VI. Developments in foreign exchange markets

Highlights

The movements in the main exchange rates in the first half of 1998 were in large part determined by current and prospective business cycle developments. The crisis that hit Russia in mid-August raised concerns about the vulnerability of the US economy and reversed the upward trend of the dollar against the mark and the yen. Technical factors not directly related to fundamentals magnified the dollar's downturn, particularly against the yen. The size of these swings once again raised the question of the sustainability of the US current account deficit in the long run.

The crises that hit Russia in August 1998 and Brazil in early 1999 highlight the persistent vulnerability of emerging market economies. While exchange rates stabilised in many countries – notably in Asia – during 1998, the volume of activity in these markets has remained subdued and far below the peaks reached in 1996.

The introduction of the euro followed a year of convergence and stability in European foreign exchange markets. In its first months, the new currency depreciated as a result of cyclical factors. The euro is likely to lead to significant structural changes in foreign exchange markets, but it is too early to determine the extent to which it will be used as a transaction, reserve, investment and anchor currency.

The dollar, yen, mark and euro

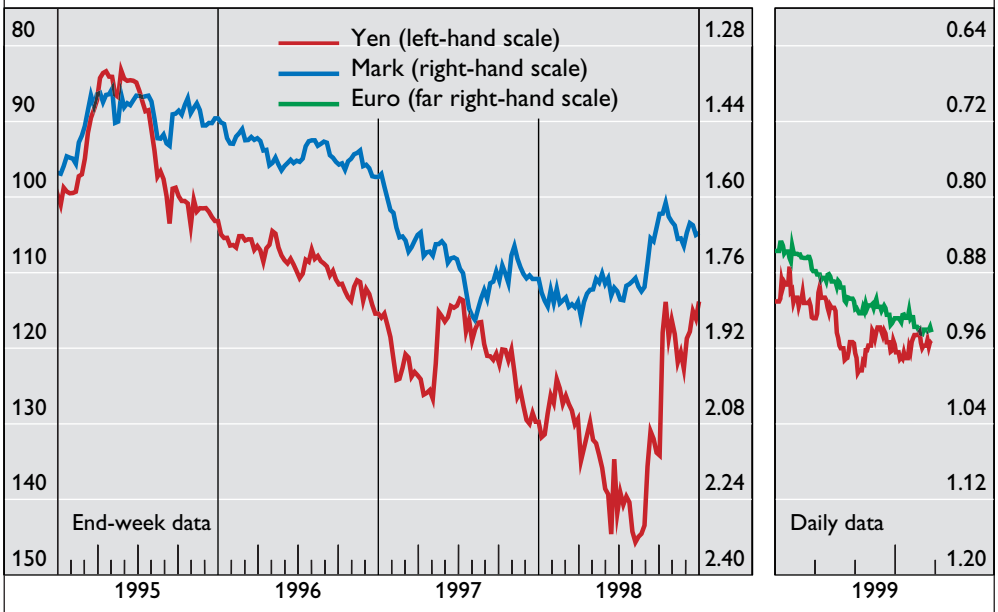
Cyclical and technical determinants of the dollar exchange rate

The broad movements of the main currencies in the first half of 1998 were driven mainly by the relative strength of the real economy and inflation prospects in the United States, Japan and Germany. However, from the summer onwards they began to reflect the interaction of these cyclical factors and other, "technical" factors.

G3 currencies respond to cyclical developments

The period of dollar strength against the yen and the mark that had started in spring 1995 continued until summer 1998 (Graph VI.1). Over three years, the dollar thus appreciated by 36% against the mark and by 81% against the yen, taking exchange rates back to levels not seen since the early 1990s. As in previous years, the strength of the dollar against the yen up to August was underpinned by continuing signs of robust economic growth in the United States and persistent indications of weak growth in Japan. These cyclical developments led to expectations of a tightening of monetary policy in the United States and a loosening in Japan, reflected in widening forward rate

Selected exchange rates against the dollar



Note: Inverted scales; a decline indicates a dollar appreciation. Graph VI.1

differentials (Graph VI.2). Concerns about the fragility of the Japanese banking sector may have compounded the weakness of the yen.

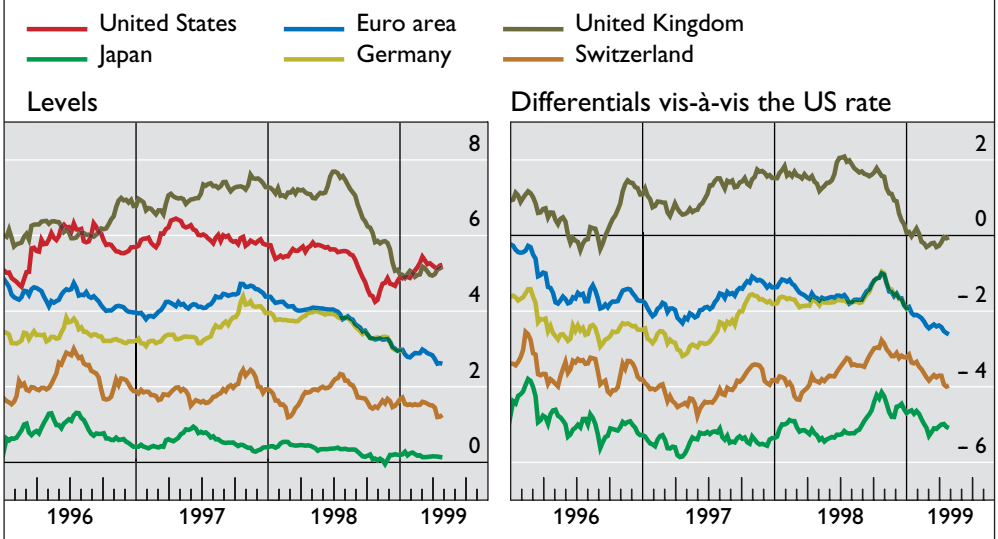
Trends in the behaviour of the mark/dollar exchange rate during this period were much less clear-cut. The gains posted by the dollar between January and early April, when it peaked at DM 1.85, were reversed the following month, as new data releases indicated that economic recovery was firming in Germany and market participants began to expect a monetary tightening by the Deutsche Bundesbank. The mark also profited from further convergence of official interest rates in Europe, which suggested greater confidence in a smooth launch of the euro. The ending of uncertainty with the official announcement on 3 May of the currencies participating in EMU, the procedure to determine their bilateral exchange rates and the composition of the Executive Board of the European Central Bank helped the mark bounce back to a level of DM 1.76 to the dollar. In June and early July, the German currency surrendered part of these gains and fell back to DM 1.82. This drop can be explained by the repeated attacks on the rouble from end-May and the perception then prevalent in financial markets that Germany's financial and trade links with Russia made it relatively more vulnerable.

