VI. Exchange rates and capital flows

Highlights

In 1997 and early 1998 current and prospective business cycle developments in the three largest economies continued to dominate interest rate expectations as well as the movements of the dollar against the yen and the Deutsche mark. The yen showed more variability than the mark as market participants revised their views regarding the momentum of the Japanese economy. As in 1996, the dollar's strength served to redistribute world demand in a stabilising manner, away from the full employment economy of the United States to economies that were still operating below potential. A question remains as to whether the US current account deficit, which is expected to widen substantially as a result of exchange rate changes and the Asian crisis, will prove sustainable given the continuing build-up of US external liabilities.

Under the influence of several forces, large currency depreciations spread across East Asia and beyond in 1997. Apart from similarities in domestic conditions, common factors were the strength of the dollar, competition in international trade, widespread shifts in speculative positions and foreign investors' withdrawal of funds from markets considered similar. The fall in output growth and wealth in Asia depressed commodity and gold prices, thereby putting downward pressure on the Canadian and Australian dollars.

Against the background of a strong US dollar, most European currencies proved stable or strengthened against the mark. As fiscal policies and inflation converged, forward exchange rates and currency option prices anticipated the euro over a year before the scheduled introduction of monetary union. Already in 1997, trading of marks against the other currencies of prospective monetary union members had slowed.

The US dollar, the Deutsche mark and the Japanese yen

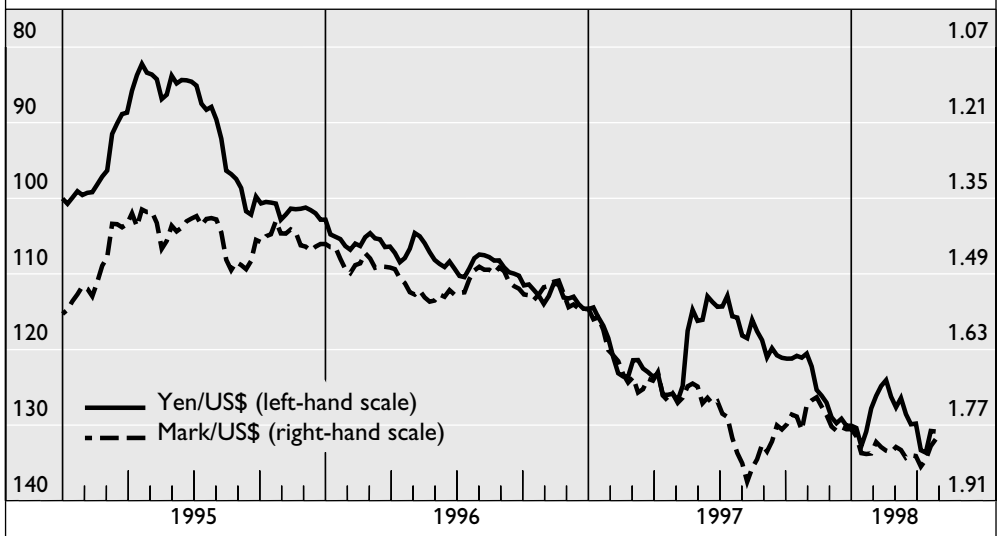
The dollar and business cycle developments

The dollar responds to changing views about growth

The dollar started 1997 on an appreciating trend against both the yen and the mark (Graph VI.1) as a result of market expectations of monetary tightening in the United States and no change in monetary policy in Germany and Japan (Graph VI.2). These expectations were founded on signs of accelerating US growth, coupled with rising unemployment in Germany and continuing weakness of the financial sector in Japan. Particularly large capital flows from Japan to the United States in April, which contributed to the substantial increase in cross-border transactions in bonds and equities (Table VI.1), accentuated the yen's depreciation (Graph VI.3).

