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Article — Published Version

Will the Greenback remain the world's reserve currency?

Intereconomics

Suggested Citation: Rajan, Ramkishen S.; Kiran, Jose (2006) : Will the Greenback remain the world's reserve currency?, Intereconomics, ISSN 0020-5346, Springer, Heidelberg, Vol. 41, Iss. 3, pp. 124-129,
<https://doi.org/10.1007/s10272-006-0183-6>

This Version is available at:

<https://hdl.handle.net/10419/41904>

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The US Dollar and the Euro as International Currencies

For many decades the US dollar has remained unchallenged as the world's dominant international currency. What is behind its persistent pre-eminence in the international monetary system and can this be expected to last? Could the euro rival or even surpass the dollar as the leading currency? If it did, what would be the consequences for Euroland?

Ramkishan S. Rajan* and Jose Kiran**

Will the Greenback Remain the World's Reserve Currency?

Prior to World War I, Britain was the world's leading trading nation, and around 60 per cent of world trade was invoiced and settled in pounds sterling. London was also the undisputed financial capital of the world and, as a result, the pound was the logical invoicing currency for debt securities and other financial instruments. Conscious efforts were also made to encourage the use of the pound throughout the British Empire as a medium of exchange so as to simplify transactions. In addition to the pound's roles as a vehicle and invoicing currency of choice, given that it was fully convertible, central banks used the pound most often to intervene in foreign exchange markets. All of this led to the pound becoming the pre-eminent reserve currency of the world. The pound's share in the foreign exchange holdings of official institutions stood at 64 per cent in 1899, more than twice the total of its nearest competitors, the French franc and the Deutsche mark (Table 1), and much greater than the US dollar.¹

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Rise of the US Dollar

By 1919 the USA had surpassed the UK in terms of overall productive capacity, aggregate trade flows and as a net international creditor.² In addition to the growing relative strength of the US economy, economic historians have argued that the creation of a Federal Reserve System in December 1913 and the subsequent development of New York as the world's financial centre provided another strong impetus for the rise of the US dollar's role as a major international currency. However, it was only after the shock of the two world wars and the resulting devastation of the other European economies, as well as the gross mismanagement of the British economy that the USA took over the role of the world's reserve currency, thus breaking the de facto "sterling standard".

¹ For details, see B. Eichengreen: Sterling's Past, Dollar's Future: Historical Perspectives on Reserve Currency Competition, NBER Working Paper No. 11336, 2005; B. Eichengreen: The Euro as a Reserve Currency, mimeo, November 1997; J. Frankel, M. Chinn: Will the Euro Eventually Surpass the Dollar as Leading International Reserve Currency?, NBER Working Paper No.11510, 2005.

² Cf. B. Eichengreen, op cit.

Table 1
Shares of Currencies in Known Official Foreign
Exchange Assets, 1899 and 1913

	End of 1899	End of 1913
Pound sterling	64	48
Francs	16	31
Marks	15	15
Other currencies	6	6

Notes: Percentages may not sum to 100 due to rounding.

Source: B. Eichengreen: *Sterling's Past, Dollar's Future: Historical Perspectives on Reserve Currency Competition*, NBER Working Paper No. 11336, 2005.

The Bretton Woods system of pegged exchange rates centring on the US dollar which was put in place in the mid-1940s consolidated the position of the US dollar as the world's reserve currency in the post-war period. The US dollar share of world's reserves peaked at almost 85 per cent in the early 1970s. In contrast, the pound's share continued to drop dramatically following its successive devaluations in the 1950s and 1960s. Despite the collapse of the Bretton Woods system in 1971, the US dollar remained the dominant international currency, though its share of global reserves began to decline, reaching a trough of 50 per cent in 1990, only to bounce back to about 60 per cent since the late 1990s (Table 2).

What is behind the persistent pre-eminence of the US dollar in the international monetary system and can it be expected to last?

Studies have estimated that every one per cent increase in a country's share of world product (measured in PPP terms) is associated with a rise of between 0.9 and 1.3 percentage points in that currency's share of central bank reserves.³ So economic size is clearly important in determining the choice of a reserve currency. Referring to Tables 3 and 4, we note that on the basis of economic size, the USA is still the single largest economy in the world even though its relative share of world GDP (in PPP terms) has declined somewhat over the past two decades. The USA is followed by China, Japan and India. However, if considered in aggregate, the eurozone with its 12 member economies becomes the world's second largest economy. If we add Denmark, Sweden and the UK, the EU15 surpasses the USA in economic size. In view of this, it is generally believed that the euro in particular, but also the yen pose the most likely near-term challenges to the dominance of the US dollar. The Chinese renminbi and possibly the Indian rupee are viewed as much longer-term contenders to rival the US dollar. This said, while the euro and yen have remained the second and third most important reserve currencies, together they still constitute only about a quarter of the world's reserves and have hitherto failed to come anywhere close to challenging the US dollar.⁴

Closer Look at the Possible Rivals to the US Dollar

In the heyday of the Japanese economy in the 1970s and 1980s, the yen's share of global reserves peaked at almost 9 per cent of global reserves in 1991, and there was a concomitant decline of the US dollar's

Table 2
Share of Currencies in Total Identified Official Holdings of Foreign Exchange, 1965-2003

(per cent)

	1965	1973	1977	1982	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003
US dollar	56.1	64.5	76.2	57.9	55.7	55.1	51.8	50.1	50.6	54.7	56.1	53.1	53.4	56.8	59.1	62.6	64.9	66.6	66.9	63.5	63.8
Pound sterling	20.0	4.2	1.5	1.8	2.1	2.5	2.5	3.1	3.4	3.2	3.1	2.8	2.8	3	3.3	3.5	3.6	3.8	4	4.4	4.4
Deutsche mark	0.1	5.5	6.4	11.6	13.3	14.5	18.0	17.3	15.9	13.7	14.2	15.3	14.7	14	13.7	13.1	—	—	—	—	—
French franc	0.9	0.7	1	1	0.8	1.0	1.4	2.3	2.8	2.5	2.2	2.5	2.4	1.9	1.5	1.7	—	—	—	—	—
Swiss franc	—	1.1	0.8	2.3	1.8	1.8	1.4	1.3	1.2	1.0	1.1	0.6	0.5	0.5	0.5	0.5	0.4	0.5	0.5	0.6	0.4
Netherlands guilder	—	0.5	0.4	1	1.2	1.0	1.1	1.0	1.0	0.6	0.6	0.7	0.5	0.4	0.5	0.5	—	—	—	—	—
Japanese yen	—	0.1	1.2	4.1	6.9	7.0	7.3	8.1	8.7	7.7	7.7	7.8	6.7	6	5.1	5.4	5.4	6.2	5.5	5.2	4.8
ECU	—	—	—	13.8	13.6	11.7	10.8	10.1	10.6	10.1	8.6	7.7	6.8	5.9	5	0.8	—	—	—	—	—
Unspecified currencies ¹	22.9	23.6	12.3	6.5	4.6	5.4	5.8	6.7	5.7	6.3	6.3	9.5	12.1	11.5	11.3	12	12.1	6.6	6.4	7.1	6.8
Euro	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	13.5	16.3	16.7	19.3	19.7

Notes: ¹ The residual is equal to the difference between total foreign exchange reserves of IMF member countries and the sum of the reserves held in the currencies listed in the table.

Source: IMF: Annual report, various years; M. Chinn, J. Frankel: *Will the Euro Surpass the Dollar as Leading International Reserve Currency*, mimeo, June 2005; B. Eichengreen, D. Mathieson: *The Currency Composition of Foreign Exchange Reserves: Retrospect and Prospect*, IMF Working Paper No. 00/131, 2000.

Table 3
World's Largest Economies in PPP Terms, 2003
 (in millions)

Rank	Country	PPP GDP 2003
1	United States	10,923,376
2	China	6,446,033
3	Japan	3,567,804
4	India	3,078,024
5	Germany	2,291,007
6	France	1,654,018
7	United Kingdom	1,610,579
8	Italy	1,563,332
9	Brazil	1,375,756
10	Russian Federation	1,323,839

Source: http://www.worldbank.org/data/databytopic/GDP_PPP.pdf.

share from 55 percent in 1987 to 50 percent in 1991 (due also to the intensification of European monetary integration). However, the main factors hindering the yen's global use at that time were a conscious policy on non-internationalisation of the yen and its under-developed financial markets. While the Japanese have been keen on promoting the international use of the yen since the mid and late 1990s, the economy stagnated and its financial sector became burdened by inefficiencies and non-performing loans (following the burst of the asset bubble). In addition, Japan's bank-based financial system has precluded the country from developing as deep and liquid financial and capital markets as available in the USA or Western Europe. Thus, despite Japan's rapid rate of growth in the pre-1990s, the yen has failed to become a significant competitor to the US dollar. The yen's share has in fact declined since the 1990s, falling to less than 5 per cent in 2003.

In contrast to Japan, Europe's financial markets have depth and liquidity (which has been further enhanced with the advent of the euro in 1999),⁵ and many European policymakers have been keen on promoting the euro as an alternative to the US dollar since its inception. Prior to the launch of the euro and

³ The lower figure (0.9 percentage points) is probably more appropriate as it incorporates lagged or inertial effects. See B. Eichengreen: *The Euro as a Reserve Currency*, in: *Journal of Japanese and International Economics*, Vol. 12, 1998, pp. 483-506; B. Eichengreen, J. Frankel: *The SDR, Reserve Currencies and the Future of the International Monetary System*, in: M. Mussa, J. Boughton, P. Isard (eds.): *The Future of the SDR in Light of Changes in the International Financial System*, Washington DC 1996, IMF.