Following the Russian crisis, the dollar falls steeply

The official announcement of the floating of the rouble and the unilateral moratorium on Russian debt in mid-August raised concerns that the crisis could spread to Latin America (see Chapter III). Stock markets fell in the United States and particularly in Europe. Moreover, market participants came to expect a monetary easing by the Federal Reserve. The change in expectations was in the event proved correct by the US monetary authorities' decision to lower interest rates in three steps between September and November (see Chapter IV). Against this background, the dollar plunged heavily in two stages. Between 27 August and 7 September it lost about 5% against

Six-month forward interest rates *

Weekly averages, in percentages and percentage points



* Derived from six- and 12-month Libid. Graph VI.2

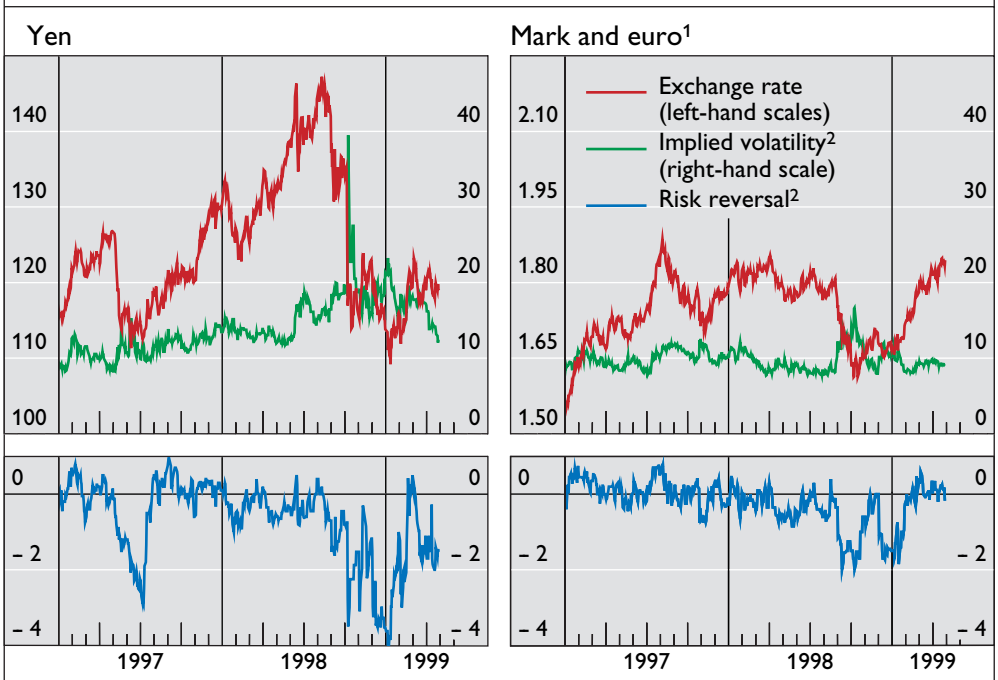
the mark, dropping from DM 1.81 to DM 1.72, and depreciated especially sharply against the yen, falling by about 8% from ¥143 to ¥131. During the following weeks, the dollar weakened another 5% against the mark, bottoming at DM 1.61 in early October. Against the yen, after hovering around ¥132–136, the US currency took a historically unprecedented fall on 7 and 8 October and lost more than 13% to reach ¥117.

Option prices demonstrate the change in market sentiment towards the dollar during this period. At end-August, traders moved towards giving more weight to prospects of a much weaker rather than a much stronger dollar vis-à-vis the yen, as suggested by the premium of one-month yen calls over equally out-of-the-money dollar calls (the risk reversal shown in Graph VI.3 turned negative). At the same time, the strong rise in volatility implied in yen/dollar options suggests that uncertainty about future movements in the yen/dollar rate rose substantially. There was also a shift, albeit not as conspicuous, in the mark/dollar market, where traders switched to putting more weight on a much weaker rather than a much stronger dollar and implied volatility rose. A particularly sharp change in market sentiment occurred in the yen/dollar market in early October, when the balance between expectations of a much stronger dollar and a much stronger yen tilted clearly in favour of the latter and the volatility implied in yen/dollar options more than doubled to reach record levels within a few days. The volatility of the mark/dollar rate also rose sharply, but reached less than half the level of yen/dollar volatility.

Cyclical factors weigh on the dollar

In explaining the events of September and October, two types of determinants must be distinguished: factors related to cyclical developments and other economic fundamentals, and technical factors driven by specific market conditions. Changes in the prospects for the G3 economies may have favoured the mark and the yen against the dollar. This seems to offer at least a

Dollar exchange rate, implied volatility and risk reversal of the yen, mark and euro



Note: On 31 December 1998, the conversion rate for the euro was fixed at DM 1.95583.

[1] For 1999, the implied volatility and risk reversal are for the euro. [2] One-month, in percentages.

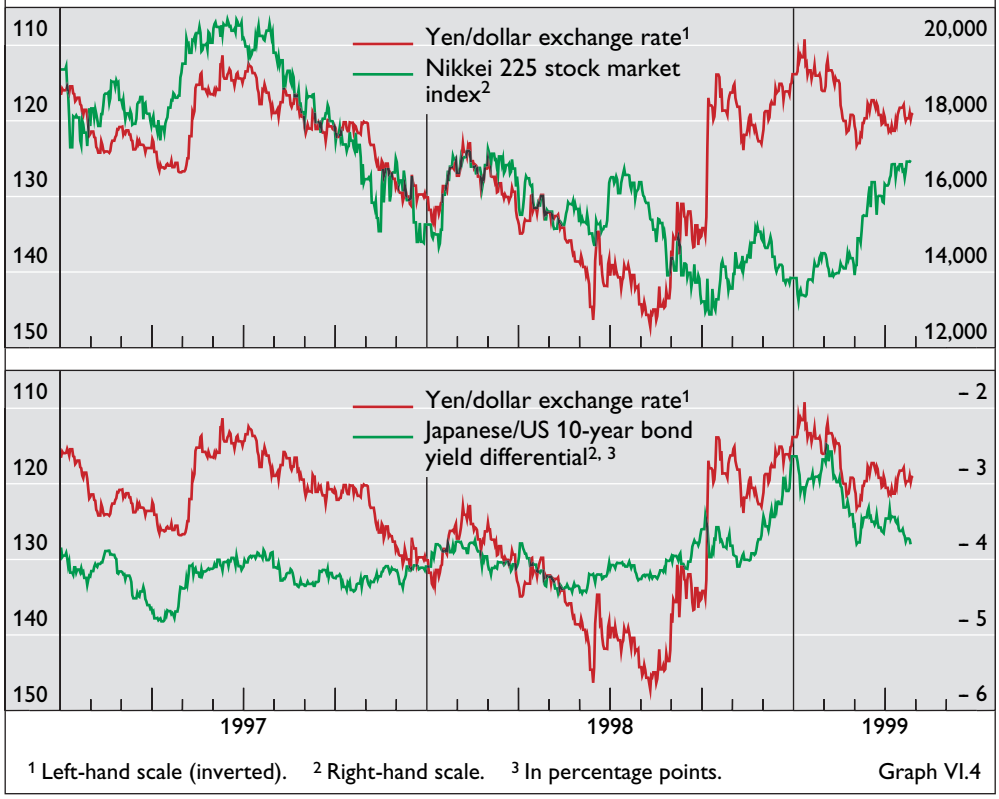
Sources: ECB; Reuters. Graph VI.3

partial explanation of the depreciation of the US currency against the mark and the yen in early September. It is consistent with the spreading of concerns about the vulnerability of the US economy to fallout from financial turmoil in Latin America and the decline in US equity markets in late August and early September. It is also consistent with the shift in market expectations towards an easing of US monetary policy and the decline in US bond yields during this period.