The yen and the mark against the dollar

Weekly averages *

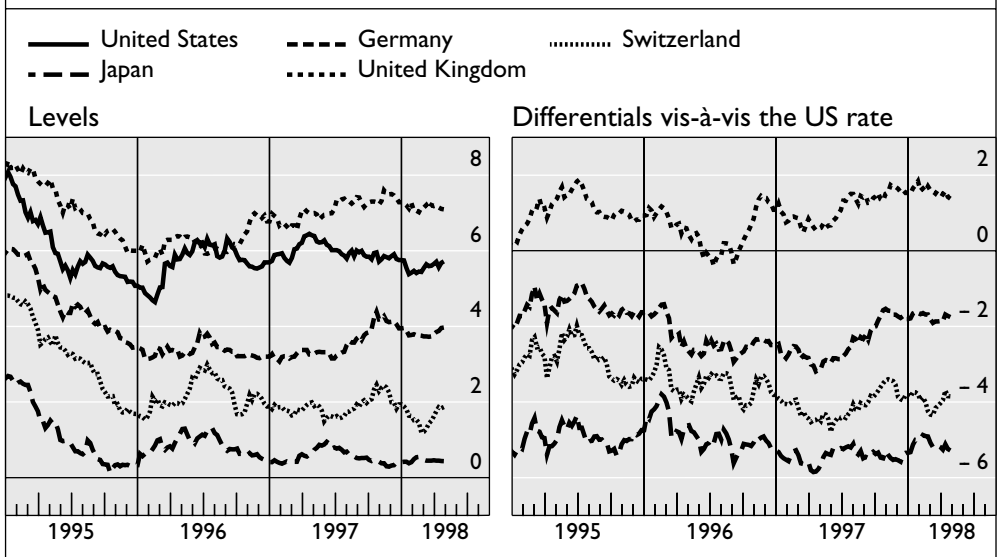


* Inverted scales. A decline indicates a dollar appreciation. Graph VI.1

From May to July the dollar moved in scissor-like fashion against the yen and the mark. Against the mark, it appreciated towards DM 1.90, a level never before reached in the 1990s, in the context of an increasing consensus that the euro would arrive on schedule with a broad membership. At the same time it depreciated substantially against the yen in response to perceptions (in the event erroneous) of improving economic prospects in Japan. The yen also rose when market participants interpreted statements by Japanese and US policy-makers as suggesting the possibility of official purchases of yen against dollars. Japanese investors exploited the yen's strength during this period by continuing to purchase US bonds in large amounts.

Six-month forward interest rates *

Weekly averages, in percentages and percentage points



* Derived from 6 and 12-month LIBID. Graph VI.2

Cross-border transactions in bonds and equities*

	1975	1980	1985	1989	1990	1991	1992	1993	1994	1995	1996	1997
	as a percentage of GDP											
United States	4	9	35	101	89	96	107	129	131	135	160	213
Japan	2	8	62	156	119	92	72	78	60	65	79	96
Germany	5	7	33	66	57	55	85	170	158	172	199	253
France		5	21	52	54	79	122	187	197	187	258	313
Italy	1	1	4	18	27	60	92	192	207	253	470	672
Canada	3	9	27	55	65	83	114	153	208	189	251	358

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

Source: National balance-of-payments data. Table VI.1

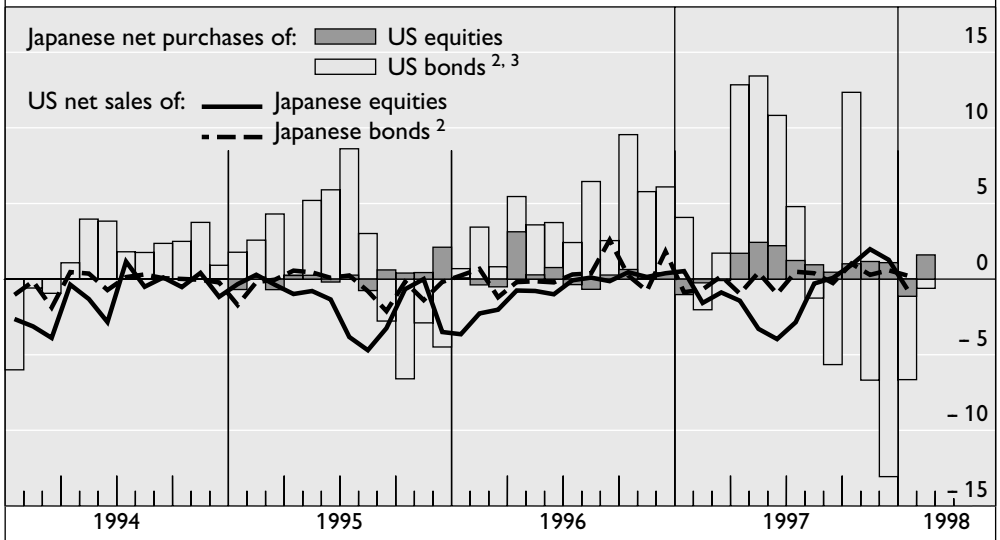
The scissor blades closed during the summer as the release of weak Japanese economic data dampened earlier optimism about an acceleration of growth. This reduced the likelihood of a rise in Japanese interest rates, while US interest rates were expected to remain unchanged. Concerns about the US trade deficit with Japan, however, may have moderated the dollar's appreciation against the yen. The mark's recovery against the dollar during this period reflected expectations of some monetary tightening in Germany, expectations which were fulfilled in early October.