⁴ Almost all global reserves are held in five currencies, viz. the US dollar, the euro, the yen, the pound sterling and the Swiss franc.

⁵ For an analysis of the impact of the euro on European financial markets, see G. Galati, K. Tsatsaronis: *The Impact of the Euro on Europe's Financial Markets*, BIS Working Paper No.100, 2001.

Table 4
Size of USA versus Europe, 2003 and 2004
 (in US dollars trillion)

	2003	2004
United States	11	11.5
Eurozone (12 Countries)	8.8	9.0
Eurozone pre-January 2004 (15 Countries)	11.3	11.5
Eurozone post-January 2004 (25 Countries)	11.8	12.1

Source: M. Chinn, J. Frankel: *Will the Euro Surpass the Dollar as Leading International Reserve Currency?*, mimeo, June 2005.

ever since then, a number of observers have argued that it would challenge the US dollar's hegemony.⁶ In contrast, however, Barry Eichengreen noted as far back as 1997:

"(I)ncumbency is a strong advantage in the competition for reserve-currency status. Both historical and econometric evidence point in this direction. The dollar being the reigning champion, it accounts for a larger share of global foreign exchange reserves than suggested by a simple comparison of US and EU GDP's, and it should do so for some time to come. A more institutionally-oriented analysis reinforces the point. Reserve currencies are those which are issued by the governments of countries that are international financial centres. The United States gained its status as a financial centre and the dollar its reserve-currency role only once the country acquired a central bank ready and willing to engage in day-to-day liquidity management and prepared to mount lender-of-last-resort operations. The Maastricht Treaty does not foresee the European Central Bank as assuming comparable responsibilities. This will tend to slow the development of the eurozone as an international financial centre and, by implication, limit the euro's reserve-currency role."⁷

A number of other factors have further held back the rise of the euro as a dominant reserve currency. First is the lack of economic dynamism in the eurozone compared to the USA and the urgent need for significant structural adjustments in many of the major Western European countries. Second is the widening yield differentials between the USA and the eurozone (though this is only a transitory factor).⁸ Third and more recently, the clear dissatisfaction of many European citizens with the eurozone (as evidenced by the rejection of

⁶ For a balanced discussion on the challenge posed by the euro to the US dollar, cf. R. Portes, H. Rey: *The Emergence of the Euro as an International Currency*, in: *Economic Policy*, Vol. 26, 1998, pp. 306-32.

⁷ B. Eichengreen: *The Euro as a Reserve Currency*, op. cit., pp. 23-24.

the EU constitution by France and the Netherlands in 2005) has been a further setback to the euro's challenging the US dollar. In relation to this, there remain persistent concerns that the lack of forward movement in political union in Europe has implied that the euro is a "currency without a state". For instance, an analyst from Morgan Stanley has observed:

"Europe's widening political fractures and economic divergences raise the spectre of an EMU break-up over the next five to ten years. I don't believe (and I certainly don't hope) that this is the likely outcome, but the break-up risk is larger than generally perceived. In my view, the lingering risk of an unravelling of the euro project implies that the euro will not be able to rival the dollar as a reserve currency, despite the dollar's own problems."⁹

So, in the short and medium terms, while the euro is closer to challenging the US dollar as the world's dominant reserve currency than is the yen, it is unlikely that Asian and other central banks will be willing to shift a significant share of their US dollar denominated reserve portfolios into these currencies. There has been speculation that the one currency that could possibly challenge the US dollar is the Chinese renminbi given that China is likely to become the world's largest economy and trader within the next half century. For instance, one observer has noted:

"Whatever China does, it will reveal the emergence of a wide and significant renminbi-bloc. Asia is not a dollar, or yen-bloc but a renminbi-bloc. China's likely status as the world's largest economy and trader well before 2050 marks it out as the most likely usurper of the dollar's status as the financial world's numeraire."¹⁰

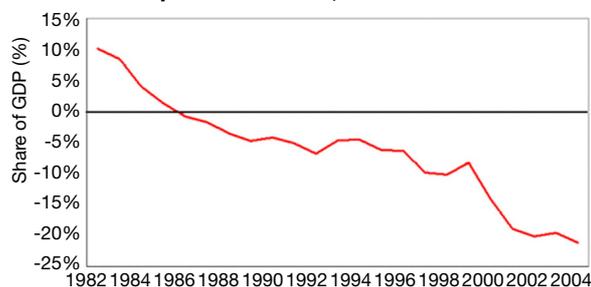
While this is an interesting point of view, the acute weaknesses of the Chinese financial system and shallowness of its financial markets, the non-convertibility of its currency, and the persistent restraints on the capital account, make the possibility of the Chinese

⁸ In other words, there is a need to distinguish the role of the US dollar as a funding (reserve) currency from its role in terms of providing relatively higher yields. The former is structural in nature while the latter is transitory. Cf. S. Jan: USD: From a Funding to a High-Yield Currency, in: Global Economic Forum, 30 September 2005, Morgan Stanley, <http://www.morganstanley.com/GEFdata/digests/20050930-fri.html>.

⁹ J. Fels: Global: Global: Pondering the Composition of Central Bank Reserves (Part 1), in: Global Economic Forum, 18 October 2005, Morgan Stanley, <http://www.morganstanley.com/GEFdata/digests/20051018-tue.html>; cf. also F. Bergsten: The Euro and the World Economy, mimeo, April 2005.

¹⁰ A. Persuad, S. Spratt: The New Renminbi Bloc, mimeo, June 2004.

Figure 1
US Net International Investment Position (NIIP) as a percent of GDP, 1982-2004



Source: US Bureau of Economic Analysis (BEA).

renminbi as a challenger to the US dollar extremely remote anytime in the near future.¹¹ Similar concerns rule out the currency of the other Asian giant, India, for the time being. While India's financial system is far stronger than that of China and arguably has better respect for property rights, India lags behind China in terms of trade and investment linkages with the rest of the world.

End of the US Dollar Hegemony?

Ever since 1990, once the USA became a net external debtor (cf. Figure 1), persistent concerns have been expressed about the external store of value of the US dollar – i.e. the possibility of capital losses due to sharp or prolonged US dollar depreciation.¹² This concern is a structural one and will re-emerge once the recent cyclical rebound of the US dollar (since early January 2005) dissipates. Other things being equal, the greater the unease about the prospects for the long-term sustainability of the US dollar, the more rapid will be the transition away from the US dollar. Robert Mundell, for instance, noted in 1998:

"It would be a mistake to ignore ... (the fact that) ... in the last 15 years US current account deficits have turned the US from the world's biggest creditor to its biggest debtor ... The low-saving high-debt problems will one day come home to roost ... There will come

¹¹ This point has been emphasized by B. Eichengreen: Sterling's Past, Dollar's Future ... , op. cit.

¹² It is unclear whether there is some upper limit to the amount of net claims that foreigners are willing to hold against the USA. The issue of sustainability of the US external debt position is an area in need of further research. For detailed computations and discussions of this issue see P. Gourinchas, H. Rey: From World Banker to World Venture Capitalist: The US External Adjustment and the Exorbitant Privilege, mimeo, May 2005; N. Roubini, B. Setser: The US as a Net Debtor: The Sustainability of the US External Imbalances, mimeo, November 2004. Also cf. The Passing of the Buck?, in: The Economist, December 2, 2004.

a time when the pileup of international indebtedness makes reliance on the dollar as the world's only main currency untenable ... The fact that the bulk of international reserves is held in dollars makes the currency a sitting duck in a currency crisis ... Sole reliance on the dollar as the main reserve, invoice and intervention currency presents risks that are no longer necessary."¹³

However, the "US dollar standard" has proven to be very resilient since the second half of the 20th century. The US dollar functions as a reserve currency as it has been the preferred international currency of choice for the invoicing of transactions, for currency pegs, and as a medium of exchange.¹⁴ The military and geopolitical clout of the USA (particularly critical in this day and age of global terrorism) and the deeply entrenched network externalities that are enjoyed by the incumbent will work in tandem to ensure that the US dollar will remain the dominant reserve currency for a long time to come. This point has some empirical validation. A study of the currency composition of global reserves in the 1970s, 1980s and 1990s arrives at the following conclusion:

"We do not detect radical shifts in the currency composition of reserves over time. The choice of reserve asset by developing countries continues to be influenced by a dense web of exchange rate, financial and commercial links with the reserve-currency countries, which itself continues to develop gradually over time. To be sure, there are ongoing changes in these relationships and policies ... (b)ut these are evolutionary processes, which again suggests that the currency composition of reserves will change gradually, not discontinuously. There are plenty of potential sources of instability affecting exchange rates and the international monetary system. But ... instability in the demand for reserves seems unlikely to be one of them."¹⁵

While there may be some concern about the store of value function of the US dollar over time, the US economy will have to significantly underperform the

rest of the world on a sustained basis for it to lose its global dollar hegemony. Indeed, given the desire by central banks and other investors for greater yields on their reserves, it is possible that they will choose to shift more of their assets into longer yielding US assets rather than into other currencies. As such, while accepting the possibility of capital losses (in the event of a longer term decline in the US dollar), investors are at least being partly compensated for taking on greater liquidity risk by extending the duration of their portfolios. As noted by an analyst from Morgan Stanley:

"(A)s central banks shift from a traditional liquidity management posture to a return-enhancing investment strategy, reserve diversification ... does not necessarily mean US dollar selling or US dollar weakness ... The US corporate bond market accounts for close to three times the corporate bond market in euroland, and 3.5 times as big as in Japan. In fact, this market is bigger than the other corporate bond markets combined. Similarly, the total market cap of the US equity market is dominant, 2.5-3 times bigger than the markets in euroland or Japan. Therefore, as central banks diversify across assets, there is greater justification to increase their exposure to US dollar risky assets ... Thus, if central banks diversify ... it is far from clear it will be US dollar-negative."¹⁶

Conclusion

Summing up, while the US dollar may remain the dominant reserve currency, its share of global reserves may see a rather gradual but distinct decline over time. The world is likely to shift gradually to a multiple reserve-currency system involving the US dollar, the euro and one or more Asian currencies. This shift is more likely to occur if:

- European countries are able to overcome their continuing structural impediments economy and the institutional commitment to the eurozone is renewed, and some key players such as the UK (with its large financial markets) join the eurozone;¹⁷
- the Japanese economy is also successfully restructured and it returns to a path of sustained robust growth;
- some important commodities such as oil are increasingly invoiced in currencies other than US dollar, and

¹³ R. Mundell: The Case for the Euro – I and II, in: Wall Street Journal, March 24 and 25, 1998.