However, such factors do not appear to explain the dollar's plunge in early October. First, the decline in asset prices in the United States seemed to have bottomed out. Moreover, Japanese equity markets, which had tracked the declining yen quite closely since 1997, did not rally as the Japanese currency strengthened in September and October. This experience contrasts sharply with the positive correlation between the Japanese stock market and the yen/dollar exchange rate between January 1997 and July 1998, which was due to the fact that concerns about weak economic growth and the fragility of the banking sector in Japan weighed on both (Graph VI.4). This evidence suggests that in early October market participants did not reconsider their outlook for the Japanese economy. There were also no signs that the economic recovery under way in Germany would accelerate.

Nor can cyclical factors explain the unusual steepness of the dollar's fall, particularly against the yen. This may have been caused instead by technical factors unrelated to developments in the real economy in the G3 countries. One possible explanation is that in September and October highly leveraged

Equity prices, bond yield differential and the yen/dollar exchange rate



[1] Left-hand scale (inverted). [2] Right-hand scale. [3] In percentage points. Graph VI.4

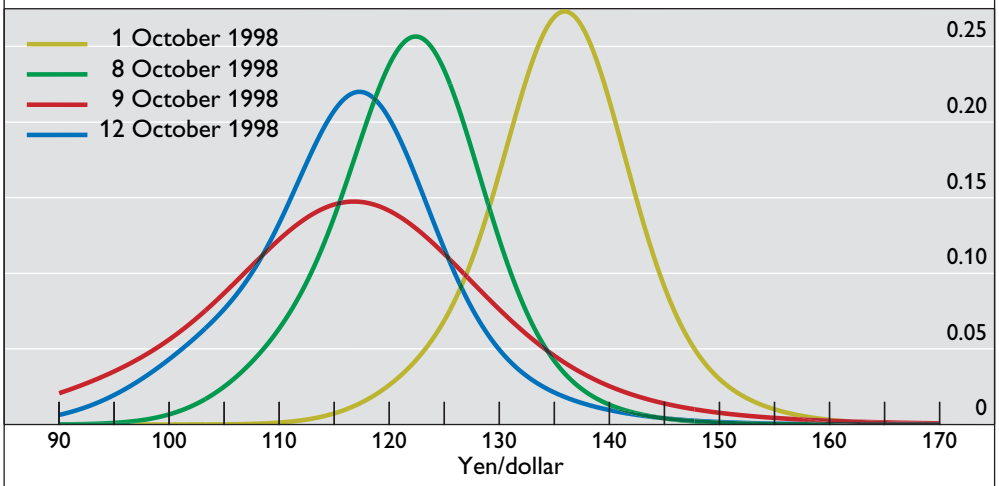
Leveraged hedge funds precipitate the dollar's fall through two channels

hedge funds and investment houses may have closed large short yen positions built up previously in an effort to take advantage of the low financing cost in that currency. The unwinding of these yen carry trades could have precipitated the dollar's decline through two channels. First, the capital base of these investors may have been severely hit by declining asset prices in the wake of the Russian crisis. As big losses on their portfolios triggered margin calls, these leveraged players were forced to close their yen carry trade positions, thereby creating a sudden large demand for yen. This mechanism may help explain the magnitude of the dollar's fall in early September.

A second channel through which yen carry trades may have played a role is by magnifying shocks that originated in the yen/dollar market. In early October market participants seem to have reconsidered their expectations regarding yen/dollar movements in the short term. The sudden change of views on the yen/dollar rate may have induced investors to close their yen carry trade positions, thereby pushing the dollar down further. A massive unwinding of these positions may have contributed to the intensity of the yen/dollar movements on 7 and 8 October 1998.

Probability density functions estimated from option prices present evidence of a marked break in market sentiment around these days (Graph VI.5). In the first week of October, they point to a gradual shift in market participants' balance of risk towards assigning more weight to a much stronger rather than a much weaker yen in the short term (the density functions in the graph overleaf became more skewed to the left).

Probability distributions of the yen against the dollar



Note: The calculation assumes risk neutrality and is based on data posted at the beginning of the days shown.

Source: W Melick (Kenyon College, Ohio) using Deutsche Morgan Grenfell data. Graph VI.5

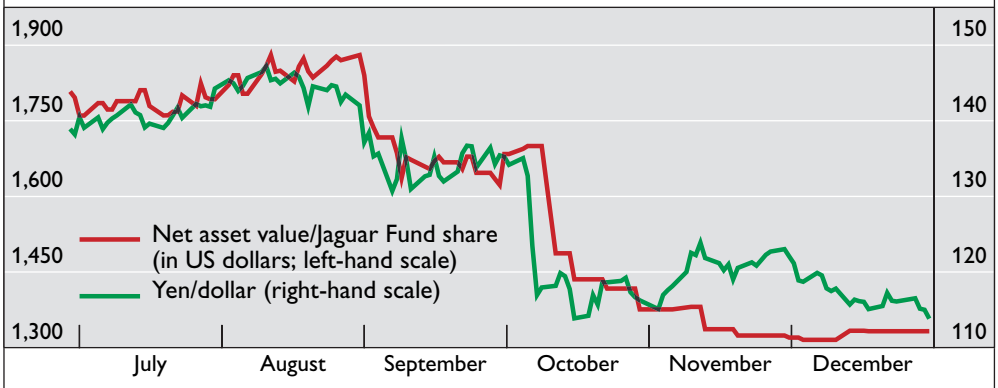
On 7 and 8 October, however, a pronounced shift in sentiment occurred, as the balance of risks swung sharply in the direction of a huge bias towards a much stronger yen and uncertainty increased markedly (the variance of the density functions rose steeply). Market conditions normalised somewhat by 12 October, as the uncertainty about future yen/dollar changes abated.

The 1998 Central Bank Survey of Foreign Exchange and Derivatives Market Activity provides two pieces of indirect evidence that investment overseas was being financed by low-cost borrowing in yen. First, yen/dollar option contracts traded over the counter recorded a sharp increase between 1995 and 1998. Second, when measured at constant exchange rates, the turnover of the yen in spot and forward markets increased at an unusually fast rate between 1995 and 1998. Moreover, the extent to which leveraged investors relied on yen carry trades may be illustrated by the large drop in the net asset value of a major hedge fund around the two days of steep yen appreciation (Graph VI.6).