Large Japanese sales of foreign bonds …

From the end of October to year-end, the spreading of the crisis in Asia influenced exchange rate movements between the three major currencies. The market view that the impact would be greatest on the Japanese economy tended to amplify the weakening of the yen in response to growing pessimism about the outlook in Japan and concern about financial strains. Japanese investors sold unprecedentedly large amounts of foreign bonds during this period, reversing the

Portfolio flows from Japan to the United States [1]

In billions of US dollars



[1] A positive (negative) sign indicates a net flow from (to) Japan. [2] Data may include official transactions. [3] 1994 data include US equities.

Sources: Japanese Ministry of Finance and US Treasury. Graph VI.3

large outflows from Japan during the phase of relative yen strength (Graph VI.3). Banks reducing dollar assets in order to pay off dollar liabilities accounted for some of the flows. Some of these bond sales, however, led to purchases of yen against dollars, so the yen's weakness suggests other forces were at work. One such factor may have been the sizable short positions taken against the currency in both the spot and the option market by speculative operators outside Japan. Hedge funds and proprietary trading desks were seen buying long-dated dollar calls at the current exchange rate, consistent with the view that economic weakness and financial fragility would lead to further appreciation of the dollar against the yen. Given the large interest rate differential, these options were out of the money (and therefore cheap) and would yield a positive return if the dollar strengthened even marginally. One indication of this speculative positioning was the persistent premium on one-year dollar calls over equally out-of-the-money yen calls in late 1997 and early 1998 (a positive risk reversal in Graph VI.4).

