Financial Systems Reduce Macroeconomic Volatility by Smoothing Interest Rates?
March 20, 2006	Claudia Kwapil, Johann Scharler	118	Interest Rate Pass-Through, Monetary Policy Rules and Macroeconomic Stability
March 24, 2006	Gerhard Fenz, Martin Spitzer	119	An Unobserved Components Model to forecast Austrian GDP
April 28, 2006	Otmar Issing (comments by Mario Blejer and Leslie Lipschitz)	120	Europe’s Hard Fix: The Euro Area
May 2, 2006	Sven Arndt (comments by Steve Kamin and Pierre Siklos)	121	Regional Currency Arrangements in North America
May 5, 2006	Hans Genberg (comments by Jim Dorn and Eiji Ogawa)	122	Exchange-Rate Arrangements and Financial Integration in East Asia: On a Collision Course?
May 15, 2006	Petra Geraats	123	The Mystique of Central Bank Speak

May 17, 2006	Marek Jarociński	124	Responses to Monetary Policy Shocks in the East and the West of Europe: A Comparison
June 1, 2006	Josef Christl (comment by Lars Jonung and concluding remarks by Eduard Hochreiter and George Tavlas)	125	Regional Currency Arrangements: Insights from Europe