Policy implications

The role played by hedge funds in September and October 1998 has some potential policy implications. In recent years, attention has often focused on the foreign debt that the United States has accumulated since the 1980s. The steep fall of the dollar shows that not only the level of this debt but also the way it is financed can have important consequences for short-term movements in the exchange rate. The accumulated debt may be absorbed on an unhedged basis by investors with a long-term perspective that can easily withstand temporary shocks to their portfolio, such as insurance companies and pension funds. These investors tend not to react to short-term developments and will therefore generally play a stabilising role for the dollar. In contrast, leveraged investors exposed to shocks that affect their capital base may also carry the open foreign exchange position associated with the debt. However, since they tend to react very quickly and strongly to losses on their portfolio, they can contribute to making the value of the dollar more volatile through periodic

Yen carry trade and the yen/dollar exchange rate in 1998



Sources: ECB; *International Herald Tribune*. Graph VI.6

attempts to hedge their exposure. These investors seem to have been particularly active in 1998. The future path of the dollar may therefore depend to some degree on which of these two types of investors will dominate. This conclusion presumes of course that heightened exchange rate volatility will not induce traditionally longer-term investors, especially in Japan, to hedge their exposure more actively. This could be another source of short-term exchange rate volatility and general downward pressure on the dollar during the period of adjustment.

Starting from lows of DM 1.61 and ¥114 in mid-October, the dollar climbed back against both the mark and the yen to reach DM 1.69 and ¥124 by mid-November. However, in the following two months the yen recovered the ground it had lost against the dollar. This appreciation was accompanied by a sharp rise in Japanese government bond yields from about 1% to almost 2.5% and hence a narrowing yield differential between US and Japanese government bonds. The upsurge in Japanese long-term rates, which is generally attributed to a temporary modification of the balance between the supply of and demand for government bonds in Japan at that time, appears to have been the main factor bolstering the yen. Concerns about the widening US current account deficit, which reached record levels in the third quarter of 1998, may also have contributed to the depreciation of the dollar vis-à-vis the yen. The latter's rise halted only when the Bank of Japan intervened on 12 January 1999 as the exchange rate approached ¥108 to the dollar. Between mid-January and mid-February, as the Bank of Japan eased monetary policy, and particularly after the decision to scale back the Trust Fund Bureau's purchases of Japanese government bonds was reversed, the dollar bounced back to ¥120.

The euro's movements reflect views on economic growth

The euro's introduction on 1 January 1999 prompted strong demand for the new currency, which brought about an appreciation against the dollar from $1.1668 (the closing rate of the ECU on 31 December 1998) to $1.18 on that day. Very shortly after, however, market participants refocused on the uncertainty about economic growth and persistently high unemployment rates affecting a significant part of the euro area. The steady depreciation of the euro between January and April 1999 can be explained by the divergent trends in economic activity in the United States and large parts of the euro

area. Official data releases in early 1999 provided evidence of surprisingly strong US economic activity, with GDP growth in the last quarter of 1998 reaching an annual rate of 6.1%. In contrast, economic growth was somewhat weaker than expected in some euro area countries, especially Germany. As a result, market expectations regarding short-term interest rates moved in favour of the dollar, as the widening differential between US and euro area implied forward interest rates illustrates. Although the amount by which the ECB decided to ease monetary policy on 8 April took market participants by surprise, the euro hardly moved against the dollar in the following days.

In the first few months of 1999, the balance of demand and supply in European bond markets may also have contributed to the depreciation of the euro. Compared with strong interest by issuers in international bonds denominated in euros, demand by asset managers for such securities seems to have been subdued. By mid-April the euro had depreciated to around $1.06 against the background of the continuation of hostilities in the Balkan region. In the following weeks, the euro traded around levels of $1.06–1.07, not far from those implied by euro area currencies in April 1998. The depreciation of the euro since January has been orderly, as indicated by fairly low levels of volatility, both actual and implied. More generally, any extra uncertainty about the performance of a new currency remained very limited, as euro volatility against the dollar was similar to that of the mark, French franc and other European currencies in 1998.

Long-run perspectives on the dollar

The dollar's movements may be stabilising in the medium term …

The broad strengthening of the dollar between spring 1995 and summer 1998 and its subsequent fall and recovery raises once again the issue of different medium- and long-term perspectives on the value of the currency. Seen from a medium-term perspective in terms of flows, the broad exchange rate movements between spring 1995 and summer 1998 seem consistent with relative cyclical positions. The strengthening dollar helped shift world aggregate demand from strongly growing economies to economies with weak demand. The same is true also for the appreciation of the dollar against the euro in early 1999.

… but raise the question of long-term sustainability

Put in a longer-term perspective, however, the strengthening of the dollar seems more difficult to explain. There are two main approaches to estimating the long-term equilibrium values for exchange rates, both of which can yield only imprecise estimates. According to the first approach, which looks at the comparative purchasing power of currencies, the dollar currently appears to be somewhat above its long-term equilibrium value against the yen and the euro (Table VI.1). A similar conclusion is reached if the dollar is measured against necessarily approximate estimates of its fundamental equilibrium value, which is the level that is consistent with a stable ratio of external debt to output in the long run.

The combination of a rising trade deficit and an increasing debt service burden pushed the US current account deficit to the record level of $233 billion in 1998. As a result, US net foreign debt increased from 16% to about 19% of GDP. The implications of this net external debt for future

Estimates of the dollar's long-term equilibrium value				
	Market rate[1]	PPP[2]	Trend PPP[3]	Fundamental equilibrium exchange rate[4]
Yen/dollar	119	163	102	100
Dollar/euro	1.06	1.05	1.15	1.25–1.30

[1] On 29 April 1999. [2] OECD, 1998 for yen/dollar; 1996 for dollar/"synthetic" euro. [3] Warburg Dillon Read, early 1999. [4] Institute for International Economics, early 1999. Table VI.1

debt servicing requirements are, however, reduced by the fact that rates of return on US external assets have traditionally been higher than on US liabilities. US net income turned negative only in 1997, and in 1998 was still less than 1% of GDP. By contrast, Japan's net external assets, which now exceed 25% of GDP, are yielding a net income of only about 1.5% of GDP.