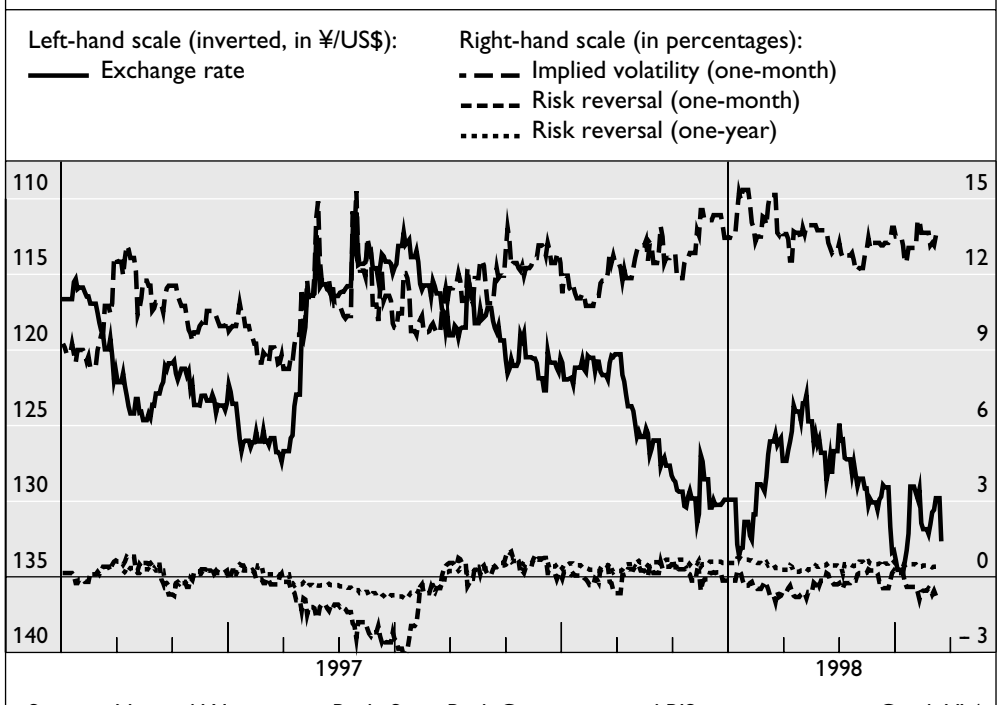
… outweighed by speculative positioning

In contrast to its strength against the yen, the dollar weakened against the mark from the end of October to mid-November, reflecting the market view that the Asian crisis would have a greater economic impact in the United States than in Europe. As in 1996, the dollar's steepest fall occurred on the day of the biggest decline in the US equity market (27th October). This decline, triggered by a plunge in the Hong Kong stock market, was accompanied by a rise in market uncertainty (an increase in the variance of the probability density function implied by option prices). Market participants also became willing to pay more for options that would pay off in the event of a much weaker dollar over the following months (a fattening of the left-hand tail of the distribution in Graph VI.5).

The dollar falls with US equities in October …

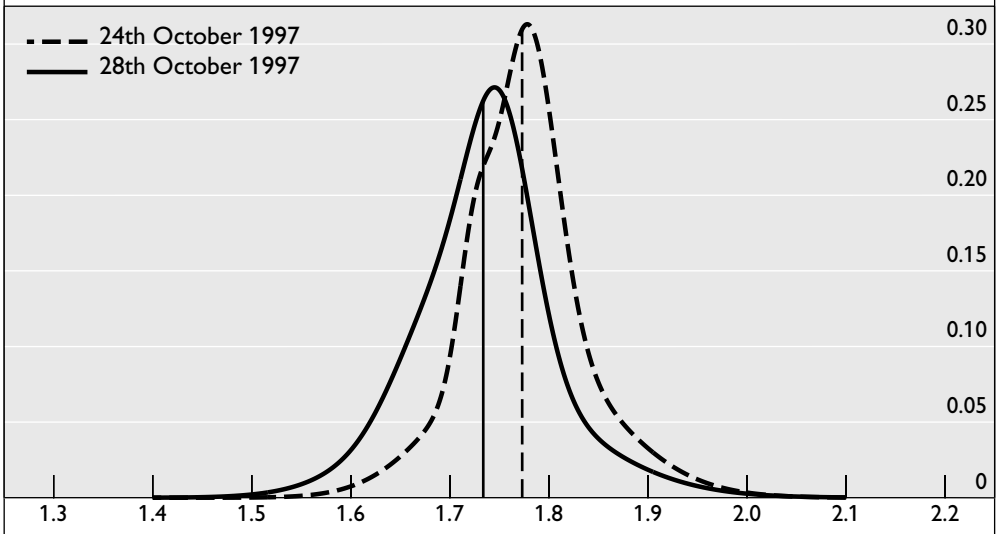
Other than on days of very sharp drops in the US equity market, the relationship between currency values and equity markets varies. With a large but

The exchange rate, implied volatility and risk reversals of the yen



Sources: National Westminster Bank, Swiss Bank Corporation and BIS. Graph VI.4

Probability distributions of the mark against the dollar



Note: The Dow Jones index fell by 554 points or 7.2% on 27th October 1997. The calculation assumes risk neutrality. The vertical lines indicate the forward rate from futures contracts (i.e. the mean of the distribution) for each date.

Source: W. Melick (Federal Reserve Board) using Chicago Mercantile Exchange data. Graph VI.5

… highlighting the relationship between exchange rates and equity markets

stable short-term interest rate differential between the dollar and yen over the past two years, the alternation of pessimism and optimism about the prospects for sustained growth in Japan has expressed itself in similar movements in both the yen's exchange rate and the Japanese equity market. (This relationship has been quite close, notwithstanding the fact that the generally positive response of Japanese corporate profits to a weaker yen would suggest the opposite relationship, as observed in continental Europe.) The US equity market and the dollar/mark exchange rate have shown a much looser relationship, notably in 1998 (Graph VI.6). To be sure, both reflect investors' shifting expectations with regard to sustained US growth and the associated hope of strong asset price performance, as indicated by a $66 billion net foreign purchase of US equities in 1997. At the same time, the looseness of the relationship reflects the importance of changing perceptions of the state of the business cycle in Europe as well as the United States. The singularity of the influence on the dollar/yen rate, compared with the complexity of the forces bearing on the dollar/mark rate, helps account for their scissor-like movement.

