The Euro on the Road East: Cash, Savings and Loans

Peter Backé, Doris Ritzberger-Grünwald, Helmut Stix¹ The euro is already present throughout Central, Eastern and Southeastern Europe today. Against this backdrop, the OeNB has been regularly conducting household opinion polls for years in the countries that make up this economic space. The survey questions place special emphasis on euro cash holdings. The results show that the choice to hold euro cash is based on a wide variety of motives, above all geographic proximity, coupled with increasing economic interlinkages, the desire to minimize risk, and tradition. Decisions to have savings in euro or to take out euro-denominated loans can be attributed to similar considerations. In addition, macroeconomic factors such as inflation and exchange rate expectations may also play a role. What clearly emerges is that the extent of currency substitution varies considerably from country to country. In terms of cash, Slovenia, which was about to adopt the euro at the time of the most recent poll, is the frontrunner (approximately 40% of the population reported euro cash holdings in the second half of 2006). Hungary is last, with only a 7% rate. In terms of savings and loans, Croatia posts the highest percentage according to both the OeNB survey and the aggregated bank balance sheet data (approximately 80% of all savings deposits and/or borrowings of households and enterprises are denominated in foreign currency). At the opposite end of the spectrum is the Czech Republic, a country with approximately 10% in both areas.

JEL classification: E41, E50, O14

Keywords: currency substitution, demand for euro.

1 Introduction

The euro is already present throughout the Central, Eastern and Southeastern European (CESEE) countries today. When the survey was conducted, cash holdings, savings deposits and loans were already denominated in euro to a certain extent – and not only in Slovenia, the first new EU Member State to have fulfilled the convergence criteria as of spring 2006 and to have changed over to the euro on January 1, 2007. A number of CESEE countries have already oriented their monetary and exchange rate policies to the euro, demonstrating that the new currency has seamlessly taken over from the Deutsche mark, the U.S. dollar and IMF Special Drawing Rights. Even in foreign trade invoicing and the CESEE capital markets, the euro is playing a significant role, in many respects an increasingly significant one.

Five years after the introduction of the first euro banknotes and coins, this paper seeks to offer an intermediate assessment of the presence of the euro in CESEE – specifically through a theoretical analysis of currency substitution (section 2) and an empirical analysis of how large cash holdings, savings deposits and loans in euro are and what the related motivation is (section 3). The microeconomic analysis is conducted against the macro-economic and historical background specific to the individual countries. From a central bank perspective, this study aims above all to clarify the economic policy implications of this development (section 4). It concludes with a summary (section 5). The focus of this paper is on the EU Member States of CESEE with the strongest economic and financial ties to Austria, i.e. Bulgaria, Poland, Romania, Slovakia, Slovenia,

Refereed by: Adalbert Winkler, ECB.

¹ The authors would like to thank ZoltanWalko for collecting and assessing the savings and loan data.

the Czech Republic and Hungary, as well as on EU candidate Croatia, a country that also has extensive economic and financial relations with Austria.

2 Theoretical Aspects of Currency Substitution in Central and Eastern Europe

The monetary authorities in smaller, open economies often choose to peg their currencies to the currency of a neighboring economic area, chiefly with the aim of importing price and exchange rate stability. In times of crisis, they may go a step further and designate a foreign currency as sole legal tender. In most cases (with Latin America offering numerous examples), this means pegging the national currency to the U.S. dollar, or "dollarization." In CESEE countries, the same phenomenon may be observed,² although for obvious reasons in the form of "euroization" (known as official or "de jure" euroization). Independently, reflecting overall political and economic convergence with the EU and the euro area, many Central and Eastern Europeans already use the euro today, more or less on a daily basis (so-called "unofficial" or "de facto" euroization). As a result, euro cash holdings and euro-denominated savings and loans are no longer unusual in many CESEE countries. Possible motives include geographic proximity as well as economic interlinkages, the desire to minimize risk and, lastly, tradition.³

The influence of geographic proximity on euro holdings is above all ap-

parent in cross-border activities such as commuting, migration, tourism and local cross-border trade. Euro cash received in the course of these activities is also used for domestic transactions. Closely related to this geographic factor is the issue of economic interlinkages, since historic ties, political influence and concrete business decisions can clearly reduce or increase the distance factor.