¹⁴ For an elaboration of the functions of an international currency, cf. P. S. Pollard: The Creation of the Euro and the Role of the Dollar in International Markets, in: Federal Reserve Bank of St. Louis Review, September/October 2001, pp. 17-36. Also cf. J. Frankel, M. Chinn, op. cit.

¹⁵ B. Eichengreen, D. Mathieson: The Currency Composition of Foreign Exchange Reserves: Retrospect and Prospect, IMF Working Paper No.00/131, 2000, p. 17. Also cf. J. Frankel, M. Chinn, op. cit.

¹⁶ S. Jens: USD: Is Reserve Diversification Negative for the Dollar?, in: Global Economic Forum, 16 September 2005, Morgan Stanley, <http://www.morganstanley.com/GEFdata/digests/20050916-fri.html>.

¹⁷ This point has been emphasised in the empirical analysis by J. Frankel, M. Chinn, op. cit.

the surpluses of major oil-exporting countries or “petrodollars” are consequently converted to “petro-euros”,¹⁸

- Asian countries enhance regional financial and monetary cooperation,¹⁹ including taking further steps towards strengthening the Asian Bond Fund initiatives (where Asian bonds are issued in local currencies);

- Asian and other currencies continue to move away from pegging to the US dollar.²⁰

However, it is very likely that America’s “exorbitant privilege” of being Asia’s and the world’s reserve currency will be sustained for some time to come.

¹⁸ While the run up in oil prices has led to increased savings by oil exporting countries, their share of global reserves (relative to Asia) has declined significantly since the 1980s (though some non-OPEC member countries like Russia have seen a significant rise). This having been said, a significant shift into euro by oil exporting countries could have major consequences on currency markets. The data on the extent of recycling of oil revenues into US dollars or other assets appears to be too limited, however, to allow more specific comment on this issue. For useful discussions of this issue, see R. McCaughrin: Global: Pump Pains and Petrodollars, in: Global Economic Forum, 17 May 2005, Morgan Stanley, <http://www.morganstanley.com/GEFdata/digests/20040517-mon.html>; and S. Jen, M. Baker: Redirection of Petrodollars a USD Negative?, in: Global Economic Forum, 17 May 2005, Morgan Stanley, <http://www.morganstanley.com/GEFdata/digests/20030307-fri.html>.

¹⁹ For a detailed discussion of monetary and financial cooperation in Asia, see papers in Asian Development Bank: Monetary and Financial Cooperation in East Asia, Vols. 1 and 2, 2004, Palgrave-McMillan Press for the Asian Development Bank.

²⁰ This point is of particular importance. While the US dollar’s share of global reserve portfolios may be high relative to the global share of the US economy (in purchasing power parity terms), it is in line with the global share of the de facto dollar zone (i.e. those countries pegged to the US dollar). Cf. BIS: 75th Annual Report, Basle 2005. As the report notes: “(T)he notion can be disputed that official reserves are overweight in dollars. Excluding Japan, the dollar share of foreign exchange reserves may have been no more than 57% in mid-2004. (Unreported forward sales of dollars against euros could lower this figure further.) Such a share is high in relation to the share of the US economy in the world economy, but not necessarily in relation to the share of the dollar zone in the world economy. If one allocates economies, measured at purchasing power parity, to the dollar, euro or yen zones according to the behaviour of their currencies ..., the dollar zone produces an estimated 59% of global output ... This is almost identical to the current dollar share of reserves outside Japan ... In sum, the case for a portfolio imbalance, including in official portfolios, seems weaker than much commentary would suggest. There remains, however, a pending problem. The dollar zone has been shrinking, and any acceleration of this could eventually give rise to a portfolio imbalance in both the private and official sectors.” (p.96).

Carsten Hefeker*

Rivalling the Dollar? Prospects for the International Role of the Euro

The introduction of the euro as a common currency for Europe is a tremendous change to the international financial architecture. Bringing together under one currency 12 countries, some 307 million people, a combined GDP that rivals that of the United States, and a share in world trade about 25 per cent higher than that of the USA, the new currency has by definition international importance. Moreover, as countries in eastern Europe and the further periphery of Euroland prepare for a later membership in the euro area, the currency will become even more important in the longer time perspective. But will the euro’s role be confined to that of a regional currency only, not used outside the (enlarged) euro area, or will it be used in

other areas of the world as well, like the US dollar is used beyond the borders of the United States?

This is no trivial question because being a world currency has important advantages, as well as some disadvantages. Speaking about the US dollar under the Bretton Woods system, French president Charles de Gaulle lamented its “exorbitant privilege”, enabling the US government to run current account deficits and simply pay for them by issuing domestic currency.¹ Much as Europe accepted the dollar as the leading currency, a similar role is now played by China,

¹ This is the basis of the famous “Triffin-Dilemma”, described in R. Triffin: Gold and the Dollar Crisis, New Haven 1960, Yale University Press. The world being on a dollar standard in the Bretton Woods system required that the USA supply the world with enough dollars. Issuing too many dollars on the other hand would ultimately undermine the dollar’s credibility. This is exactly what happened in the 1960s.

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according to some authors. In their view, China is financing the US deficit by accepting US dollars and building up huge currency reserves (meanwhile running to more than 850 billion dollars). But this time, it is argued, the external demand for the US dollar is the result of China's mercantilist strategy.²

At the same time, however, there is talk that China might begin to diversify its currency reserves into the euro, which is not a small matter given their impressive size. If a non-negligible part of these reserves is converted into euro, the international consequences could be huge as the relative demand for dollars and euro shifts. The same is true for the prospects of the euro if Russia increases the share of euro in its currency reserves, as has been announced by the government. Finally, it has been suggested by some authors that East Asia should also move to a currency basket as a nominal anchor for regional monetary policies in which the euro would have a significant share. All these considerations indicate that the international financial architecture is about to change, maybe moving toward a system in which the euro and the dollar are rivals for the premier position in international financial markets and trade.

What, then, are the prospects of the euro attaining such an international position?

Properties of an International Currency

Currencies are not used internationally because of the moral worth of the issuing country but because of the services the currency renders in international transactions.³ Therefore, the potential international role of a currency can best be assessed by asking how foreigners could benefit from holding not only their own currency but that of some other country as well. Currencies serve mainly in three functions: they serve as a unit of payments, as a unit of account and as a store of value. That is, money is used to make international payments, to denominate goods and services in international trade, and to transfer wealth and income into future periods.

Consequently, the international use of a currency is likely to be larger if it is a stable currency. Weak cur-

rencies have only little prospect of becoming internationally important because an inflationary currency is not suited to serve as a store of value. Consequently, "strong" currencies are used to issue international bonds and as parallel currencies, circulating beside domestic monies as means of payment in countries where the domestic currency is highly inflationary.⁴ No wonder, then, that the DM, the Swiss franc and the yen were and are important stores of value besides the dollar, because these currencies tend(ed) to be relatively stable.

The dollar, instead, profits from the importance of the USA as a trading partner. Sheer size makes a currency attractive because lots of trade is conducted with that currency area and because traders from large countries will want to denominate trade in their home currencies.⁵ This is probably also true for traders from Sweden or New Zealand, but they have less economic power than traders from the USA. Therefore, economically large and important countries are more likely to have an international currency.

What has also become significant in recent years is that if trading partners are fixated on one market they intervene to stabilise their exchange rate against that country's currency. Consider in particular the example of China. It is widely believed that mercantilist considerations are behind China's stabilisation of the renminbi against the dollar. Avoiding an appreciation of the renminbi against the dollar forces Chinese authorities to buy dollars, which then increases the currency reserves of the People's Bank of China. Other countries might be forced to adopt the same strategy if they do not want to risk losing market shares against China. Thus, third country competition reinforces the demand for dollars.

There is a second reinforcing factor: the more people trade in a particular currency, the more attractive it is for others to use the same currency. Like most of us use a certain word-processing system not because we are particularly satisfied with it but because our colleagues use it as well, it is attractive to use the same currency as most of your trading partners (even

² See M. Dooley, D. Folkert-Landau, P. Garber: An Essay on the Revived Bretton Woods System, NBER Working Paper No. 9971, 2003.