By mid-November market participants were coming to believe that Europe would be more exposed to fallout from the Asian crisis than previously thought. Together with official declarations about interest rate convergence in Europe, this perception led them to scale back expectations of further increases in German policy rates. As a result the mark gradually declined against the dollar up to the turn of the year.

The scissors opened again in mid-January 1998 as the dollar traded within a narrow band around DM 1.80 while the yen bounced back from nearly ¥134 to the dollar to around ¥125. The yen's rise was helped by expectations of a further fiscal stimulus package and deregulation measures in advance of the Group of Seven meeting on 20th February. Additional influences were a more

Exchange rates and stock markets

Sources: DRI, national data and BIS. Graph VI.6

positive outlook for the other East Asian economies and market concern about intervention by the Japanese monetary authorities. In early April, however, the yen fell back to around ¥135 to the dollar, its lowest level since September 1991, as the weak prospects for the Japanese economy reflected in the Tankan survey were mirrored by the decision of one credit-rating agency to change its outlook on Japan's sovereign credit rating from stable to negative. Dollar-selling intervention by the Bank of Japan prevented the yen from falling further against the dollar.

Perspectives on the dollar

The dollar's strength promotes cyclical balance …

From a cyclical perspective, the dollar's strength helped to strike a better balance of growth across industrial countries in 1997, as it had done in the previous two years. It tended to redistribute world demand from the strongly growing US economy to less robust economies. In a long-term perspective, however, the continuing strength of the dollar may eventually play less of an equilibrating role. To judge from the shortfall of goods and services it could command in Germany

Estimates of the US dollar's purchasing power parity and fundamental equilibrium value

	Market rate[1] against the dollar	Purchasing power parity (PPP)		PPP adjusted for productivity	Fundamental equilibrium exchange rate	
		OECD[2]	Penn[3]	Goldman Sachs[4]	IIE	SBC[4]
Deutsche mark	1.77	2.02	2.12	1.51	1.45–1.50	1.40
Japanese yen	132	169	188	124	100	95

[1] On 11th May 1998. [2] 1997 average. [3] 1992. [4] Early 1998.

Sources: OECD, Penn World Tables 5.6, Goldman Sachs, John Williamson's 1996 informal update of estimates in *Estimating equilibrium exchange rates*, Institute for International Economics (IIE), Washington, D.C. (September 1994) and Swiss Bank Corporation (SBC). Table VI.2

and Japan, as indicated by the gap between the market rate and estimates of purchasing power parity, the dollar is undervalued (Table VI.2). Yet the 1997 current account deficit of $166 billion looks set to widen further this year, given the dollar's strength and the drop in exports to Asia. The question arises therefore as to whether growing US current account deficits are sustainable in view of the build-up of US external liabilities.

… but raises long-term questions

One way to address this question is to look at estimates of fundamental equilibrium exchange rates, which try to identify the level of the dollar that would be compatible with a stable ratio of external debt to output in the long run. Such estimates, while necessarily imprecise, suggest that at May 1998 levels the dollar is noticeably overvalued against the mark and even more so against the yen.

Some comfort can be drawn from the readiness of private investors to finance last year's current account deficit in the United States. Most of the 1997 increase in US external liabilities seems to have been easily absorbed by the private sector, as official foreign exchange reserves in general, and those held in dollars in particular, rose only modestly after several years of very rapid growth (Table VI.3). The reversal of private flows to Asia led to a reserve drawdown in a number of emerging economies, but elsewhere reserves rose over the year, notably in China, Hong Kong, India, Poland and even Russia, despite its reserve losses in the fourth quarter. At the same time, industrial countries' reserves increased moderately (at constant exchange rates), with the growth of Japanese reserves levelling off in 1997. Nevertheless, the abundant private financing of the US deficit, including the strongest flows into US equities since the first half of 1987, leaves open the question of whether these inflows will continue.