Efforts to minimize risk can be traced back to a variety of causes. While experience indicates that people usually hold euro cash out of distrust for both their national currency and the domestic banking sector, those with euro-denominated savings fully trust the banking sector of their country, yet maintain a certain degree of skepticism in relation to its currency. Such an attitude need not be related to present risks. It may well have been triggered by the memory of long past banking crises that sharply devalued or wiped out savings, however, or of past periods of high or hyperinflation that often resulted in drastic devaluation of savings in domestic currency. In economics, this phenomenon is referred to as "hysteresis," meaning that negative experience tends to have a lasting influence, dictating present behavior well after the macroeconomic situation has been fully stabilized (Mourmouras and Russell, 2000). At any rate, current economic trends in CESEE provide little reason to seek refuge in foreign (hard) currency, given that the various national currencies are either stable - partially as a result of

² The euro has been legal tender in Kosovo since September 1999 and in Montenegro since November 1999. In both cases, the euro has replaced the Deutsche mark.

On the issue of currency substitution, see also Giovanni and Turtelboom (1992), Feige et al. (2002) and Calvo and Végh (1992).

institutionally decided exchange rate pegging - or are gradually getting stronger. Since the economic catchup process has subjected most of the Central and Eastern European currencies to continued upward pressure on real exchange rates, using them would make perfect economic sense if the differential between domestic and global interest rates (or the interest rate differential with the relevant key currency) were not (over)comspensated by anticipated changes in nominal exchange rates. Currency risk is rarely factored adequately into decisions to hold euro-denominated savings accounts, and above all to take out loans in euro and other foreign currency – a circumstance that both national and international institutions and supervisory authorities monitor with concern.

Lastly, the tradition (or habit persistence) factor applies chiefly to cash, and is particularly pronounced in the countries of the former Yugoslavia. In the 1970s and 1980s, immigrant workers and tourists mainly brought home Deutsche marks, and to a lesser extent Austrian schillings. This was also the primary opportunity for households to gain access to foreign currency. Part of those household cash holdings were kept in foreign currency accounts, but in the early 1990s, those accounts were frozen overnight to provide the state with additional foreign exchange. This explains why such funds have tended to be hidden under the mattress since then. The compensation paid in domestic currency at the time was of no use, since the deposits lost value due to negative real interest rates and monetary disintegration.

3 Cash, Savings and Loans Denominated in Euro

Since 1997, the Oesterreichische Nationalbank (OeNB) has been conducting opinion polls in five CESEE countries to ascertain the level of (euro) cash holdings as well as savings and loans while also probing the motives involved. The European Commission carries out similar surveys as part of its Eurobarometer activity, and also other studies by international institutions on migration and foreign exchange remittances between family members provide relevant insights (OECD, 2006; World Bank, 2005; European Commission, 2006b). In addition, a large number of analyses have been devoted to foreign currency-denominated loans in CESEE, including OeNB studies (see References below), whose results supplement the above-mentioned surveys.

Section 3.1 examines the extent of euro use in CESEE and the possible motives involved, first and foremost on the basis of the findings in the above-mentioned surveys.

3.1 Euro Cash Holdings: Volume and Motives Identified in the OeNB Survey

As with most questions relating to personal wealth, obtaining hard data on euro cash holdings outside the euro area is difficult. Surveys and econometric models can be methodologically used for this purpose.⁴ For example, the volume of foreign currency cash holdings can be estimated using models that are applied to national accounts and monetary data (Feige, 2003). The results obtained by Feige point to relatively high cur-

⁴ See Fischer et al. (2004).

rency substitution rates in several CIS (Commonwealth of Independent States) countries and significantly lower rates in CESEE countries. Only in Croatia, Macedonia and Romania does the currency substitution rate exceed the 50% mark. The lowest rates (under 20%) are to be found in the Czech Republic, Hungary and Slovakia.

Another approach involves directly questioning households and then projecting the extent of currency substitution from the answers. Since 1997, this approach has been used in a survey commissioned by the OeNB to poll 1,000 Hungarians, Slovenians, Czechs, Slovaks Croatians every spring and fall on their foreign currency holdings and the related motives (Stix 2001, 2002, 2004). Questions about how respondents assess the overall economic situation in their country, about their personal habits and about the planned changeover to the euro round off the interview. The data collected in this way are unique with respect to both scope and time scale. In particular, the data go back to the period prior to the adoption the euro, so that any effects produced by the changeover can also be analyzed.

