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Euro pushed down by Eastern Europe?

- Switching from D-mark currency into US dollars in Eastern Europe, caused by uncertainty about the final changeover to the euro, allegedly is the main reason for the euro's weakness on the foreign exchange markets.
- This seems plausible at first glance, but switching is at best one factor among many behind the euro's depreciation.
- The quantities resulting from switching out of D-marks into US dollars are simply much too small when set against the extensive capital flows from portfolio and direct investment that are driving the dollar-euro exchange rate.
- The Bundesbank is preparing extensive information for the Eastern European countries and Turkey in close cooperation with the national governments and central banks as well as local banks. The main message is that the D-mark banknotes and coins do not become invalid after February, but can be exchanged – indefinitely – at the Bundesbank directly or via local banks which are specialised in FX transactions.
- In addition, the flight into US dollar only makes sense for illegal holdings of D-mark which cannot be converted in the banking system. However, the bulk of Eastern European and Turkish holdings seems to originate from legal sources.
- The euro has not followed a clear trend for a year now – while switching has probably picked up momentum to a degree which, in theory, would have called for a stronger downtrend.
- Finally, even if the "switching theory" could explain the euro's weakness against the US dollar, it fails to explain why it also weakened against many other currencies.
- D-mark cash holdings and their partial conversion into US dollars in Eastern Europe and Turkey will hardly present a serious risk for the euro exchange rate during the remainder of the euro introduction.

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"Virtual" euro not much appreciated

In the debate about the causes of the euro's persistent weakness the exchange of D-marks held outside Germany into US dollars before the advent of euro cash at the beginning of 2002 has been suggested as one possible explanation. The argument is that many Eastern Europeans and Turks who like to use the D-mark as transaction currency and store of value have tended to view the unknown euro – a "virtual" currency to date – with scepticism, that they have failed to understand the details of the changeover process and/or are unable to exchange illegally procured D-mark holdings "officially" into euros at the bank. The argumentation goes that the upcoming cash changeover has been seen as a reason to switch D-mark holdings into US dollars for now instead of waiting for the euro. This shift of demand in Eastern Europe and Turkey in favour of the US dollar and the resulting changes in the volumes in the foreign-exchange markets are allegedly a major factor – some studies even suggest it is the most important one – explaining the weakness of the euro.

30-40% of D-mark currency held abroad

A Bundesbank study in the mid-1990s came to the conclusion that about 30-40% of the D-mark notes and coins then in circulation might be held in other countries. Extrapolating, this would point to a figure of about DEM 75-100 bn today. A more recent study by the Federal Reserve Bank comes to the conclusion that as much as 70% of the D-mark cash in circulation might be found outside Germany. In other words, the total amount of D-marks that could potentially be changed into dollars could exceed DEM 100 bn by far.

Less demand for DEM cash can cause euro weakness

In principle, the exchange of D-marks into US dollars can have repercussions on the euro exchange rate, assuming that the rate is shaped by currency preferences in cash holdings and near-money deposits. Central banks have a monopoly on cash issuance and indirectly on near-money deposits, so they control the price. On these conditions, only the exchange rate can establish portfolio equilibrium between different currency areas. Assuming a fixed volume of cash, a fall in demand for D-mark cash relative to the dollar will automatically result in a depreciation of the euro. So if the presumed holdings of D-mark cash in Eastern Europe and Turkey were to be exchanged for US dollars, this would – according to the above-mentioned exchange-rate theory – explain the current weakness of the euro.

"D-markisation" in Eastern Europe and Turkey

Fall of Iron Curtain led to increasing currency substitution

After the disappearance of the Iron Curtain, macroeconomic instability led to increasing currency substitution ("dollarisation", "D-markisation") in Eastern Europe and Turkey, i.e. to the use of foreign currencies as store of value and transaction unit. In the course of the transformation of Eastern Europe in the 1990s, almost all the countries had to battle with severe economic imbalances that shattered the confidence of their citizens in their own currency and the safety of their savings.

Reasons for loss of confidence in own currencies

- Extremely high inflation rates, especially in the first half of the nineties as a result of the transition to liberalised prices as well as expansionary monetary and fiscal policies, discredited the domestic currencies as store of value.
- Bank crises in unstable and poorly regulated financial sectors made bank deposits seem too risky. Recourse by governments to foreign-exchange balances with domestic banks when faced with balance of payments difficulties (or to finance military conflicts, as in former Yugoslavia) led to foreign banknotes and coins being hoarded – then and now – outside the banking system.