Measured against US output, the build-up of external debt and the increase in its servicing burden do not appear to be of immediate concern. The net external liabilities resulting from the US current account deficits since the late 1980s do not exceed one-sixth of US domestic product. Moreover, US net investment income turned negative only in 1997, and amounts to only ⅕% of US output. In contrast, net investment income received by Japan on its positive net international investment of about one-quarter of domestic product amounts to slightly more than 1% of its output. This puzzling disparity between the substantial

Official foreign exchange reserves

	1994	1995	1996	1997	Amounts outstanding at end-1997
	in billions of US dollars				
	Changes, at current exchange rates				
Total	153.0	200.1	172.3	45.9	1,578.5
Industrial countries	60.9	79.3	69.6	–10.3	692.6
Asian NIEs[1]	31.7	22.7	17.5	– 4.1	272.2
Other countries	60.4	98.1	85.2	60.3	613.7
	Changes, at constant exchange rates[2]				
Total	112.2	182.1	200.6	105.3	1,578.5
Dollar reserves held:	90.7	143.8	161.8	54.5	1,103.5
In the United States[3]	38.3	106.0	128.0	20.6	738.7
With banks outside the US[4]	30.0	–15.4	19.2	– 4.0	122.2
Unallocated	22.4	53.2	14.6	37.9	242.6
Non-dollar reserves	21.5	38.3	38.8	50.8	475.0
of which held with banks[4]	*1.8*	*7.6*	*8.0*	*17.0*	*126.1*

[1] Hong Kong, Korea, Singapore and Taiwan. [2] Partly estimated; valued at end-of-year exchange rates. The residual has been allocated on the basis of known reserves. [3] 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. [4] Deposits by official monetary institutions with banks reporting to the BIS.

Sources: IMF, national data and BIS. Table VI.3

negative US net international investment position and the very modest income payments reflects two factors. First, compared with foreign direct investment in the United States, the US stock of direct investment abroad is older and thus yields a higher return. Secondly, the United States issues relatively safe liabilities, such as Treasury paper and bank deposits, while its institutional investors (see Chapter V) buy riskier, higher-yielding assets abroad, such as emerging market fixed income assets. In sum, the burden of foreign debt service is only beginning to be felt, even though the US net international position has been deteriorating for most of the past two decades. The introduction of the euro could, however, bring this trend into sharper focus (see below).

Asian currency developments

To a considerable extent, the depreciation of Asian currencies in 1997 represented the international manifestation of domestic crises, whose roots are explored in Chapters III and VII. However, the cyclically strong US dollar can be seen as having helped to precipitate the declines in Asian currencies, which had been stable in effective terms in the early to mid-1990s. Although Asian countries' inflation rates at that time often exceeded those of their industrial country trading partners, close linkage to a declining dollar kept effective exchange rates from appreciating (see Graph III.2). In contrast, from the spring of 1995 the rise of the dollar by 56% against the yen and 27% against the mark induced a rise in effective exchange rates in Asia, subsequently reversed by the initial

depreciations. It is also worth noting that, prior to 1997, the last depreciation of the baht (in 1984) had taken place late in a sustained period of dollar strength.

Option markets indicate the timing of exchange rate pressures

Once precipitated, currency depreciation seemed to spread from country to country. However, the timing of market pressure on exchange rates is not necessarily evident in the observed exchange rates themselves owing to differences in the tenacity of official defence through intervention and interest rate increases. Thus in May the Thai baht and the Czech koruna came under attack. However, the former was defended up to 2nd July – with some help from capital controls – while the latter fell below its band after a vigorous but brief defence. Option markets can provide a better indicator of the timing of currency attacks. The price of options, and thus the volatility of the exchange rate implied over an option contract's life, tend to rise in response to policy uncertainties or developments in neighbouring countries even when the authorities are successfully holding the spot exchange rate. Thus, already in February and again in May, the baht's implied volatility signalled heightened uncertainties (Graph VI.7).

Currency depreciations spread through …

At least three different mechanisms helped to spread currency strains across East Asia and beyond. A familiar mechanism works through competition in international trade. If a competitor's currency depreciates, an economy's competitiveness suffers from an effective currency appreciation that can slow economic activity and thus lead to pressure for a depreciation. A second, less familiar, mechanism is the demonstration effect of profits and losses on speculative positions. Finally, in the third mechanism foreign investors seek to withdraw their funds from markets and instruments deemed in some way to be similar.