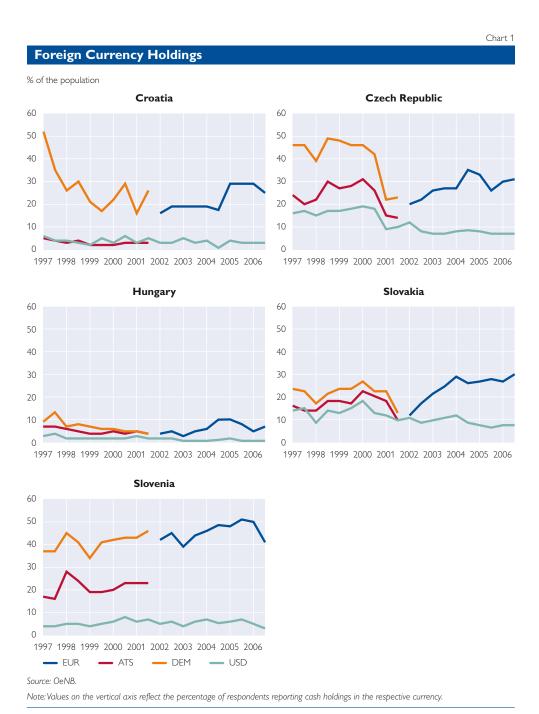
Chart 1 shows that at the start of the OeNB survey series, a sizeable share of the respondents held cash in foreign currency (DEM, ATS, USD). When the euro was introduced, Deutsche mark and Austrian schilling holdings were to a large extent exchanged for euro or domestic currency, but only rarely for U.S. dollars. With the exception of Hungary, the proportion of the population with euro cash holdings has increased in every country since 2002.6 More specifically, by the end of 2006, approximately 41% of all households in Slovenia, about 30% in the Czech Republic and Slovakia, 25% in Croatia and about 7% in Hungary had euro cash holdings.

According to the OeNB survey, households in Slovenia and Croatia have the highest volume of euro cash holdings. Moreover, the cash holding gap between these two and the other countries surveyed is too large to be attributable to Slovenia's and Croatia's greater economic strength. The motives discussed above, such as geographic proximity and economic interaction, the impending euro changeover and, ultimately, tradition would seem to offer a more likely explanation (chart 2). This assumption is further borne out by the fact that the euro tends to fulfill a general reserve function or to be used for domestic transactions in Slovenia and Croatia, whereas euro cash holdings in the other countries are used mainly for spending and vacations abroad.

Opinion polls have drawbacks of their own, since illegal holdings are not recorded. In addition, only private individuals are polled, with the result that cash held for business purposes is not accounted for. It may therefore be assumed that the phenomenon is significantly underreported. Even so, the evolving survey results over time provide valuable insights into the trend in foreign currency holdings.

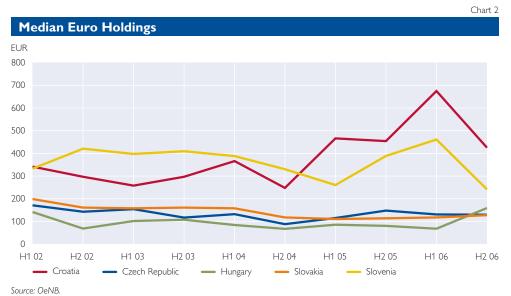
In the second half of 2006, the proportion dropped in Slovenia. This probably has to do with the introduction of the euro on January 1, 2007.

Further surveys will be required to determine whether the considerable decrease recently observed in Croatia represents a statistical outlier.



When survey questions pertain to personal details, it emerges that the share of households with euro cash holdings is higher for those with relatives in euro area countries than for those with no family ties abroad. Such holdings may stem — at least partially — from remittances from family members abroad.