Developments in emerging foreign exchange markets

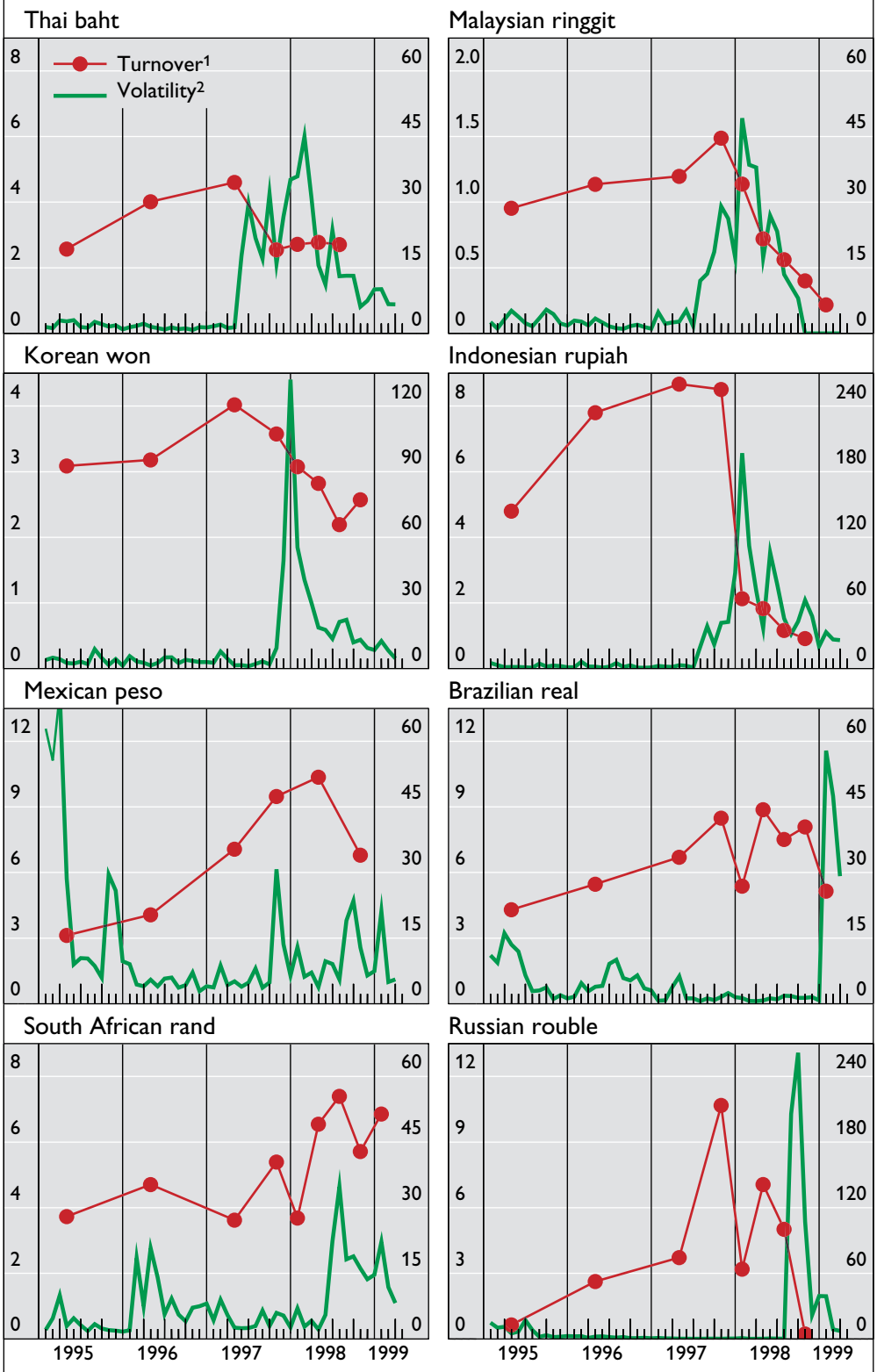
Crisis hits Russia and Brazil

Two important developments occurred in foreign exchange markets in emerging economies during 1998 and early 1999 (see also Chapter III). First, turmoil hit the rouble in August 1998 and then spread to Mexico, where capital inflows fell sharply and the currency depreciated markedly. In January 1999 Brazil was forced to devalue the real after intense speculative pressures. Second, foreign exchange markets in Asia showed signs of stabilising after the waves of turmoil that had hit them in 1997 and early 1998, allowing monetary authorities to gradually ease short-term interest rates. As the example of the won shows (see Graph VI.7), the volatility of the dollar exchange rate, which had risen sharply in 1997 and early 1998, returned towards pre-crisis levels. This development paralleled the return to stability of financial markets in the region and the improved economic performance. Other currencies which had weathered the turmoil better in 1997, such as the yuan and the Hong Kong dollar, remained stable throughout 1998 and the early part of 1999.

Asian foreign exchange markets are stabilising

The greater exchange rate stability to a large extent reflected domestic factors. In addition, stability was helped by the movements of the yen/dollar exchange rate and the changing relationship of Asian currencies to it. Before the crisis erupted in 1997, most emerging market currencies in Asia had been firmly pegged to the dollar. As a consequence of the large gains posted by the US currency against the mark and especially against the yen between 1995 and 1997, effective exchange rates in Asia appreciated substantially, causing considerable losses in competitiveness. This had led to exchange rate pressures on many Asian currencies and eventually to the severing of their link to the dollar. In the second half of 1997 and the first half of 1998, the rupiah, the won, the ringgit and the baht maintained their distance from the US currency and co-moved more closely with the yen in its downward movements against the dollar (Graph VI.8). Until August 1998, the closer co-movement with the weakening yen and looser tie with the strengthening dollar allowed these

Turnover and volatility in selected emerging markets



Note: Various structural changes in the Russian foreign exchange market contributed to the sharp decline in turnover after July 1998.

[1] Local turnover in the domestic currency, per trading day in the month shown (in billions of US dollars; left-hand scales), except for Brazil and Mexico, where turnover includes other currencies (for detailed information, see last year's Annual Report, Table VI.5). [2] One-month annualised standard deviation of daily percentage changes in the exchange rate against the US dollar (right-hand scales).

Sources: Central banks; Datastream; BIS calculations. Graph VI.7

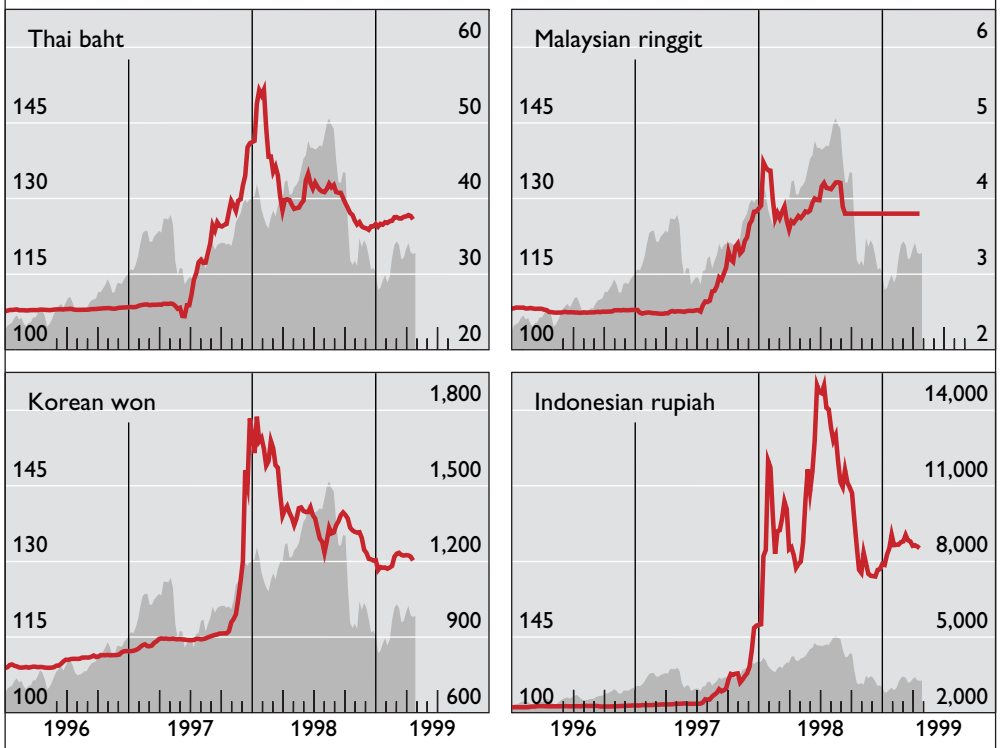
currencies to regain competitiveness. The same is true for most other Asian currencies with the notable exceptions of the yuan and the Hong Kong dollar, which remained firmly linked to the US currency.