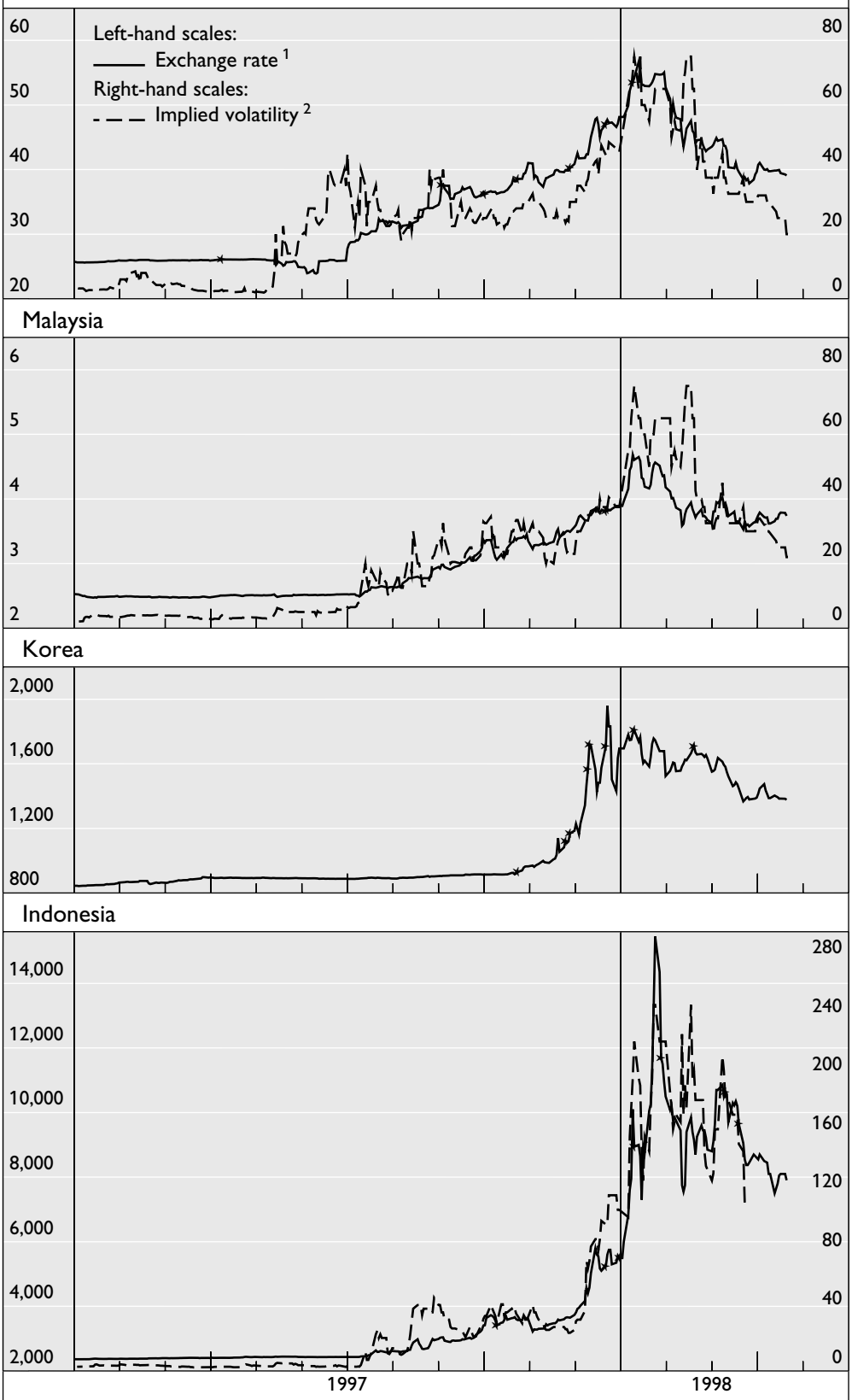
… competition in international trade …

Despite the differences across Asian economies in export composition – textiles and shoes in one country, electrical components and machine tools in another – each competes closely with at least two others. This is evident in correlations of the shares in exports of 11 commodity categories to each of three major destinations – the European Union, the United States and Japan (Graph VI.8). Broadly speaking, close competitors have shown similar depreciations against the dollar, and thus limited exchange rate movements against each other.