As already mentioned, the reasons for maintaining foreign currency cash holdings in CESEE vary from country to country. In Croatia and Slovenia, the primary motive is to have a general reserve fund — cited as the most important factor by 75% of all Croatians and 55% of all Slovenians surveyed. In contrast, spend-



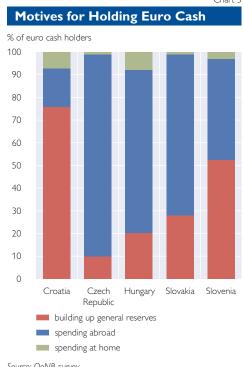
Note: The median holdings of euro assets shown in this chart are based on categorical answers and were obtained through linear interpolation

ing abroad emerges as the main reason among the Czechs, Hungarians and Slovakians. Use of foreign currency for domestic transactions is only a noteworthy motive in Croatia and Hungary, and even there, it is mentioned by relatively few respondents (chart 3).

The survey evidence on cash amounts and the motives for holding them thus implies that currency substitution is a reality only in Croatia and Slovenia (prior to the euro changeover). In the other three countries surveyed, only relatively small amounts of cash are held, and they are mainly used for transactions abroad.

Even if domestic transactions do not represent the main motive for euro holdings, between 50% and 63% of the Slovenians, Czechs and Slovakians, about 40% of the Hungarians and 30% of the Croatians already observed transactions in euro in their country (during the last six months of the survey period). Payments by tourists may, however, account for the majority of such trans-

actions. When respondents are directly asked whether they themselves have made any payments in euro, much lower rates are obtained. None-



Source: OeNB survey.

Note: Survey respondents were asked "For which reason do you keep euro cash? Mainly to build up general reserves, for spending abroad, or for spending at home?" This chart reflects (valid) answers given in the first survey of 2006. theless, 15% of the Slovenians and 9% of the Croatians surveyed claimed to have made payments in euro in their country during the six-month period preceding the last survey (carried out in November 2006). This was also true of 6% of the respondents in the Czech Republic and Slovakia, and 3% of those in Hungary.

The OeNB survey findings on possible motives for holding euro cash are confirmed in particular by the country ranking in the Eurobarometer survey conducted by the European Commission. Based on personal interviews (European Commission, 2004) and telephone polling (European Commission, 2005 and 2006a), the Eurobarometer examines issues such as the attitude of respondents toward the euro and their specific behavior in relation to the single European currency. But because it contains no questions on cash holdings, the survey should be considered a supplementary source of information. The OeNB finding that Slovenia stands far ahead in terms of use of euro cash also emerges from the survey by the European Commission.

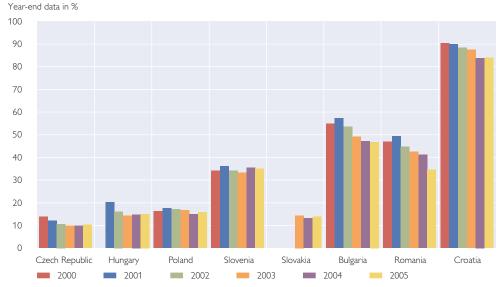
3.2 Euro-Denominated Savings: Volume and Motives

3.2.1 Euro-Denominated Savings According to Bank Data

Based on aggregated balance sheet data from deposit money banks, at year-end 2005 foreign currency savings by households and enterprises accounted for 32% of total savings deposits in the CESEE countries included in the study (unweighted average). The actual share ranged from 10% to 84% (chart 4). Following a 2001 increase in average share, influenced by the euro cash changeover on January 1, 2002, the share of foreign currency savings in relation to total savings deposits has declined slightly since 2002. The decisive factors in this regard were growing confidence

Chart 4

Share of Foreign Currency Deposits in Total Deposits of Households and Enterprises



Source: NCBs, OeNB.

Note: Data for Croatia include deposits indexed to foreign currencies.

in domestic currencies, the positive economic outlook for CESEE and the partially related shifts in exchange rate and interest rate expectations. The considerable diversity subsisting between countries can be attributed in part to historical factors (e.g. earlier periods of high inflation that reduced the value of savings in local currency), and in part to differing economic policies that resulted in widely varying interest rate differentials between deposits in domestic and foreign currency.

3.2.2 Euro-Denominated Savings According to the OeNB Survey

Savings in foreign currency are also covered by the OeNB survey. The differences between countries that it reveals are striking. Whereas 65% of all Croatians and 57% of all Slovenians with savings accounts hold at least part of their savings in foreign currency, the rates in Slovakia, the Czech Republic and Hungary range only from 12% to 20%.8 This evidence is to a large extent consistent with banking sector data, at least as regards country ranking. The survey confirms that Croatia is in first place and Slovenia in second place. Slovakia, the Czech Republic and Hungary lag far behind according to both surveys.