Mattress money still important

This so-called mattress money continues to play a major role as store of value in Eastern Europe, as can be seen, for instance, from the gap between the countries' national saving rates and the level of bank deposits: whereas gross savings in many Central European countries roughly equal the EU average, total bank deposits come to only about 20% of the EU level. Even though other factors, such as capital flight, are also sizeable components, this difference is partially explained by large piggybank holdings of D-marks.

D-mark in border regions

Two further reasons for the high stocks of D-mark cash in Eastern Europe – apart from the currency substitution in response to unstable economic conditions – are the brisk trade in border regions and the use of the D-mark as official means of payment in Kosovo and Montenegro. Along the Polish and Czech borders to Germany, area residents hold a considerable volume of D-marks for practical reasons as part of their normal "cash flow". To a lesser extent, the same applies to the Austrian schilling in Central Europe, and the Finnish markka in the Baltic republics and in Russia.

D-mark holdings in Eastern Europe and Turkey

Not enough quantitative details are available to give a breakdown of the total by country. Nevertheless, several assumptions are well-founded: the lion's share of the money is likely in Turkey, owing to the many years in which Turks working in Germany have transferred money home and because of the funds exchanged there by tourists. This seems to be borne out, too, by the return flows of used banknotes (about 20% according to the Bundesbank).

In Poland and the Czech Republic the D-mark plays a major role as transaction currency in the border areas. As a store of value, the D-mark became more important in the Czech Republic following the banking crisis in 1997. In Poland, the dollar is considered to be the most widely used zloty-substitute, but it can be assumed that the D-mark makes up a relatively large proportion of total foreign-currency holdings. Generally, though, it is believed that the stock of D-mark cash has been declining for some time in the most advanced reform countries, owing primarily to the macroeconomic stabilisation and progress with reforms in the financial system. There are clear indications that the D-mark holdings in Hungary and Slovakia have decreased in the last four years, and that the stock in the Czech Republic has been falling again since its peak during the 1997 financial crisis. In Slovenia, where the stock of D-marks is traditionally relatively large, the level seems to be remaining stable.

Relative to the economic strength of the different countries, the D-mark plays the most important role in the Balkans. There is nearly twice as much D-mark cash (about DEM 6 bn) in circulation in Croatia as kunas, the national currency. Owing to the economic and political uncertainties the D-markisation of Bosnia, Macedonia and Bulgaria is even a great deal higher, in terms of the circulation of the respective national currency. However, the total is probably less than DEM 5 bn given the minor economic strength of these countries. In Serbia, National Bank estimates similarly put the total at about DEM 5 bn. The D-mark is legal tender in Kosovo and Montenegro. Nevertheless, the estimates there are very imprecise, ranging from DEM 2 bn for Kosovo to below DEM 1 bn for Montenegro. The euro will replace the D-mark as legal tender on January 1, 2002 in both countries. The central bank of Montenegro and the United Nations in Kosovo have already started to prepare for the orderly conversion of D-marks into euros.

Estimates on DEM currency in Eastern Europe and Turkey, DEM bn

Turkey	15-25
Croatia	4-6
Serbia	5
Russia	4-5
Czech Republic	3
Poland	2-4
Hungary	2
Kosovo	2
Bulgaria	1-2
Bosnia	1-2
Macedonia	1
Montenegro	<1
Slovenia	<1
Slovakia	<1
Romania	<1
Baltic States	<1
Total	**44-61**

* Sources: Feige et. al. (2001), Currency Substitution, Unofficial Dollarisation and Estimates of Foreign Currency Held Abroad, unpublished research paper, Hrvatska Narodna Banka/Kroatische Nationalbank; Balino et al. (1999), Monetary Policy in Dollarised Economies, IMF Occasional Paper 171; unofficial estimates of central banks and other international organisations; own estimates.

US dollar predominant in Russia, Ukraine and Romania

In Russia and Ukraine, as well as much of Romania, not the D-mark but the US dollar is far and away the predominant parallel currency. Related estimates say that about 90-95% of the foreign currency held there is US dollars. All the same, given the size of the countries, the nominal volume of D-mark holdings is likely substantial.

Legal or illegal money?

Legal money transferred by family members

As regards the issue of whether the D-mark notes and coins in Eastern Europe are mainly legal or illegal money, much suggests that the overwhelming proportion is "legal" money transferred by family members (especially Turks, Croats and Serbs) who work in Germany. Legal cross-border trade and tourism are probably also responsible for major legitimate outflows of D-marks into the countries of Eastern Europe.