³ C. Kindleberger: International Currencies and the Politics of International Language, Princeton Essays in International Finance 61, Princeton University, 1967. Cf. M. Flandreau, C. Jobst: The Empirics of International Currencies: Evidence from the 19th Century, unpublished manuscript, 2005, for a recent statement of this view.

⁴ Cf. B. Cohen: Currency Choice in International Bond Issuance, in: BIS Quarterly Review, June 2005, on the choice of currencies for bond denominations. An overview of theories can be found in M. Chinn, J. Frankel: Will the Euro Eventually Surpass the Dollar as Leading International Reserve Currency?, unpublished manuscript, 2006; or European Central Bank: Review of the International Role of the Euro, 2005.

⁵ Cf. C. Kindleberger, op.cit., H. Rey: International Trade and Currency Exchange, in: Review of Economic Studies, Vol. 68, 2001, pp. 443-464.

if “better” currencies might exist, however defined). “Network externalities” make the use of a currency more attractive if the network of those also using it is large. This argument suggests that the euro could rival the dollar because after its extension Euroland will be even larger than the US economy.⁶

This effect explains to a large extent why the US dollar has become a vehicle currency that is not only used in transactions with the dollar area but used as well to conduct transactions between countries that are not part of the dollar area.⁷ The dollar is used for international trade because it is easier and cheaper to change, say, Argentine pesos into dollars and to buy Russian products with those dollars than to change pesos into Russian rubles. There is no large currency market for traders willing to trade pesos against rubles, while there are much larger markets both for pesos and dollars and for dollars and rubles. Thicker markets in turn imply that margins are smaller, making currency transactions cheaper and the exchange rate less volatile.

The second aspect is that changing a particular vehicle currency is costly. If all your computer programs are based on one particular operating system and all of your trade accounts are in dollar it would be expensive to change the operating system or to change all your accounts into another currency. You will only do this if sticking to the dollar becomes too expensive (because, say of inflation) or if all of your partners switch to the euro. Likewise, you would only change your operating system if its disadvantages (say, in terms of security leaks) are too large. Path dependency means that once you are locked into a particular system you will not easily change it because of the costs of conversion. Just as your firm will refrain from switching to a different operating system under normal circumstances, so changes in the international currency hierarchy are rare events. If, however, such an event occurs the old system might collapse dramatically.⁸

⁶ See K. Matsuyama, N. Kiyotaki, A. Matsui: *Toward a Theory of International Currency*, in: *Review of Economic Studies*, Vol. 60, 1993, pp. 283-307 for theoretical considerations; and M. Chinn, J. Frankel, op. cit., for scenarios under which conditions the euro might surpass the dollar.

⁷ Cf. P. Krugman: *Vehicle Currencies and the Structure of International Exchange*, in: *Journal of Money, Credit and Banking*, Vol. 12, 1980, pp. 513-526; and L. Goldberg, C. Tille: *Vehicle Currency Use in International Trade*, NBER Working Paper No. 11127, 2005, on the choice of invoicing currency.

⁸ This is the prediction of P. Krugman, op. cit.; and M. Chinn, J. Frankel, op. cit. For historical evidence that does not support this prediction, cf. B. Eichengreen: *Sterling's Past, Dollar's Future: Historical Perspectives on Reserve Currency Competition*, NBER Working Paper No. 11336, 2005.

One such rare event has been the euro replacing Europe's national currencies. This has also forced some countries to change to another currency in which they operate and to which they tailor their own monetary policies. Countries in West Africa are among those for which this change has had consequences. (Cf. Table 1 for currencies that are currently based on the euro.) Another change has been the displacement of the pound sterling by the dollar.

Before the dollar assumed its dominant international role, mainly after the Second World War, other currencies fulfilled this role. In the 17th and 18th centuries Amsterdam was the leading financial market, and in the 19th century it was the British pound in which 60 to 90 per cent of all trade was denominated. In the 19th century, Britain was the main trading nation (being responsible for some 30 per cent of all trade), it had its empire, which also made the pound the dominating currency in the dominions, and London was the world's most important capital market, serving as “banker to the world”. The pound continued to play this role for some time even after the British Empire had eclipsed and other nations, most notably the USA, but also Germany and France, acquired a larger international role.

This does not imply, however, that Britain's was the only currency that was used by other markets and in other countries, as some theories argue. In the 1920s and 1930s the pound was increasingly rivalled by other currencies, in particular the US dollar and the French franc. With the creation of the US central bank, the Federal Reserve Bank, the active management of the dollar became possible, which also made the currency more attractive, because there was now an institution that would discount the currency and ensure that a liquid market existed.⁹ Thus, although the pound continued to be probably the most used currency, it shared its international status with other currencies. It took another World War to finally end Britain's leading role in currency markets.

The fact that only one currency seems to dominate is hence a phenomenon of the 20th century, when the dollar held shares of up to 85 per cent of international reserves. The demand for dollars has been rather stable so far, despite several weak and inflationary episodes since the end of World War II. But the historical evidence would suggest that it is well possible that in the future the dollar might have to share the role of leading currency with other currencies. Nothing rules

⁹ Cf. B. Eichengreen, op. cit.

Table 1
Exchange-rate Regimes based on the Euro

Region	Exchange-rate Regimes	Countries
European Union (non-euro area)	ERM II	Cyprus, Denmark, Estonia, Latvia, Lithuania, Malta, Slovenia, Slovakia
	Peg arrangements on the euro	Hungary
	Managed floating with the euro as reference currency	Czech Republic
	<i>Pro memoria</i> : Independent floating	Sweden, United Kingdom, Poland
Acceding, accession and potential candidate countries	Unilateral euroisation	Kosovo, Montenegro
	Euro-based currency boards	Bulgaria, Bosnia and Herzegovina
	Peg arrangements or managed floating with the euro as reference currency	Croatia, FYR Macedonia, Romania, Serbia
	<i>Pro memoria</i> : Independent floating	Albania, Turkey
	Euroisation	European microstates, French territorial communities
Others	Peg arrangements on the euro	CFA Franc Zone, French overseas territories, Cape Verde, Comoros
	Peg arrangements and managed floats based on the SDR and other currency baskets involving the Euro (share of the euro)	Seychelles (37.7%), Russian Federation (35%), Libya, Botswana, Morocco, Tunisia, Vanuatu

Source: European Central Bank: Review of the International Role of the Euro, December 2005.

out that another currency, or several of them, will supplement or even dethrone the dollar, especially now that the euro is the first currency that could, because of its size and performance, be a serious contender.¹⁰

The Euro's Significance So Far

Despite the potential of the euro, so far not much of a change could be observed. In fact, the euro's importance seems to be lower than that of the member countries' currencies before the introduction of the euro. According to some estimates, the euro initially mainly replaced the DM in its function but not much more.¹¹ An initial drop in the demand for euro in comparison to demand for the national currencies it replaced was to be expected because members of the euro area no longer hold reserves in the currencies of other member countries. Some diversification by others holding these currencies could also be expected because of risk diversification aspects. Therefore, it is not surprising that the euro is less demanded than the national currencies it replaced.

What could be observed, though, is a gradual increase in the use of the euro in debt and securities markets.¹² In contrast, the share of the euro in loans and deposits markets remained rather stable, which is

also true of the euro's share in foreign exchange trade. At 43 per cent it is a distant second to the dollar's 90 per cent share (cf. Table 2 on the use of the euro in these markets). The use of the euro in trade seems largely to be restricted to those countries which have institutional ties to the EU. Those countries tend to use the currency as a vehicle, while other regions so far remain concentrated on the dollar. The euro's role in currency reserves has slightly decreased in recent periods (cf. Figure 1).

Thus, optimistic predictions (and hope) that the euro could become an international currency rather quickly have not been confirmed so far. One factor might be that the euro area has been rather slow to implement reforms, thus undermining confidence in the euro area's future economic prospects. Another factor might be that capital markets in the union are not as integrated as is necessary for a truly European capital market.¹³ Moreover, the ECB is a relatively new central bank that first had to establish a track record before markets would be able to form reliable expectations about its behaviour. No one could really expect that authorities and markets would switch their composition of currency reserves and use of vehicle currency from one day to the next upon the launching of the euro. In addition, the wild ride of the euro-dollar exchange rate in the initial years implied that demand would be more cautious with respect to the euro. But

¹⁰ F. Bergsten: The Euro and the Dollar: Toward a "Finance G-2"?, unpublished manuscript, 2004.

¹¹ C. Detken, P. Hartmann: Features of the Euro's Role in International Financial Markets, in: Economic Policy, Vol. 35, 2002, pp. 553-569.

¹² European Central Bank, op. cit.

¹³ R. Portes, H. Rey: The Emergence of the Euro as an International Currency, in: Economic Policy, Vol. 26, 1998, pp. 305-343.

Table 2
International Use of the Euro

Narrowly defined stock of international debt securities	31.7%
Cross-border loans from non-euro area to non-bank borrowers outside the euro area	6.2%
Cross-border deposits of non-euro area non-banks in banks outside their country of residence excluding the euro area	8.4%
Daily foreign exchange trading (settled by CLS)	43%
Settlement/invoicing of exports of goods to non-euro area residents of a number of euro area countries	44% to 63%
Settlement/invoicing of imports of goods to non-euro area residents of a number of euro area countries	41% to 61%
Share of the euro in global foreign exchange reserves (as per new IMF methodology)	24.9%

Note: Data as available for 2004/2005.