Up until 2005, the OeNB survey contained a question on the security of savings deposits. Based on the responses, the countries reviewed can be divided into two groups: those that rated the security of savings deposits high right from the start (Slovakia and Slovenia), and those in which households gradually moved from initial

skepticism to growing confidence in the banking sector (Croatia, the Czech Republic and Hungary). In 2002, for example, under 50% of the Croatian respondents judged savings security "good" or "very good," whereas 60% did by the end of 2005. Quite apart from actual experience with various banking and currency crises, the specific characteristics of respondents obviously play a role here. Households with no savings are highly critical of banks, while those that have foreign currency-denominated savings accounts tend to take a more favorable view of them.

Do households that anticipate high inflation or the devaluation of their national currency have larger foreign currency-denominated cash holdings or savings in the comparatively strong euro? Interestingly, such motives are at most discernible in the Czech Republic and Slovakia. No such correlation can be observed elsewhere, meaning that inflationary expectations have no impact on decisions to hold foreign currency. Leaving aside the Czech Republic, the outcome with respect to exchange rate expectations is the same. In all the other countries, the exact opposite would appear to be true, i.e. the more people anticipate national currency devaluation, the more they will choose to hold national currency.

How can this behavior be explained? On the one hand, it may safely be assumed that tradition and the associated habit persistence factor play an important role here. On the other hand, it could also be argued that in addition to exchange rate expectations, interest rate differentials

⁸ The value for Slovenia is likely to be overestimated in the survey on account of difficulties with the definition of concepts.

have a decisive influence on foreign currency holdings (section 2). Since the OeNB survey does not cover interest rate differentials, nothing conclusive can be said on this issue. Finally, it should be borne in mind that in and of themselves, inflationary expectations should have no effect on decisions to hold foreign currency, given that such expectations may already include hysteresis components. The primary channel through which inflation influences foreign currency holdings is thus the carryover of historically conditioned habits, a factor that, as argued above, is most pronounced in the countries of the former Yugoslavia.

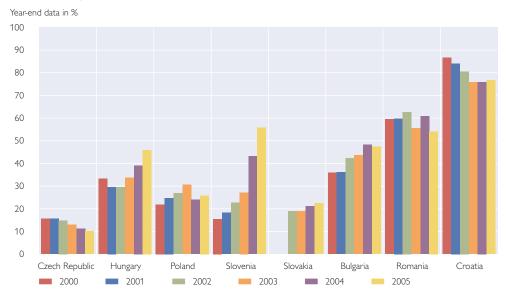
3.3 Euro-Denominated Loans: Volume and Motives

Households and enterprises show a greater overall tendency to take out foreign currency-denominated loans than to hold savings in foreign currency. The unweighted average share of foreign currency-denominated loans in total loans at year-end 2005 was 42%, ranging from 10% in the Czech Republic to 77% in Croatia (chart 5). These national differences are probably attributable in part to historical factors, and in part to economic policy factors.

Since 2004, foreign-currency denominated loans have accounted for a steadily growing share of total borrowing by households and enterprises. Whereas that share showed little change before 2004, it has risen from 37% to 42% since then. This trend is due primarily to substantial increases in Slovenia and in Hungary. In Slovenia, the share of foreign currency loans doubled from the end of 2003 to the end of 2005, accounting for 56% of total borrowing, and continued upward during the first half of 2006. The prospects of entering the euro area and subsequent measures

Chart 5

Share of Foreign Currency Loans in Total Loans to Households and Enterprises



Source: NCBs, OeNB.

Note: Data for Croatia include loans indexed to foreign currencies

adopted to ease the transition to the new currency are among the probable causes of this increase (Gruber and Ritzberger-Grünwald, 2005).