Given that China's exports to the United States, the European Union and Japan have a sectoral profile very similar to those of Korea, Thailand and the Philippines (Table VI.2), whose currencies had depreciated substantially, the yuan's peg to the dollar looked particularly vulnerable when the latter approached ¥150 in mid-August 1998. However, when the dollar lost about one-quarter of its value against the yen in the following six weeks, market participants' concern that China would abandon its currency peg abated. At the same time, other currencies in Asia stopped tracking the yen and returned to moving in line with the depreciating dollar.

After January 1999, movements in Asian currencies tended once again to be more correlated with the yen. The fact that since mid-1997 most Asian currencies have tended to co-move most closely with whichever currency was depreciating – the dollar or the yen – suggests the emergence of a more eclectic approach to exchange rate management in the region. An exception is Malaysia, which pegged its currency to the dollar in September 1998 and introduced strict controls on capital movements. These were partly relaxed in early 1999.

While exchange rates stabilised in Asia during 1998, the collapse of the rouble in August, the pressures on the Mexican peso in the following months

Exchange rates against the dollar in selected Asian markets



Note: An increase indicates a dollar appreciation. The shaded areas indicate the yen/dollar exchange rate (left-hand scale).

Sources: ECB; Datastream. Graph VI.8

Sources of competitive pressure on Asian currencies

	Korea	India	Thai-land	Malay-sia	Singa-pore	Indo-nesia	Philip-pines	China	Taiwan
India	38								
Thailand	63	44							
Malaysia	66	23	58						
Singapore	53	17	46	56					
Indonesia	37	42	45	41	21				
Philippines	69	38	67	71	51	42			
China	55	53	62	43	33	47	55		
Taiwan	69	30	68	58	60	32	60	54	
Hong Kong	52	41	55	45	40	30	56	63	53

Note: The similarity of the commodity composition of exports from Asian countries to the United States, Japan and the European Union is measured by the Finger index using a two-digit SITC breakdown of total exports ($X_\bullet$).

For two countries i and j, the Finger index is given by the formula:

$$100 \sum_{k=1}^{64} Min\left[(X_k^i / X_\bullet^i), (X_k^j / X_\bullet^j) \right]$$ where 64 is the number of sectors.

The index varies from 0 (complete dissimilarity) to 100 (identical composition of exports).

Sources: F M Finger and M E Kreinin, "A measure of export similarity and its possible uses", in *The Economic Journal*, Vol. 89, pp. 905–12; OECD; BIS calculations. Table VI.2

and the speculative attack on the Brazilian real which culminated in its floating in January 1999 show that emerging market currencies remain vulnerable. Moreover, figures on volumes traded in foreign exchange markets over the past few years show that activity in these markets is still subdued (Graph VI.7). Indeed, in some cases, such as Indonesia and Malaysia, turnover is lower than in 1995. This fact is consistent with the reversal of capital flows to emerging markets described in Chapter VII. Since August 1998, it has also reflected the global flight to quality and liquidity (see Chapter V) that followed the Russian crisis.

Activity remains subdued

Two different types of relationship between market activity and volatility are shown in Graph VI.7. Following a pattern that is typical of stock markets, higher volatility in the South African foreign exchange market in 1998 was associated with higher trading volumes. Conversely, markets that experienced dramatic turbulence, such as Indonesia in 1997 and early 1998 and Russia in summer 1998, show an inverse correlation between volatility and activity. In the case of Russia, for example, foreign exchange market turnover rose at an extremely fast rate between 1995 and 1997. Following the collapse of the rouble, market activity dried up almost completely, a development possibly aggravated by structural market changes.

Intra-European exchange rates

European foreign exchange markets were characterised in 1998 by a smooth approach to monetary union and remarkable stability in the face of the turbulence that affected global financial markets. In the first half of the year, converging policy rates and bond yields in Europe were accompanied by

stable intra-European exchange rates and declining foreign exchange trading. According to the 1998 central bank survey, the share of trading in marks against French francs in the spot, forward and currency option markets shrank substantially between 1995 and 1998. This trend accelerated after the announcement on 3 May of the currencies participating in EMU and the levels at which bilateral exchange rates would be fixed.

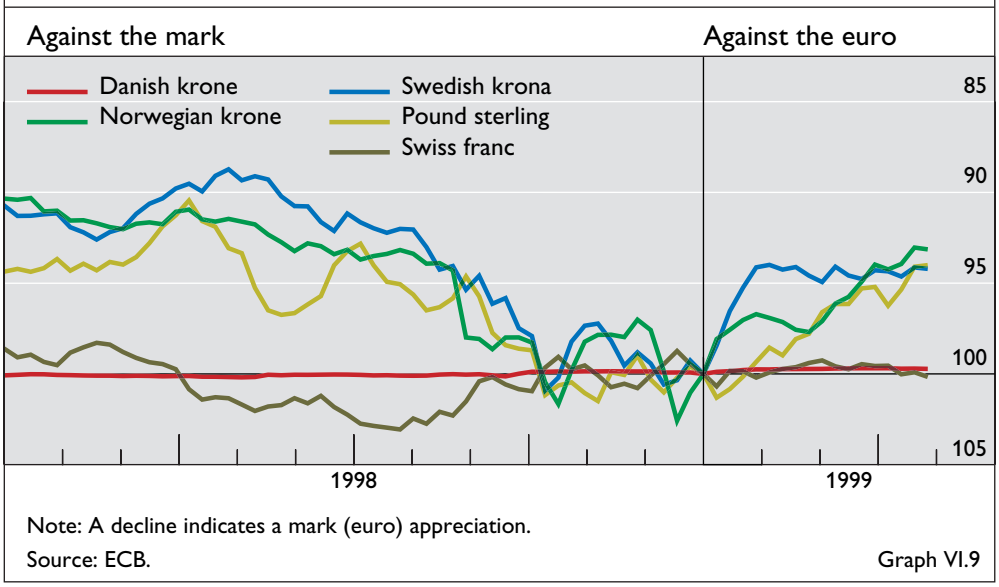
The prospect of EMU plays a stabilising role