Source: European Central Bank: Review of the International Role of the Euro, December 2005.

the euro now looks a much more stable and strong currency. Since this has taken a few years, the immediate time after the introduction of the euro (in physical units in 2002) need not necessarily be an accurate prediction of the euro's potential in the medium to long run.

Factors Supporting a Stronger Role

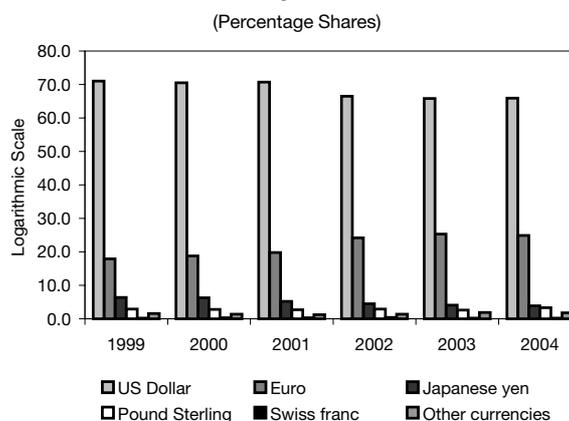
There are several factors which support a stronger role for the euro. The relative demand for euro and dollars by those countries that are pegging their exchange rates will be a major factor in determining the role of the euro, and there are currently several candidates whose demand for euro could increase.

First, there are the new member countries of the EU, obligated to adopt the euro eventually. There are in addition several candidates aiming to become members of the EU one day. Both groups of countries are already trying to stabilise their exchange rates against the euro and, in addition, in several cases even have the euro circulating as a parallel currency in their respective domains. If the EU should be further enlarged in coming years, the role of the euro in candidate and aspiring countries would increase further, as Table 1 indicates.

Significantly more important would be if countries in South-East Asia changed their currency system to a

¹⁴ J. Williams on: A Currency Basket for East Asia, Not Just China, in: Policy Briefs in International Economics No. 05-1, Institute for International Economics, 2005; E. Ogawa, T. Ito: On the Desirability of a Regional Basket Currency Arrangement, NBER Working Paper No. 8002, 2000.

Figure 1
Currency Reserves



Source: European Central Bank: Review of the International Role of the Euro, December 2005.

basket peg, as has been suggested by several observers.¹⁴ It has been argued that these countries should move away from a pure dollar peg, which many continue to pursue contrary to their declarations, and peg instead to a broader basket of currencies, consisting of the dollar, the euro and the yen, to reflect more adequately the structure of their trade.¹⁵ If countries should heed that advice, which currently seems to be rather unlikely, demand for the euro in the region would increase and raise the role of the euro.

Currently much more real is the fact that China and Russia have declared their intention to move from pure dollar pegs to basket pegs.¹⁶ Russia is officially pegged to a basket of currencies and has announced that it will increase the relative weight of the euro. More important still is the fact the China has announced its intention to do the same, although without declaring the relative weights of different currencies. Since China is the country with the largest currency reserves in the world, a shift away from the dollar to the euro could have major consequences if the shift were substantial, affecting one third or one half of the current reserves of more than 850 billion dollars. If both countries really implement such a change, which is not evident currently, they could trigger a wave of other countries following them. Countries oriented toward Russia and China would gain by following the shift

¹⁵ The exchange-rate strategy of the East Asian economies is described in R. McKinnon: Exchange Rates under the East Asian Dollar Standard: Living with Conflicted Virtue, Cambridge Mass. 2005, MIT Press.

¹⁶ Cf., for instance, K. Dominguez: The ECB, the Euro and Global Financial Markets, unpublished manuscript, 2006.

in order to stabilise their exchange rates against the ruble and the renminbi.¹⁷

But the most important influence is probably the policy of the US government itself. If the US deficit grows further there might be attempts by the government to talk down the dollar. The pressure on the Chinese government to revalue its currency, although the US deficit would probably benefit only little from a revaluation of the renminbi, can be interpreted as a first step in this direction.¹⁸ If the dollar devalued further, the currency would become less attractive and a further shift in currency reserves and bond denomination could be expected.

Moreover, financial markets might lose confidence in the dollar, expecting a crash of the currency if the US twin deficits become "too" large. If a collapse of the dollar were expected, people would move out of the dollar and central banks would begin to diversify their currency reserves. The fact that the current world's banker is itself indebted to the rest of the world to the order of some 25 per cent of GDP certainly does not increase confidence. Therefore, movement out of the dollar might gather force rather soon, with the foreseeable consequences of moving the dollar down in international demand and moving the euro up.¹⁹

It is clear that a drop in the relative demand for dollars could only lead to an increase in the demand for euro. There is simply no alternative to the dollar currently besides the euro. The Japanese yen is not in a position to rival it, given the slowly recovering Japanese economy and its longer term demographic prospects. While many people speculate that the Chinese renminbi could become a serious rival one day, this is currently not a likely development. China has its hands full enough with problems in the domestic banking sector, and uneven development in the separate regions, and still operates controls on capital movements. Before these problems are solved it is unlikely that the currency can gain an international

role. The renminbi is certainly one of the currencies with the most potential but has not yet reached this position yet.

Burden or Privilege?

In the end, the question of course is why all this should matter. Would Euroland be better off with a euro that is internationally important or less so? Is having a world currency a burden or a privilege?

One important aspect is that being able to issue more currency than is domestically needed increases seigniorage. Foreigners who are willing to hold domestic currency for which no interest payments are due can be considered as giving a credit to the central bank. Prestige might be another factor that could be counted among the benefits. Finally, it is convenient for domestic residents to be able to use their own currency in international transactions. They are able to save the costs of conversion and other transaction costs.

Another potentially important benefit is that the burden of intervention to stabilise exchange rates if foreign demand is due to fixed exchange rates will lie with other central banks. In this case, domestic residents and firms would benefit from stable exchange rates, which could have significant welfare gains in expanding trade and reducing uncertainty. However, to achieve these gains the domestic central bank does not need to surrender the autonomy to set monetary policy so as to address domestic policy needs. Unlike currencies that are pegged, currencies to which others are pegged do not have to surrender either exchange-rate stability or monetary autonomy. Being an international currency to which others peg could thus combine monetary autonomy with stable exchange rates, something that is not usually possible.²⁰

On the down side, higher demand for the domestic currency pushes up its exchange rate and therefore makes domestic products more expensive. An appreciating euro would hence undermine the competitiveness of European products and services in world markets. While this factor is often mentioned, it is also true that the central bank could stem this process by increasing the money supply. As long as the currency is not held within the currency domain, inflationary dangers are restricted. (The fact that the euro money

¹⁷ A similar thing would happen if China let the renminbi float, as has been demanded by the US government and international agencies. O. Blanchard, F. Giavazzi, F. Sa: International Investors, the U.S. Current Account, and the Dollar, in: Brookings Papers on Economic Activity, No. 1, 2005, pp. 1-66, point out that China's extreme demand for dollars would then fall while other investors seem to have less extreme preferences for the dollar, thus meaning a relative decline in the demand for dollars.

¹⁸ On the likely consequences of a revaluation of the renminbi, see R. McKinnon: China's New Exchange Rate Policy: Will China Follow Japan into a Liquidity Trap?, unpublished manuscript, 2005.

¹⁹ Cf. B. Eichengreen, op. cit.

²⁰ C. Wyplosz: European Monetary Union: the dark side of a major success, in: Economic Policy, No. 46, 2006, pp. 207-261.

supply M3 is increasing much more rapidly than targeted without inflationary consequences is probably to a large degree due to the fact that euro are used outside the euro area.) Moreover, an appreciating euro should reduce price pressure stemming from imported products and thus partly compensate an increase in money supply. At the same time, an appreciating currency improves the country's terms of trade by making imports relatively cheaper and thus increases real income.

A large amount of domestic currency circulating abroad, however, cannot be controlled by the domestic central bank, which is the reason why the Bundesbank always opposed the international role of the DM. Currency circulating abroad could be redeemed and thus disturb domestic money markets' equilibria. In

general, it is reasonable to assume that money demand might be less stable since foreigners might also easily change their demand for currencies.

Whether the likely stronger use of the euro in coming years will, in the end, be beneficial for Euroland boils finally down to how such an increase in its international role is coming about. If it is due to a gradual increase in the use of the euro, the consequences are very different to those coming through a collapse of the dollar. The consequences of a collapse of the dollar would likely have such negative repercussions on Euroland that any benefits from a larger role of the euro appear minor in comparison. Europe should thus not wish for a sudden and large shift in the international demand for international currencies even if this is to the benefit of the euro.

Gunther Schnabl*

The Russian Currency Basket – The Rising Role of the Euro for Russia's Exchange-rate Policies

Since 2001, the Russian authorities have taken several steps to increase the role of the euro in their exchange-rate policies. In February 2003, the policy of a tightly managed float against the US dollar was complemented by the explicit objective of limiting the real appreciation of the rouble against a multi-currency basket comprising the currencies of Russia's main trading partners. The euro area countries, and hence the euro, were given a weight of roughly 36%. Furthermore, there is evidence of a growing role of the euro as an international currency in Russia. This refers to the role of the euro as anchor, intervention and reserve currency.

- The authorities diversified the currency composition of their increasing international reserve assets, with the share of the euro rising from less than 10% to 33% by September 2005,¹ thereby increasing the role of the euro as a reserve currency.² This implies that, in absolute terms, in the first week of September 2005 the Bank of Russia held euro-denominated assets of 40 billion euro.