Volume of D-mark in grey economy is limited compared to the US dollar

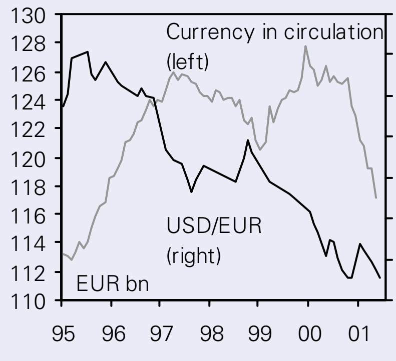
It goes without saying that some of the D-marks in Eastern Europe originate in the grey economy and outright criminal activities (drug trafficking, car theft, smuggling etc.). The volume of illegally procured D-marks in the Balkans is likely relatively small in comparison with that generated by the grey economy and organised crime in the "dollar area" of the CIS states. Even though the D-mark certainly plays a significant role as a means of payment for the grey economy and organised crime in Yugoslavia, Macedonia, Bosnia and Albania and since an orderly exchange via the banking system is probably in many cases out of the question, one should not dismiss the fact that the combined GDP of these countries is only about EUR 20 bn. Thus the potential size of illegal gains is much smaller than in the CIS.

Despite considerable uncertainties about the details, the bottom line indicates that the bulk of the D-marks held in Eastern Europe and Turkey is a legal store of value belonging to private individuals. They in turn – assuming they are properly informed about the terms and conditions of the changeover and the enduring value of their D-marks – have no reason to switch from the mark into the dollar.

Empirical facts and a critical assessment

The plausibility of the hypothesis put forward especially by Professor Sinn of the Munich-based Ifo Institute[1] – that D-mark flows returning from Eastern Europe and Turkey are the explanation for the weakness of the euro – must ultimately be tested using empirical facts. The flows from the banking system to the Bundesbank due to exchanges of D-mark notes and coins for dollars should result in declining volumes of D-mark cash. The statistics published by the Bundesbank do in fact indicate a downturn in the volume of D-marks in circulation, particularly since November 2000.[2] It is not possible to differentiate between reflows from abroad and from residents who are depositing their "mattress money". However, sizeable foreign reflows have certainly played a role. The velocity of circulation (GDP divided by cash) has been increasing significantly since 1997. This indicates that the volume of D-mark cash in circulation might have grown more slowly in relation to German GDP on account of steady return flows from Eastern Europe and Turkey. However, increased use of non-cash transactions might also have been responsible. The absolute decline in German cash in circulation has come

DEM currency & USD/EUR



1 Hans-Werner Sinn, Das Geld, das aus der Matratze kommt, Süddeutsche Zeitung, April 6, 2001 and Hans-Werner Sinn and Frank Westermann, Why has the Euro been falling?, CESIfo Working Paper No. 493, May 2001.

2 The unusually strong flowback of DEM 500 and DEM 1000 banknotes appears to confirm the hypothesis that mattress money is making its way back to Germany. There has also been a massive decline in the circulation of NLG 1000 banknotes in the Netherlands, but the money has mainly come from inside the country.

to nearly EUR 6.5 bn (DEM 12.5 bn) since November 2000, with the Bundesbank's and German banks' "Schlafmünzen" campaign to attract coins hoarded in piggybanks etc. siphoning off about DEM 1.5 bn.

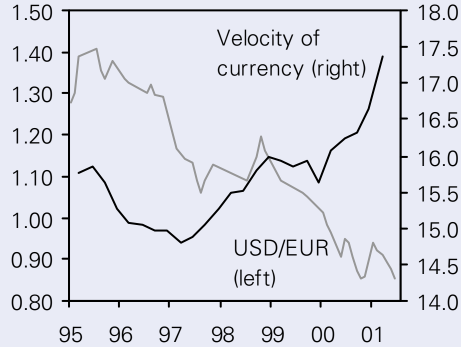
Thus there is empirical evidence that the volume of D-mark cash in circulation has declined or grown at a disproportionately slow pace during the euro's weak phase. However, both practical and statistical reasons question the overall impact of increased switching from D-marks into dollars on the exchange rate:[3]

1. **Is the relevant monetary aggregate too narrow?** The exchange rate does not necessarily depend only on cash in circulation, but possibly on a broader monetary aggregate. In this connection, Professor Bofinger (University of Würzburg) has pointed out that in the case of a portfolio-based exchange rate determination the relevant monetary aggregate is not D-mark cash in circulation – worth about EUR 117 bn – but M3 for Euroland (total volume: about EUR 5,300 bn). In that case, fluctuations in German cash holdings are of minor importance. Measured by M3 instead of currency in circulation the velocity has actually been declining (see chart). This is well in line with the euro's depreciation. According to the monetary exchange-rate theory, the disproportionate growth of M3 might thus be at the root of the euro weakness. However, this explanation, which is often quoted in academic literature, runs counter to Professor Sinn's arguments. Ceteris paribus, weaker money-supply growth will lead to an appreciation of the euro due to a change in relative scarcities, not, as Sinn assumes, to a depreciation.