3.4 Denomination of Foreign Currency Savings and Loans

The largest proportion by far of all foreign currency-denominated savings and loans in the eight countries reviewed is denominated in euro, although detailed data on the currency structure of these assets and liabilities is not available for every country. What the available data nonetheless indicate is that over the past few years, the euro has generally and primarily gained ground at the expense of the U.S. dollar. This clearly has to do with the increasingly marked euro orientation of economic policy in several countries and – more broadly speaking – with the integration of the countries observed into the EU. With regard to foreign currency-denominated loans in Hungary, it should be noted that in addition to the euro, the Swiss franc also plays a major role, with its share of the total showing a massive increase since 2004. On the one hand, this would appear to reflect supply-side factors. On the other hand, the high interest rates on the Hungarian forint certainly offer borrowers a major incentive to keep an eye out for what may, at first sight, seem to be better-priced financial instruments, since Swiss franc instruments have paid particularly low interest rates in the last few years. In addition to Hungary, Croatia and Poland have also recorded sharp increases in the share of borrowings by households in Swiss francs.

A final point worth mentioning is that in some CESEE countries, savings deposits and loans in national currency are partially indexed to foreign currencies. The trend applies more to loans than to savings, and usually involves indexing to the euro. In the countries surveyed, such indexing is common above all in Croatia, where it accounted for approximately 13% of total savings deposits and slightly under 67% of total borrowing by households and enterprises at the end of 2005.9

4 Economic Policy Issues and Implications of Euro Use in Central and Eastern Europe

4.1 Impact on Central Bank Earnings

For national central banks, the profit earned by issuing currency – referred to as seigniorage – diminishes or even dwindles down to nothing when foreign banknotes and coins are widely used. Conversely, earnings rise for those currency-issuing institutions whose banknotes and coins are increasingly used and whose money supply in circulation necessarily expands as a consequence (Schobert, 2001). At the same time, such institutions face higher costs for cash logistics, mainly related to the withdrawal of old banknotes. For reasons of geographic proximity, these costs in Europe are borne chiefly by the OeNB and its branches, since they frequently are the first contact points for cash transport out of CESEE countries (Schautzer, 2006).

In charts 4 and 5, deposits and loans indexed to foreign currencies have been included in foreign currencydenominated deposits and loans, mainly to facilitate comparison.

4.2 Impact on Monetary Transmission

Currency substitution also has an impact on how effective monetary policy instruments are. There is a negative correlation between increasing foreign currency-denominated savings and loans and the efficiency of monetary policies using the interest rate channel, since central bank interest rate policies influence trends in savings and loans denominated in local currency. In addition, the interest rate channel as such is a fairly weak policy tool, due to the relatively limited financial market depth that still characterizes most of the countries under review. Extensive currency substitution in the area of savings and loans further reduces the effectiveness of the interest rate channel. For lasting macroeconomic stability to be achieved, monetary policy must therefore operate primarily through other channels or receive greater support from other policy areas.

4.3 Impact on Financial Stability

Widespread use of foreign currencydenominated instruments, particularly borrowings, is a potential source of financial instability for the countries affected (see e.g. ECB, 2006b). This is especially true when borrowers have no foreign currency income or no way of hedging their currency exposure. Households and small and medium-sized businesses are often confronted with both problems. When exchange rate turbulence sets in, such borrowers can face solvency problems, which in turn represent an indirect credit risk for the banks that granted the loans. For central banks, this often means that stabilizing the

local currency in relation to the euro becomes the overriding policy objective, not only on macroeconomic grounds, but also for reasons of financial stability. Thus, in economies with high currency substitution levels, not only is the interest rate channel of limited use; exchange rate management ceases to a large extent or even completely to be an effective policy instrument.

4.4 Impact on Economic Activity

Last of all, it should be pointed out that a substantial portion of foreign currency-denominated loans in CESEE are used to finance home ownership. It can be assumed that borrowers in this segment will do everything in their power to service their mortgage loans so that they can continue to reside in their houses or apartments. While that limits the financial stability risks previously discussed, it suggests that private consumption patterns will show increasing volatility or higher volatility than in countries where foreign currency is less commonly used to finance home ownership. This volatility affects the business cycle, and therefore business cycle synchronization between the CESEE countries and the other EU Member States.