- On 4 February 2005 the Bank of Russia announced that it had started to stabilise the daily volatility of the Russian rouble against a dollar-euro currency basket. While the announced weight of the euro was 10% (90% dollar) by then, Bank of Russia representatives stressed their intention to increase the weight of the euro gradually up to 50%. Since then, the announced weight of the euro in the Russian day-to-day currency basket has been increased step-by-step to 20% (15 March 2005), 30% (16 May 2005), 35% (1 August 2005) and 40% (4 December 2005).

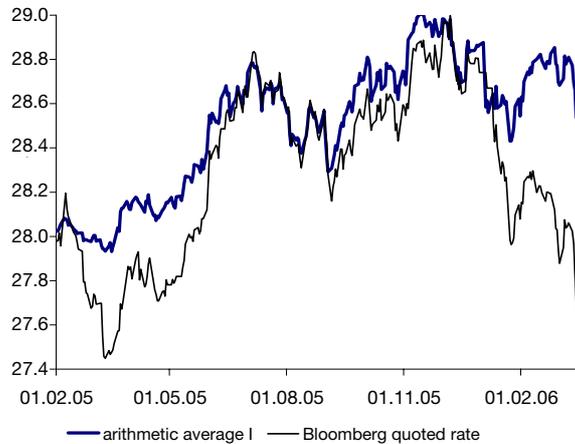
- On 26 August 2005 the Bank of Russia announced that it had begun official rouble/euro operations in foreign exchange markets on August 25 in support of the currency basket and "to wean the market from its fixation with the dollar."

¹ The structure of reserves may mirror the composition of the currency basket.

² The shares of other currencies in Russia's foreign reserves are 60% US dollar and 7% British pound, according to Alexei Ulyukayev on 13 September 2005.

* Professor of Economics, Leipzig University, Germany.

Figure 1
Calculation of the Currency Basket
 (in ruble/dollar)



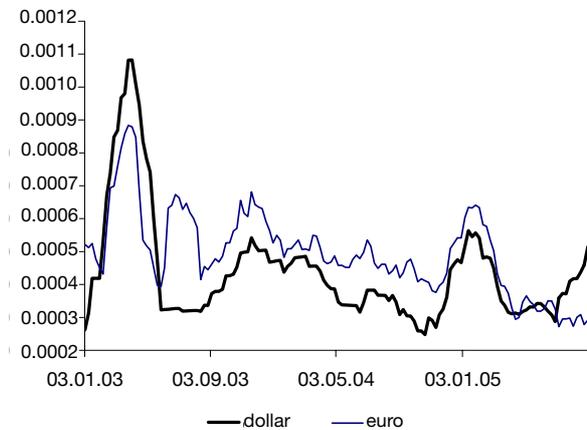
Source: Own calculations.

Figure 1 plots the (Bloomberg quoted) rouble/dollar rate and rouble/dollar rate calculated based on a standard formula of a currency basket (arithmetic average based on price notation). It suggests that in a first phase after the basket strategy was announced on February 1, the calculated basket did not correspond to the spot rouble/dollar rate. It followed rouble fluctuations against the dollar, but the Russian authorities allowed for more appreciation of the rouble than suggested by the basket formula.

Yet, from mid-June 2005 up to December 2005 there was a close relationship between the currency basket and the (Bloomberg quoted) market rate. This implies that the rouble exchange rate was stable against the basket during this period. Since January 2006 the rouble/dollar has diverted again from the basket, as appreciation has been used more actively to contain inflationary pressure originating in high oil revenues and foreign exchange intervention. Nevertheless, the fluctuations of the rouble/dollar rate have continued to reflect the fluctuations of the currency basket.

The step of operating in, and further developing, the rouble/euro foreign exchange market is in line with the strategy of strengthening the role of the euro in the Russian exchange-rate strategy. In the first half of 2005, the dollar made up about 99% of rouble/foreign currency trading volume at the Uniform Trade Session. As shown in Figure 2, in the past the bid-ask spreads in the euro/rouble market have been considerably higher than in the rouble/dollar market. However, recently declining (increasing) bid/ask spreads in the rouble/euro

Figure 2
Rouble Bid/Ask Spreads
 (as percent of average rate)



Source: Bloomberg. Two month weekly averages.

(rouble/dollar) market may reflect increasing (decreasing) liquidity.³ Since July 2005 bid/ask spreads in the rouble/dollar market have been substantially higher than in the rouble/euro market. Private agents who maintain business relations with the euro area or countries pegging their currencies to the euro may benefit from lower risk and transaction costs. The Russian monetary authorities seem decided to increase the public and private use of the euro.

Operation of the Basket

It is difficult to choose the optimal composition of the currency basket.⁴ Traditionally international trade has been the dominant determinant of a basket's currency structure. However, as has been stressed by the Bank of Russia's First Deputy Chairman Ulyukayev, a purely trade-weighted currency basket would give only a small weight to the US dollar of about 5%, because Russian trade linkages with the USA are weak. If the dollarisation of international payments flows (invoicing)⁵ is considered, the US dollar weight increases to 50%.⁶ This figure corresponds to the target for the dollar weight in the Russian currency basket as officially announced in early 2005. In addition, as outlined below, financial flows and possibly considerations

³ In June 2005, in the MICEX Currency Market Section, trading began in rouble/euro instruments in accordance with new rules, which enabled the time of trading to be extended, new euro instruments to be launched and risk management systems similar to those used in trading the US dollar to be adopted. Nevertheless the trading volume of the euro remains relatively small.

⁴ Már Guðmundsson: The Role of the Effective Exchange Rate in Monetary Frameworks: The International Experience, Mimeo, 2005.

To calculate the parity of the ruble against the dollar (reference currency) the example refers to the initial weights of euro and dollar in the Russian currency basket, i.e. 10% and 90% respectively. The exchange rate of the euro in terms of one dollar is assumed to appreciate (depreciate) from 1 euro per dollar to 0.8 (1.2) euro per dollar. If the value of the basket before the euro/dollar exchange rate change is assumed to be 1 the new basket value can be calculated as shown below.

Calculation of Currency Baskets based on Different Averages

Method	Formula	Degree of Appreciation	Degree of Depreciation
Geometric average	$(1^{0.9}) * (0.8^{0.1}) = 0.9778$	2.21%	1.84%
Arithmetic average I	$(1 * 0.9) + (0.8 * 0.1) = 0.9800$	2.00%	2.00%
Arithmetic average II	$\frac{1}{\left(\frac{1}{1} * 0.9\right) + \left(\frac{1}{0.8} * 0.1\right)} = 0.9756$	2.44%	1.69%

As shown above the “de facto” weights of the basket currencies would change differently with respect to the respective exchange rate changes.

with regard to macroeconomic stabilisation may also matter in determining the weights of the basket.

Given the publicly announced weights there are three ways of calculating a basket.⁷ The basket can be compiled using geometric averages, arithmetic averages based on price notations against the reference currency (arithmetic average I) or arithmetic averages based on volume notations (arithmetic average II).⁸ The geometric calculation method has the advantage of leaving the “announced weights” unchanged. In contrast, arithmetic averages lead to “de facto” varying weights while the quantities of reference currencies in the basket remain constant (fixed quantities). The difference between “announced weights” and “de facto weights” in currency baskets can be explained as follows.

It is assumed that the Bank of Russia uses the arithmetic weighted average based on price notations (arithmetic average I). This implies the following procedure.

- The basket currencies and the specific weights – by August 2005 35% euro and 65% dollar – are announced.
- Given the initial exchange rates of the rouble and the euro in price notation against the dollar (as the reference currency) the quantities of each currency in the basket are determined. These “fixed quantities” depend on the announced weights as well as the initial exchange rates of the domestic (rouble) and basket currencies (euro and dollar) against the reference currency (dollar) in price notation in period t_0 .⁹ With x_s and x_e corresponding to the quantities of dollar and euro in the Russian currency basket the following formulas apply.

$$(1) \quad x_s = \frac{0.65 * \frac{xRUB}{USD}_0}{1}$$

$$(2) \quad x_e = \frac{0.35 * \frac{xRUB}{USD}_0}{\frac{xEUR}{USD}_0}$$

The basket will contain x_s units of dollars and x_e units of euro. These quantities remain unchanged (fixed quantities) until the officially announced weights are changed. The fixed quantities for the Russian euro-dollar basket are shown in Figure 3.¹⁰

⁵ For instance, most of trade with (East) Asia as well as intra-CIS trade is likely to be invoiced in dollars. Cf. Ronald McKinnon, Gunther Schnabl: The East Asian Dollar Standard, Fear of Floating, and Original Sin, in: Review of Development Economics, Vol. 8, No. 3, 2004, pp. 331-360; and Gunther Schnabl: International Capital Markets and Informal Dollar Standards in the CIS and East Asia, HWWA Discussion Paper No. 326, 2005.

⁶ Specifically, oil and gas exports, which make up over 50% of Russia’s total exports, are predominantly invoiced in US dollar.

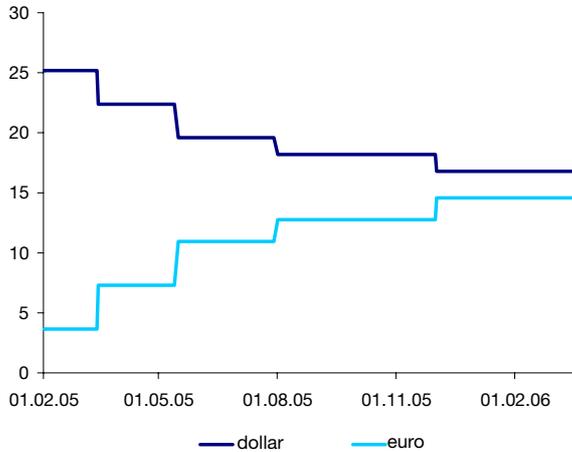
⁷ Shinji Takagi: Pegging to a Currency Basket, in: Finance and Development, Vol. 23, No. 3, 1986, pp. 41-44.