2. **Substitution of legal cash holdings by near-money deposits:** Even though people in Eastern Europe and Turkey may have become uncertain to some degree, probably only part of the cash returning to the central bank comes from exchange transactions into dollars. Legal cash holdings – both at home and abroad – need not necessarily be exchanged for US dollars, but can easily be credited as near-money deposits. Since November 2000 the increase in near-money deposits in Germany (by EUR 38 bn, i.e. DEM 75 bn) has been much stronger than the decline in D-mark cash in circulation. This argues against a flight from the D-mark, at least for Germany. Germany's monetary aggregate M1 has risen accordingly.[4]

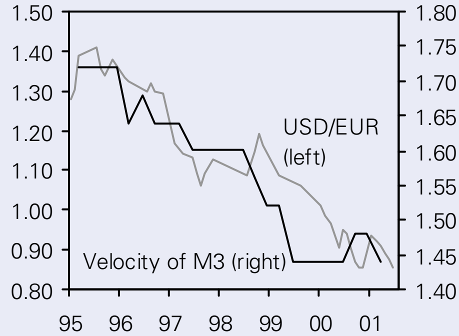
3. **General decline in cash in circulation:** Cash in circulation has been declining not only in Germany, but in Euroland as a whole. Admittedly, the drop in D-marks in circulation has been disproportionately strong. The Euroland-wide shift from cash to deposits is another sign that the bulk of D-mark cash returning does not come from Eastern Europe or Turkey, but from residents.

Velocity of DEM currency* & USD/EUR



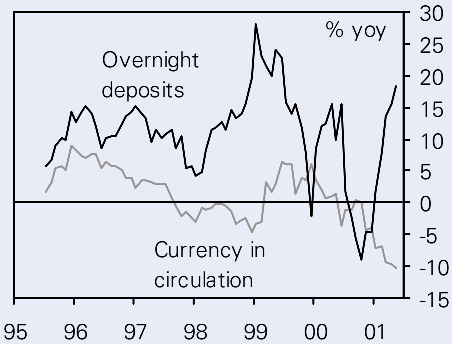
*Velocity: GDP/DEM currency

Velocity of Euroland M3* & USD/EUR

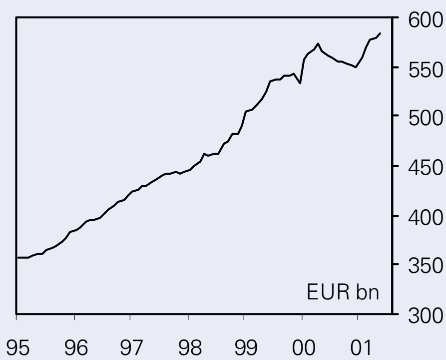


* Velocity: GDP/Euroland M3

Currency & overnight deposits in Germany



German contribution to M1



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[3] For criticism of Sinn's hypothesis see Prof. Peter Bofinger, "Warum fällt der Euro? Regeln für eine neue Währung: Schwäche des EU-Geldes lässt sich psychologisch erklären", Süddeutsche Zeitung, April 9, 2001, and the comments of Bundesbank President Ernst Welteke in the protocol of the press conference of the Deutsche Bundesbank on June 25, 2001.

[4] Thus, money from the EMU shadow economy does not seem to be exchanged for US dollars – as Sinn assumes – but is simply parked in deposits. Fears that the source of the money has to be declared when paying it into a bank account – as necessary to exchange it for euros – are probably unfounded because most accounts in the shadow economy are relatively low.

4. **High exchange costs:** It is relatively unattractive to exchange – legal – D-mark cash holdings for US dollars because the fees banks and exchange offices charge are usually quite high. Additional risks arise from the depreciation potential of the US dollar and the old dollar notes' higher vulnerability to being counterfeited.[5]

5. **Small volumes:** Bundesbank President Ernst Welteke has pointed out that the cash holdings that have been changed to US dollars so far are too small to have a major impact on the foreign-exchange market. Portfolio outflows from Euroland since 1997 amount to over EUR 360 bn – many times more than the total of D-mark cash held abroad, even taking the highest estimates.