4.5 Possible Impact on Future Euro Area Entry

In judging whether a country is mature enough to join monetary union, the extent of euro cash use or eurodenominated savings and loans is not directly relevant, since the European Central Bank (ECB) and the Eurosystem take a neutral stance vis-à-vis the de facto use of the euro in non-

member countries.¹⁰ This explains why the high and rising share of foreign currency-denominated loans in Slovenia was not singled out as an issue in the May 2006 Convergence Reports by the ECB and the European Commission. The ECB and the Eurosystem take an entirely different position, however, on unilateral moves to introduce the euro as legal tender ("de jure euroization"), while it should be noted that such policies are not currently on the political agenda in any of the countries under review. Any such unilateral attempts to adopt the common currency outside the framework set forth in the Treaty (establishing the European Community) would run counter to the economic reasoning underlying Economic and Monetary Union. The Eurosystem views euro adoption as the final step in a structured convergence process that unfolds in a multilateral framework. It follows that the euro adoption stages provided for in the Treaty cannot be circumvented through unilateral "euroization."11 Moreover, the sensibility of unilateral adoption of the euro as legal tender can also be questioned on economic grounds.12

5 Summary

Even though the process of enlarging the euro area to the East has slowed down in the last two years, the euro is already present throughout Central, Eastern and Southeastern Europe. Survey results show that the choice to hold euro cash is based on an extremely wide variety of motives. Geographic proximity, coupled with increasing economic interlinkages, the desire to minimize risk, and tradition are the most common reasons for holding euro cash. Decisions to have savings and take out euro-denominated loans can be attributed to similar considerations. In addition, with households making more active financial management decisions, national economic determinants such as inflation and exchange rate expectations — both of them reflected in interest rate differentials — may also play a greater role.

What clearly emerges is that the extent of currency substitution varies considerably in the countries covered by this paper. In terms of savings and loans, Croatia was far out in front during the period under review, and also belonged to the leading group with regard to cash holdings. Most of the possible motives identified are probably present in Croatia. In addition to a Deutsche mark and Austrian schilling tradition and the desire to minimize risk, Croatia, like most other CESEE countries, possesses a high percentage of foreign banks that either actively seek to attract customers or are considered extremely competent in handling foreign currency transactions.

It may be stated in conclusion that currency substitution in Central, Eastern and Southeastern Europe, as observed in recent years, will be a temporary phenomenon. Ultimately, all EU Member States are bound by the Treaty on European Union to adopt the euro. Therefore, the time

Since its inception, the ECB/ESCB has upheld this neutral policy on the use of the euro in nonmember countries. See Duisenberg (1998): "The ESCB will take a neutral stance towards an international role of the euro. It will neither hinder nor deliberately encourage the development of this role, but will rather leave this to market forces."

¹¹ See ECB (2003).

¹² See Backé and Wójcik (2002).

at which the euro becomes legal tender in those countries depends on how fast the EU enlargement and convergence process itself moves forward. In this respect, Slovenia has clearly taken over the vanguard role,

since it adopted the euro as legal tender on January 1, 2007 — ahead of all the other new Member States. Only time will tell at what pace and in what order the other CESEE countries will follow suit.