⁸ An illustrative example is provided in the box. The differences in the calculations based on the three averages (geometric, arithmetic I, arithmetic II) are marginal for the new Russian currency basket.

⁹ t_0 corresponds to the day on which the basket operations were started, in this case 1 February 2005.

¹⁰ One advantage of the fixed quantities (in comparison to the geometric average) is that a direct link to the forward market of the basket currencies is established. This may be important for Russia because domestic capital markets are underdeveloped and the foreign exchange risk of short-term payment flows therefore usually remains unhedged.

Figure 3
Fixed Quantities
(units of dollars and euros)



Source: Own calculations.

- Based on the fixed quantities, the value of the domestic currency in terms of the US dollar (in price notation) can be calculated as the sum of the two components x_s and x_e multiplied by the exchange rate of the basket currencies against the dollar respectively (price notations). While the multiplier for the dollar as the reference currency is 1 (see Table 1), the value of the basket changes due to exchange-rate changes between the euro and the dollar. The respective announced and de facto weights of the euro are shown in Figure 4. As observed since March 2005, the depreciation of the euro against the dollar increased the de facto weight of the euro in the Russian currency basket. The major increase in the de facto euro weight was due to the upward adjustment of the announced weights.¹¹

An example for the calculation of a rouble currency basket on 2 August 2005 (with reference to 1 August) is shown in Table 1, summarising the discussion on the operation of the basket.

The Rational for the Move to the Euro

Although the Russian monetary authorities have indicated that they might adopt an inflation targeting framework in the longer term, it is likely that the exchange rate will remain the main objective of Russian

¹¹ The variability of the de facto weights of dollar and euro in the Russian currency baskets explains the assertion of First Deputy Chairman Ulyukayev at a press conference on 22 June 2005 that the weight of the euro in the Russian currency basket is higher than the – by then – announced 30%. The calculated value of 31.6% for June 22 is nevertheless considerably lower than the 35% mentioned by Ulyukayev.

Table 1
Calculation of the Rouble/Dollar Rate
Based on a Standard Basket for August 2, 2005

	Currency against \$	Announced Weight	Fixed Quantity ^a	Ex-change Rate	US Dollar Equivalent	De facto Weight	\$ Rate Change
Aug 1	Dollar	65%	18.19	1	18.19	63.42%	
	Euro	35%	12.78	0.8211	10.49	36.58%	
	Rouble/Dollar				28.68		
Aug 2	Dollar	65%	18.19	1	18.19	63.44%	0
	Euro	35%	12.78	0.8202	10.48	36.56%	-0.04%
	Rouble/Dollar				28.67		-0.02%

Note: *Italics* indicate fixed values. ^a Calculated based on equation (1) and (2) using price notations. The fixed quantities since 1 February 2005 are depicted in Figure 3.

monetary policy in the short to medium term. Besides reasons related to international trade capital markets matter.¹² First, underdeveloped capital markets do not provide instruments to hedge for the foreign exchange risk of international capital and payment flows. Second, an underdeveloped domestic government bond market weakens the effectiveness of monetary policy-making based on domestic assets.

In the past, exchange-rate stability against the dollar has been in line with the dollar invoicing of raw materials exports (oil and gas account for more than 50% of total Russian exports) and the dollarisation of the financial system.¹³ Beyond raw materials exports, substantial parts of trade are likely to be invoiced in US dollars. External borrowing (and lending) by Russian companies and banks continues to be mainly dollar-denominated.¹⁴ Intra-regional network externalities in the use of the US dollar in the whole CIS enhanced the role of the US dollar as an anchor currency in Russia (and the CIS).¹⁵

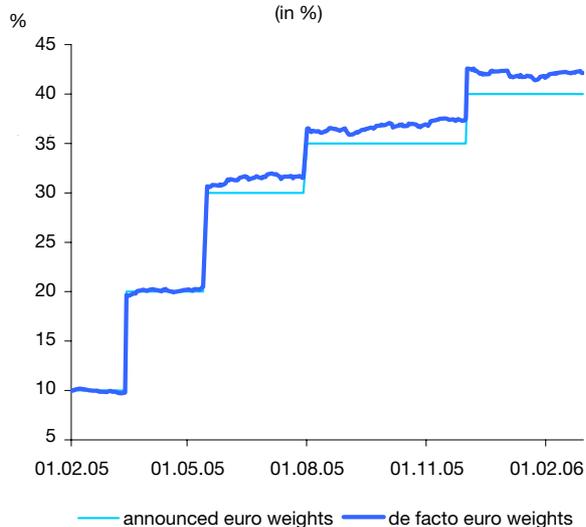
¹² The impact of underdeveloped capital markets on short-term and long-term exchange-rate stabilisation is elaborated by Barry Eichengreen, Ricardo Hausmann: Exchange Rates and Financial Fragility, NBER Working Paper No. 7418, 1999; and Ronald McKinnon, Gunther Schnabl, op. cit.

¹³ While there are no data available for Russia, Ukrainian data on trade invoicing (goods and services) show that in the first nine months of 2004 about 80% of trade was settled in US dollars and about 6% in euro.

¹⁴ Due to sizeable fiscal surpluses there has not been a sovereign bond issuance since the 1998 financial crisis.

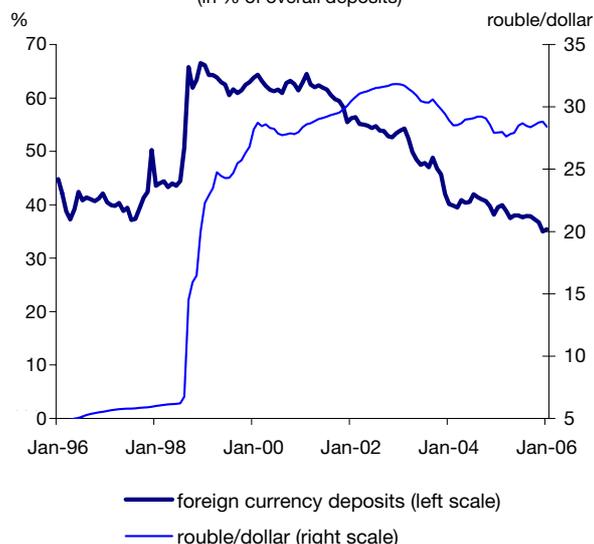
¹⁵ Schnabl explores the network externalities of the common use of the dollar in the highly economically integrated CIS. Cf. Gunther Schnabl: International Capital Markets and Exchange Rate Stabilization in the CIS, in: Journal of Comparative Economics, Vol. 33, No. 3, 2005, pp. 425-440.

Figure 4
Euro Weights
(in %)



Source: Own calculations.

Figure 5
Russian Foreign Currency Deposits
(in % of overall deposits)



Source: IMF.

The decision of the Russian monetary authorities to give a greater weight to the euro in their exchange-rate strategy may reflect an increasing awareness of Russia's (geographical) position between the two major currency blocs, i.e. the dollar bloc¹⁶ and the euro area, as well as a number of Central and Eastern European countries pegging their currencies to the euro. In specific, a more substantial weight of the euro in the Russian exchange-rate strategy can be motivated by developments in the goods and capital markets as well as by macroeconomic stabilisation.

As about 50% of Russian trade is with the EU25, a greater weight of the euro in the Russian exchange-rate strategy would mitigate the fluctuations of competitiveness for Russian exports and for domestic enterprises competing with imports from the euro area arising from fluctuations in the euro/dollar exchange rate. Besides international trade, capital flows have become an important determinant of exchange-rate stabilisation.¹⁷ Because financial linkages with the euro area are strengthening, more exchange stability against the euro reduces the foreign exchange risk for short-term and long-term payment flows between Russia and the euro area (and the countries pegging to the euro), provided that Russian borrowers denomi-

nate an increasing share of their external borrowing (and lending) in euro.