When the Russian crisis sparked a global flight to quality and liquidity in August 1998, foreign exchange markets in the prospective euro area remained notably calm. In the following months, the volatility of other legacy currencies against the mark remained subdued and short-term interest rates converged towards year-end (see Chapter IV), revealing the stabilising effects of the approach of monetary union. By contrast, some non-euro area European currencies were subject to exchange rate pressure between end-August and October 1998. The difference between the response of the Finnish markka and that of the Norwegian krone and Swedish krona illustrates the stabilising role played by the prospect of entering monetary union. While the markka remained stable against the mark, the volatility of the krona trebled between August and October as it weakened against the mark (Graph VI.9). In the case of the krone, this effect was compounded by the continuing fall in oil prices, and the monetary authorities were forced to increase policy rates markedly in August and ultimately to retreat from their exchange rate objective.

The weakness of the krona against the mark over most of 1998 also reflected the economic slowdown in Sweden, which led authorities to make repeated cuts in official rates. During the fourth quarter, the krona stabilised against the mark. Moreover, the differential between Swedish and German bond yields narrowed as market participants came to expect an earlier entry of Sweden into EMU.

Selected exchange rates against the mark and the euro

Weekly averages, end-1998 = 100 (inverted scale)



Note: A decline indicates a mark (euro) appreciation.

Source: ECB. Graph VI.9

Sterling and the Swiss franc co-move with the euro …

The behaviour of two major European currencies outside the euro area – the pound sterling and the Swiss franc – also reflected underlying cyclical factors and associated monetary policy responses. The weakening of the pound against the mark in the first three quarters of 1998 can be attributed to changes in market expectations for interest rates in the United Kingdom in response to incoming data indicating slowing UK growth. The downward shift in expectations, evident from implied forward interest rates (Graph VI.2), was in the event borne out by the gradual decline of UK short-term rates between October 1998 and April 1999. Against the euro, the pound traded in a narrow range and appreciated gradually from £0.71 to £0.66 between January and April 1999. Sterling's appreciation against the euro at a time when the euro was weakening against the dollar echoes its behaviour relative to the mark and the dollar since the early 1990s.

… as they did before with the mark

The Swiss franc, following a pattern similar to that observed in the past, depreciated against the mark as the latter weakened in the first half of 1998, and strengthened as the mark recouped its losses against the dollar in the second half. Against the euro, the Swiss franc depreciated slightly between January and April 1999 as the euro fell against the dollar. Its movements against the new currency thus replicated the pattern that held in the past with respect to the mark. The desire of the Swiss authorities to maintain this relationship was illustrated by their synchronised monetary policy move on 8 April 1999 when the ECB lowered rates.

Foreign exchange markets after the introduction of the euro

In the first few months after the introduction of the euro, attention focused on the short-term changes in the value of the new currency, and in particular its depreciation against the dollar. However, the advent of the euro is likely to cause structural changes in foreign exchange markets. These changes, the timing of which is difficult to predict, are related to the role that the euro plays in the future as a transaction, reserve, investment and anchor currency. The euro represents an economic area that accounts for 16% of world GDP and 30% of world trade, shares that are comparable to those of the United States, but it is an open question whether the euro will eventually match the dollar in importance.

The importance of the euro depends on its role as a transaction …

The euro may play a major role as a vehicle currency in transactions. The use of a currency in foreign exchange markets provides one common measure of its importance as a transaction currency. Judged by the data reported in the 1998 triennial survey, the dollar is still by far the dominant vehicle currency (Table VI.3). Taking account of the part of total trading that disappeared at the start of EMU, the dollar is estimated to appear in 94% of all transactions in spot and forward contracts. Estimates based on trading in euro area currencies in 1998 suggest that, at the start of EMU, the euro was being used in about 50% of all foreign exchange transactions. In the long run, the share of the euro will probably rise, but the extent will depend on the role it plays as a reserve, investment and anchor currency.

Foreign exchange markets and EMU

	Turnover[1] in 1995			Turnover[1] in 1998		
	Total	vs. US dollar	vs. EMU currencies[2]	Total	vs. US dollar	vs. EMU currencies[2]
	in billions of US dollars					
US dollar	1,313.4	–		1,741.0	–	
EMU currencies[2]	*869.8*	*551.4*	*201.1*[3]	*968.4*	*709.1*	*125.1*[3]
Deutsche mark	583.8	364.9	*106.1*	602.7	413.1	*62.4*
French franc	127.2	72.5	*51.7*	102.6	82.6	*17.1*
ECU	36.2	25.2	*10.9*	28.2	22.7	*5.6*
Japanese yen	371.4	329.9		407.2	363.3	
Pound sterling	139.7	102.8		211.9	159.4	
Swiss franc	116.3	85.7		138.8	108.7	
Total	1,571.8	1,313.4		1,981.6	1,741.0	

Note: Estimates shown in italics.

[1] Average daily turnover, net of local inter-dealer double-counting. The table reports the turnover in which a given currency appears on one side of a transaction; consequently, each transaction is counted twice. To take this into account, the total (which also includes other and unallocated currencies) is divided by two. [2] In the survey, decompositions are available only for the Deutsche mark, French franc, pound sterling, ECU and the sum of all other EMS currencies. In order to estimate turnover for EMU currencies, the sum of other EMS currencies is broken down using figures on local currency trading based on the methodology used in Table V.5 of the 67th Annual Report. [3] Before the start of EMU, foreign exchange transactions between prospective members' currencies were sometimes carried out using the US dollar as a vehicle. As a result, an estimation of the current importance of the euro, the dollar and the yen based on the subtraction of intra-EMU turnover in 1998 leads to an overestimation of importance for the euro, an underestimation for the yen and a correct estimation for the dollar.

Sources: *Central Bank Survey of Foreign Exchange and Derivatives Market Activity* (1995, 1998); BIS calculations. Table VI.3

In the meantime, what is certain is that the introduction of the euro has caused a shrinkage of foreign exchange markets. According to the 1998 survey, trading between prospective EMU currencies that in 1995 accounted for 13% of total turnover contracted to less than 6% in 1998. It is noteworthy that the disappearance of one important segment of foreign exchange markets has not been offset by increased activity in emerging market currencies, as was earlier expected. Trading in such currencies actually declined between 1997 and 1998.