6. **Time inconsistencies:** The D-mark has been losing value against the US dollar since 1995 even though the volume of D-mark cash in circulation rose or stayed stable in relation to that of US-dollar cash until 1996. Nor can a definite time link be identified between the rise in the velocity of circulation – which occurred after a decline until 1997 – and the depreciation of the euro. Moreover, the euro exchange rate has not followed a clear trend for a year now – but the "switching theory" would actually call for a stronger downtrend.

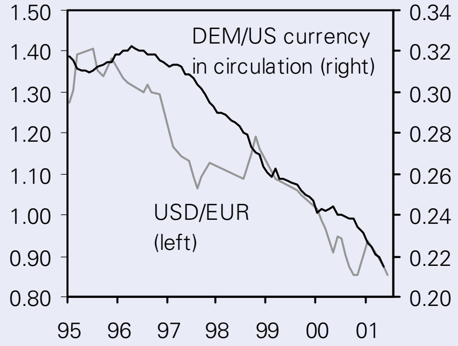
7. **Relevant explanation for the exchange rate?** According to a recent empirical study by the IMF, net capital flows between US and European equity markets, expected growth differentials and interest-rate spreads have a significant influence on the exchange rate. Thus it is doubtful whether exchanging D-marks for US dollars could have such a dominant influence on the exchange rate as Professor Sinn claims.

8. **General weakness of the euro:** The euro has weakened not only against the US dollar, as assumed in the "switching theory", but also against currencies which will hardly substitute the D-mark in Eastern Europe.

Outlook

D-mark cash holdings in Eastern Europe and Turkey will hardly present a serious risk for the euro exchange rate during the remainder of the euro introduction. While the exchange of D-mark cash for US-dollars will probably continue, the actual volume looks set to be small. This assumption is supported by the fact that the Bundesbank is preparing extensive information for the Eastern European countries and Turkey in close cooperation with the national governments and central banks as well as local banks.[6] The main message is that the D-mark banknotes and coins do not become invalid after February, but can be exchanged – indefinitely – at the Bundesbank directly or via local banks which are specialised in FX transactions and cooperate with the Bundesbank. Owners of legal D-mark cash holdings in Eastern Europe and Turkey have therefore no reason to temporarily exchange their money for dollars.

DEM/US currency* in circulation & USD/EUR



* DEM currency divided by US currency

The IMF USD/EUR exchange rate model

	Euro Area Coefficient
Current account & capital flows	
Current account	-
Capital account	
Net bond flows	+
Net equities flows	++
Foreign direct investment	+
Traditional underlying factors	
Long-term interest differential	++
Short-term interest differential	+
Relative current growth	+
Alternative underlying factors	
Relative stock returns	-
Relative expected growth	++

Note: The symbols ++, +, and - indicate the coefficient is correctly signed and significant, correctly signed and insignificant, and incorrectly signed, respectively. The equations regress the change in the logarithm of the bilateral exchange rate on a constant and the contemporaneous value of the explanatory variable using quarterly data since 1988.

Source: IMF, International Capital Markets, Juli 2001, S. 72

[5] New 5, 10, 20, 50 and 100 dollar bills are being issued since 1998.

[6] For example, the Bundesbank is preparing information brochures and posters in the countries' languages that will be distributed before euro cash is supplied to third countries from December 1, 2001. See also the Bundesbank's information on its special press conferences on "DM-Bargeld-Umtausch in Osteuropa und der Türkei" held in Frankfurt and Berlin in June 2001.

Cash in circulation will likely decline further until the end of the year. During the changeover phase in January/February 2002, cash holdings will probably temporarily increase as the new banknotes and coins are introduced. Outside Euroland, demand for euros looks set to be relatively high – as has been the case with D-mark cash. One reason for this assumption is that the euro will become a "real", tangible currency once the cash is introduced, and people in Eastern Europe and Turkey will then experience the euro as a domestically stable currency. But the normalisation of demand for euro cash will not significantly influence the euro/dollar exchange rate either.

Demand for euros outside Euroland

Conclusion

In Eastern Europe, Turkey and Euroland itself, cash holdings in euro legacy currencies are being converted into deposits and – to a markedly smaller extent – other currencies. This phenomenon is clearly connected to the upcoming cash changeover and may have contributed to the current weakness of the euro. However, the total volumes are so small that they should have at most a small impact on the development of the euro exchange rate.

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