References

- **Backé, P. and C. Wójcik. 2002.** Unilateral Euroisation: A Suitable Road Towards Joining the Euro Area for Central and Eastern European EU Accession Countries? In: Sepp, U. and M. Randveer (eds.). Alternative Monetary Regimes in Entry to EMU. Tallinn: Eesti Pank.
- **Backé, P. and T. Zumer. 2005.** Developments in Credit to the Private Sector in CEE EU Member States: Emerging from Financial Repression A Comparative Overview. In: Focus on European Economic Integration 10(2). Vienna: OeNB. December.
- **Backé, P. and Z. Walko. 2006.** Bank Intermediation in South-Eastern Europe: Depth and Structure. In: Focus on European Economic Integration 11(2). Vienna: OeNB. December.
- **Backé, P., T. Reininger and Z. Walko. 2006.** Main Features of Recent Banking Sector Developments in Selected Southeastern European Countries: A Cross-country Perspective. In: Financial Stability Report 11. Vienna: OeNB. June.
- **Calvo, G. and C. Végh. 1992.** Currency Substitution in Developing Countries: An Introduction. IMF Working Paper 92/40.
- **Cuthbertson, K. and D. Nitzsche. 2005.** Quantitative Financial Economics Stocks, Bonds and Foreign Exchange. 2nd Edition. John Wiley & Sons Ltd.
- **Duisenberg, W. 1998.** The International Role of the Euro and the ESCB's Monetary Policy. Statement at the European Banking Congress. Frankfurt am Main. November 20.
- **ECB. 2003.** Policy Position of the Governing Council of the ECB on Exchange Rate Issues Relating to the Acceding Countries. Frankfurt am Main. December 18.
- ECB. 2005. Review of the International Role of the Euro. Frankfurt am Main. December.
- **ECB. 2006a.** Macroeconomic and Financial Stability Challenges for Acceding and Candidate Countries. Occasional Paper 48 (by the International Relations Committee, Task Force on Enlargement). Frankfurt am Main. July.
- ECB. 2006b. EU Banking Sector Stability Report. November.
- ECB. 2007. Review of the International Role of the Euro. Frankfurt am Main. Forthcoming.
- **European Commission. 2004.** Introduction of the Euro in the New Member States. Wave 1. October.
- **European Commission. 2005.** Introduction of the Euro in the New Member States. Wave 2. November.
- **European Commission. 2006a.** Introduction of the Euro in the New Member States. Wave 3. June.
- **European Commission. 2006b.** Second EU Survey on Workers' Remittances from the EU to Third Countries.
- Feige, E. L., V. Sosic, M. Faulend and V. Sonje. 2002. Unofficial Dollarization in Latin America: Currency Substitution, Network Externalities and Irreversibility. In: Dean, J. W., D. Salvatore and T. Willett (eds.). Dollarizing the Americas. New York: Oxford University Press.

- **Feige, E. L. 2003.** The Dynamics of Currency Substitution, Asset Substitution and De facto Dollarization and Euroization in Transition Countries. Comparative Economic Studies. Fall.
- **Fischer, B., P. Köhler and F. Seitz. 2004.** The Demand for Euro Area Currencies: Past, Present and Future. ECB Working Paper 330.
- **Giovanni, A. and B. Turtelboom. 1992.** Currency Substitution. NBER Working Paper W4232. December.
- **Gruber, T. and D. Ritzberger-Grünwald. 2005.** The Euro Changeover in the New Member States A Preview. In: Focus on European Economic Integration 1. Vienna: OeNB.
- IMF. 2006. Republic of Croatia: Third Review Under the Stand-By Arrangement Staff Report and Press Release on the Executive Board Consideration. IMF Country Report 06/346. Washington, D.C. October.
- **Levy Yeyati, E. 2005.** De jure Dollarization and Euroization. In: Liebscher, K., J. Christl, P. Mooslechner and D. Ritzberger-Grünwald (eds.). European Economic Integration and South-East Europe Challenges and Prospects. Edward Elgar.
- **Mourmouras, A. and S. Russell. 2000.** Smuggling, Currency Substitution and Unofficial Dollarization: A Crime-Theoretic Approach. IMF Working Paper 00/176.
- **OECD. 2006.** International Migration Outlook.
- **Schautzer, A. 2006.** Banknote Migration in the CENTROPE Region. In: New Regional Economics in Central European Economies: The Future of CENTROPE. Proceedings of OeNB Workshops 9. Vienna: OeNB.
- **Schobert, F. 2001.** Seigniorage: An Argument for a National Currency? CEPS Working Document 174. October.
- **Sepp, U. and M. Randveer. 2002.** Alternative Monetary Regimes in Entry to EMU. Tallinn: Eesti Pank.
- **Stix, H. 2001.** Survey Results about Foreign Currency Holdings in Five Central and Eastern European Countries. CESifo Forum 3. 41–48.
- **Stix, H. 2002.** The Euro in Central and Eastern Europe Survey Evidence from Five Countries. CESifo Forum 3. 28–33.
- **Stix, H. 2004.** Foreign Currency Demand Since 2002 Evidence from Five Central and Eastern European Countries. CESifo Forum 4. 19–24.
- **Winkler, A. 2005.** Lessons from Sustained Cases of Official Dollarization/Euroization. In: Liebscher, K., J. Christl, P. Mooslechner and D. Ritzberger-Grünwald (eds.). European Economic Integration and South-East Europe Challenges and Prospects. Edward Elgar.
- World Bank. 2005. Global Economic Prospects 2006. Washington, D.C.