… reserve …

In evaluating the role of the euro as a reserve currency, it is necessary to distinguish between short-term developments and long-term prospects. In recent years, the share of worldwide official reserves invested in dollar-denominated instruments has remained fairly stable at around 70% (Table VI.4). The shares of the mark and the yen are much smaller and amounted to about 11% and 5% respectively at end-1998. The decline in the share of European currencies other than the mark, including the ECU, explains to a large extent the decline in non-dollar reserves in 1998. Taken together, the EMU currencies accounted for about 15% of world reserves in 1998. As the holdings of EMU currencies by countries in the euro area have disappeared, the dollar's share in total reserves will have increased somewhat. Over the longer run, how much the euro's weight in world reserves will exceed the sum of its constituent currencies will depend on central banks' future reserve management strategies. The role that it plays as an anchor currency may also be relevant, if countries

Official foreign exchange reserves

	1995	1996	1997	1998	Amounts outstanding at end-1998
	in billions of US dollars				
	Changes, at current exchange rates				
Total	198.5	172.3	52.7	63.8	1,636.1
Industrial countries	79.3	69.6	–12.0	– 0.5	690.4
Asia[1]	49.4	64.2	8.8	61.9	562.9
Latin America[2]	21.4	24.0	10.8	– 8.4	132.7
Eastern Europe[3]	34.6	–2.6	5.1	4.8	73.3
Other countries	13.8	17.1	40.0	6.0	176.8
	Changes, at constant exchange rates[4]				
Total	180.8	200.3	111.4	28.8	1,636.1
Dollar reserves held:	142.5	162.1	78.3	25.7	1,144.6
In the United States[5]	106.0	128.0	22.1	– 7.2	727.3
With banks outside the US[6]	–15.4	19.2	– 4.4	– 4.8	117.0
Unallocated	51.9	14.9	60.5	38.3	300.9
Non-dollar reserves	38.3	38.2	33.1	3.1	491.5
of which held with banks[6]	*7.6*	*8.0*	*17.2*	*–22.9*	*111.7*

[1] China, Hong Kong, India, Indonesia, Korea, Malaysia, the Philippines, Singapore, Taiwan and Thailand. [2] Argentina, Brazil, Chile, Colombia, Mexico and Venezuela. [3] Bulgaria, Croatia, the Czech Republic, Estonia, Hungary, Latvia, Lithuania, Poland, Romania, Russia, Slovakia and Slovenia. [4] Partly estimated; valued at end-of-year exchange rates. The residual has been allocated on the basis of known reserves. [5] Excludes foreign military sales prepayments and the current value of zero coupon bonds issued to the governments of Argentina, Mexico and Venezuela as collateral for their Brady bonds. [6] Deposits by official monetary institutions with BIS reporting banks.

Sources: IMF; national data; BIS. Table VI.4

pegging their currencies to the euro prefer to hold their reserves in that currency. Given the high levels of reserves held in emerging market countries, their exchange rate policies may become particularly important in this respect.

… investment …

Against the background of strongly rising international bond and equity flows (Table VI.5), the euro may play a significant role as an investment currency. In the first quarter of 1999, there was substantial bond issuance in euros.

Cross-border transactions in bonds and equities*

	1975	1980	1985	1990	1991	1992	1993	1994	1995	1996	1997	1998
	as a percentage of GDP											
United States	4	9	35	89	96	107	129	131	135	159	213	230
Japan	2	8	62	119	92	72	78	60	65	79	96	91
Germany	5	7	33	57	55	85	170	158	172	200	257	334
France	n.a.	5	21	54	79	122	187	197	187	258	314	415
Italy	1	1	4	27	60	92	192	207	253	470	677	640
Canada	3	9	27	65	83	114	153	206	187	251	355	331

* Gross purchases and sales of securities between residents and non-residents.

Source: National balance-of-payments data. Table VI.5

The role of the dollar, mark and yen as anchor currencies

	Share of local currency turnover (in %) against[1]			Exchange rate elasticity[2]		Share of local currency turnover (in %) against[1]			Exchange rate elasticity[2]
	US$	DM	Yen			US$	DM	Yen	
Asia					Eastern Europe				
Indian rupee	90.0	2.9	1.0	0.09	Czech koruna[4]	42.8	53.5	3.6[5]	0.75
Korean won	97.3	0.5	1.5	0.29	Hungarian forint	71.5	25.4	0.0	0.45
Taiwan dollar[3]	90.5	1.3	4.4	0.24	Polish zloty	78.9	19.8	n.a.	0.33
Thai baht	96.7	0.3	1.9	0.33	Slovak koruna	85.0	11.9	3.2[5]	0.63
Latin America					Other currencies				
Brazilian real	85–90[6]	n.a.	n.a.	0.55	New Israeli shekel	89.2	n.a.	n.a.	0.28
Colombian peso	100.0	0	0	–0.08	Saudi riyal	98.1	0.2	0.1	0
Mexican peso	n.a.	n.a.	n.a.	–0.96	South African rand	95.0	1.8	3.2	0.11
New Peruvian sol	100.0	0	0	0.03	Turkish lira	100.0	0	0	0.68

[1] Shares in foreign exchange turnover are computed as the ratio of local trading of the domestic currency against the dollar, mark and yen to total local trading of the domestic currency (July 1998). [2] Exchange rate elasticities are estimated as coefficients in the regression $X_t = \alpha + \beta\,(\text{DM/\$})_t + \gamma\,(\text{yen/\$})_t + u_t$, where X_t is the dollar exchange rate of a currency. All variables are percentage changes. The regression is estimated with monthly data over the sample period 1993:1–1998:12. The values reported are elasticities with respect to yen/dollar changes for Asian currencies and with respect to mark/dollar changes for all other currencies. An elasticity close to 0 indicates a high co-movement with the dollar. [3] April 1998. [4] October 1997. [5] Includes other currencies. [6] Estimate.

Sources: Central banks; Datastream; IMF; BIS calculations. Table VI.6

As suggested in the 67th Annual Report, the response of liability managers as well as asset managers to the introduction of the euro will be crucial in determining the development of the new currency. The euro will certainly benefit from the growing integration of European government bond and private bond markets. The segmentation that remains in some of these markets, which is due inter alia to differences in national regulations, tax regimes and market practices, indicates that it may also take some time for the euro to have an impact on private portfolio behaviour.

… and anchor currency

The euro's role as monetary anchor for other currencies is likely to evolve from that which the mark played up to end-1998. The co-movement of exchange rates with the dollar, mark and yen suggests that the dollar plays a dominant role in Asia, Latin America and other regions (Table VI.6). Evidence from the currency composition of foreign exchange market turnover points in the same direction. In 1998 the anchoring role of the mark was limited to Europe, suggesting that the role of the euro as an anchor may be confined to that region (and the previous sphere of influence of the French franc) in the near future. In early 1999 sterling, the Swiss franc, the krona and most eastern European currencies reacted to changes in the euro/dollar rate in broadly the same way as they had reacted to mark/dollar movements in the past. On average, for every 1% depreciation of the euro against the dollar, the Swiss franc depreciated by about 1.1%. The krona tracked the euro less closely, as it tended to depreciate by about 0.7% for every 1% decline of the euro, while the pound tended to share about half of the euro's movements against the dollar. The Czech koruna behaved similarly to the krona, while the zloty on average shared less than one-third of the euro's changes against the dollar. In contrast, the forint co-moved more with the euro than with the mark.