Furthermore, considerations related to domestic macroeconomic stabilisation might have influenced the decision to adopt a dollar-euro currency basket. Starting in 2001 a sharp decline in US interest rates to historically low levels was accompanied by global depreciation pressure on the dollar resulting in fast reserve accumulation and monetary expansion in the countries pegging their exchange rates to the dollar. In Russia, the Ukraine and other CIS countries dollar reserve accumulation contributed to accelerating inflation.¹⁸ To this end, the adoption of a basket would be equivalent to diversifying the risk of undue monetary expansion in the anchor countries. A similar situation may apply in East Asia where in many countries the share of the euro in the undisclosed currency baskets seems to have increased during 2005.¹⁹

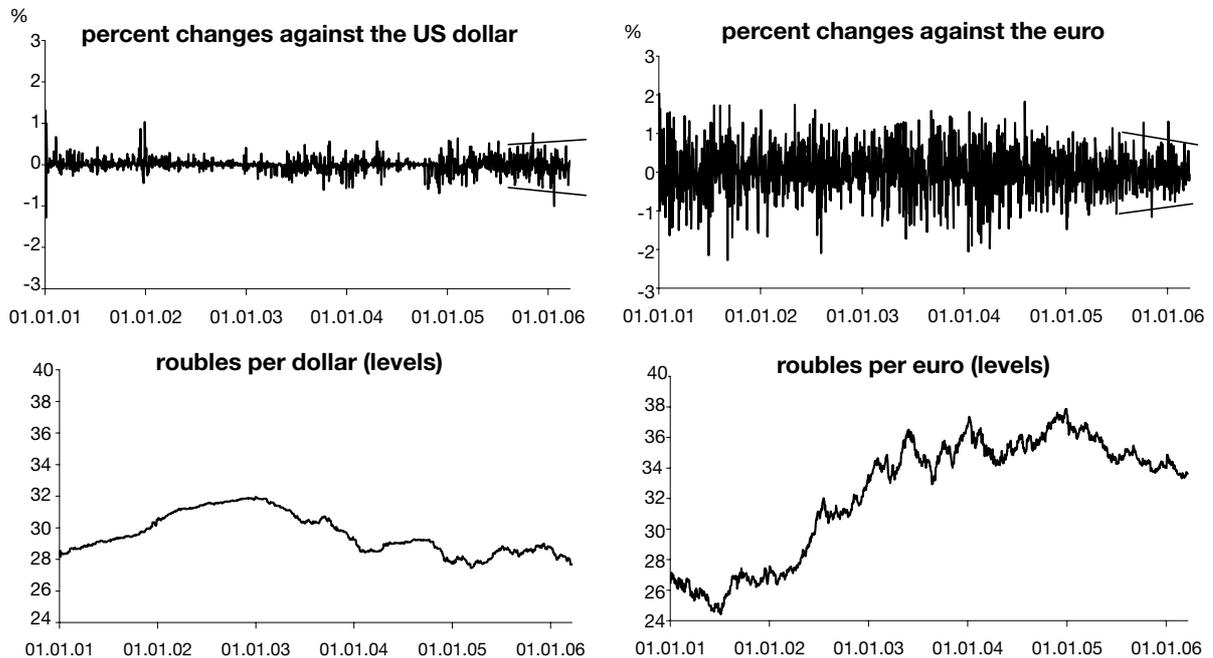
¹⁶ The dollar bloc is defined as the USA and the countries pegging their exchange rates to the dollar, in particular in (East) Asia and the Middle East.

¹⁷ Ronald McKinnon, Gunther Schnabl, op. cit.

¹⁸ The Russian monetary authorities sterilised parts of the monetary effects of foreign currency purchases by depositing oil revenues with the central bank (partly) via the so-called stabilisation fund. Nevertheless, in emerging markets and developing countries complete sterilisation of capital inflows is unlikely because this would require rising interest rates and therefore rising sterilisation costs and economic slow down. Furthermore, rising interest rates would encourage new capital inflows, which counteract sterilisation. In the case of Russia, the sterilisation of capital inflows via government deposits at the Bank of Russia has opportunity costs as remuneration is low.

¹⁹ Gunther Schnabl: Capital Markets and Exchange Rate Stabilization in East Asia – Diversifying Risk Based on Currency Baskets, HWWI Research Paper 2-1, 2006.

Figure 6
Daily Exchange Rates of the Russian Rouble 2001-2005



Source: Bloomberg.

Finally, the partial shift towards the euro as an anchor currency is facilitated by the fact that since 2001 the sustained appreciation pressure on the rouble has contributed to the de-dollarisation of the Russian financial sector. As shown in Figure 5 the share of dollar deposits as a share of overall deposits has decreased from 60% in 2001 to less than 40% in 2005.²⁰

Implications

The increasing role of the euro for Russian exchange-rate policy has implications for Russian monetary and exchange-rate policy, for the rouble's exchange-rate behaviour against the euro and the dollar, and for the international role of the euro.

- If Russia followed a strict basket strategy as shown in Figure 1 for the second half of 2005, Russian monetary and exchange-rate policy would be solely focused on one target, i.e. tight exchange-rate stabilisation against two currencies. In cases of conflict between the different targets, inflation targeting and real exchange-rate targeting would be incompatible

with the strict peg to the basket. In 2005, with inflation at 10.9%, the inflation target of 8.5% was not met. For the year 2006 the inflation target has been set to 9% while current inflation is still considerably above this benchmark. The fact that the rouble/dollar rate has been allowed to appreciate against the currency basket in 2006 indicates that a greater weight has been given to the inflation target as appreciation will contribute to lower inflation.

- The basket strategy with (further) increasing (decreasing) weights of the euro (dollar) is equivalent to declining (increasing) day-to-day exchange-rate volatility against the euro (dollar). As indicated in Figure 6 short-term day-to-day volatility and long-term fluctuations of the rouble have been closely intertwined in the past. For this reason less (more) long-term fluctuations of the rouble (level) against the euro (dollar) can be expected.
- Despite the announcement by the Bank of Russia that it intends to operate in the rouble/euro foreign exchange market, and despite the fact that a higher share of euro reserves facilitates occasional euro interventions, the euro may not be used systematically as a second intervention currency. For this purpose the Bank of Russia would have to establish firm in-

²⁰ In the past, a high-level of deposit dollarisation as well as significant holdings of US dollar cash by Russian citizens was named by the authorities as an argument in favour of a US dollar-focused exchange rate policy.

intervention targets for both the euro and the dollar. Speculation would be invited when the dollar/euro rate is moving. Thus, the dollar is likely to remain the main intervention currency.²¹ This does not exclude, however, that the euro may become the main intervention currency in the long term if the trade and financial linkages with the euro area and the countries pegging their exchange rates to the euro continue to expand.

Nevertheless, the role of the euro as the main intervention currency is linked to the role of the euro as a reserve currency. With the dollar as the main intervention currency, interventions in the US dollar increase the share of the US dollar in total reserves. Gudmundsson²² argues that many central banks use a minimum variance analysis to determine their reserve composition. If the reserve structure mirrors the intervention basket structure the nominal fluctuations of the worth of the international reserves are reduced. This was by-and-large the case in September 2005 when the weight of the euro in the currency basket was 35% and the share of the euro in foreign reserves was 33%.²³ If the dollar is the only intervention currency, in order to sustain the share of the euro in foreign reserves, the Bank of Russia has to acquire euro reserves either via dollar/euro transactions or – possibly increasingly – by direct rouble/euro transactions.

The international role of the euro in Russia is likely to increase, as the Russian monetary authorities are increasingly using the euro as an anchor, intervention and reserve currency. For the first time the euro is gaining ground as an international currency in a major country which does not strive to join the European Union. Russia has about 145 million inhabitants and the GDP amounts to \$580 billion, which is equivalent to the total GDP of all ten new member states. Provided that transaction costs for euro-invoiced/denominated trade and capital flows decline, the private use of the euro is likely to increase.²⁴

Beyond Russia, other CIS countries (133 million inhabitants, \$173 billion GDP) may follow the Russian exchange-rate strategy to maintain intra-CIS exchange-rate stability, as the CIS countries are highly regionally integrated.²⁵ For instance, while the Ukraine is (still) adhering to a tight dollar peg, pegging to the euro or a currency basket is being discussed. Private agents in the CIS countries can be expected to follow once the official exchange-rate strategies have changed.

While strengthening trade and financial links with the euro area and other countries stabilising their exchange rate to the euro might support such a trend, it could be counteracted by growing trade and financial flows with East Asia, where international and intra-regional trade and payment flows are mostly dollar-invoiced and dollar-denominated. Alternatively, the Asian countries may adopt similar basket strategies (including the Japanese yen as an anchor currency) to those proposed by Ogawa and Ito²⁶ and Williamson²⁷ (see Schnabl).²⁸

Conclusion

In contrast to the East Asian countries such as Korea, Thailand and Singapore, that have also been pursuing basket strategies with undisclosed weights and small (but increasing) weights for other currencies than the dollar, Russia has been transparent in announcing and implementing the currency basket. In line with the increasing role of the euro as an anchor currency, the role of the euro as a reserve and intervention currency seems to be on the rise. Nevertheless, inflationary pressure has prompted the Russian monetary authorities to divert from the pure basket strategy to contain inflation by appreciation. The change in the Russian exchange-rate strategy may provide considerable incentives to private agents to increase the use of the euro along the shift in its public use. This is likely to enhance the international role of the euro in both Russia and the CIS countries, which may be inclined to follow the Russian exchange-rate strategy to maintain intra-regional exchange-rate stability.

²¹ Deputy Chairman Korishchenko confirmed on August 26 that the dollar remains the core of the local currency market "where the situation determines the official exchange rate of the rouble and the scale of possible intervention operations by the Russian Central Bank."

²² Már Gudmundsson, *op. cit.*

²³ This would also suggest that the share of the euro in Russian foreign reserves has now grown to about 40%.

²⁴ In several Central and Eastern European countries, e.g. Bulgaria and Romania, shifts in official exchange-rate policies have triggered moves in the private use of international currencies from the US dollar to the euro.

²⁵ Gunther Schnabl: *International Capital Markets and Exchange Rate Stabilization in the CIS*, *op. cit.*

²⁶ Eiji Ogawa, Takatoshi Ito: *On the Desirability of a Regional Basket Currency Arrangement*, in: *Journal of Japanese and International Economies*, Vol. 16, 2002, pp. 317-334.

²⁷ John Williamson: *A Currency Basket for East Asia, Not Just China*, in: *Institute for International Economics Policy Briefs in International Economics*, Vol. 5, No. 1, 2005.

²⁸ Gunther Schnabl: *Capital Markets and Exchange Rate Stabilization in East Asia*, *op. cit.*