… the demonstration effect of speculators' profits and losses …

In the second mechanism, the realisation of profits and losses from a depreciation in one country can lead to shifts in speculative positions that make another depreciation more likely. Foreign speculators can invest their gains from one depreciation in trades that would profit from another. In addition, losses on essentially speculative positions in one country can induce those running similar positions in another country to close them out. Such behaviour is by no means confined to foreigners. Residents financing a local currency asset, such as real estate, with foreign currency borrowing effectively enter a speculative position. This was true in Asia even where such mismatches had produced profits for years. Witnessing those running similar risks in neighbouring countries incur losses, residents with such positions sought to reverse them by buying dollars. That this aggravating effect figured more prominently in Asia in the 1990s than in Latin America in the early 1980s is an ironic result of the much stronger fiscal balances of the Asian countries. The Latin American governments and state-owned firms liable for much foreign debt generally did not try to buy dollars

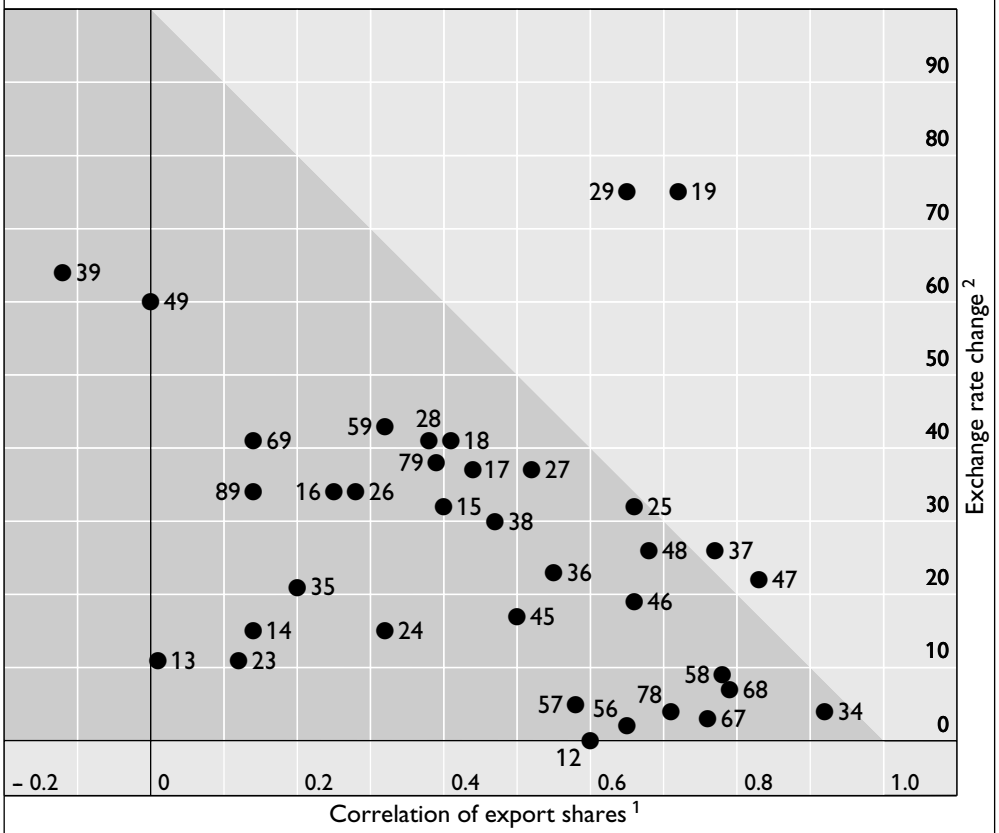
Exchange rates, implied volatility and rating changes in Asia



[1] In units of domestic currency per US dollar. The dots indicate sovereign bond rating changes as announced by Moody's and Standard & Poor's (see Table VII.3). [2] One-month, in percentages.

Sources: Deutsche Morgan Grenfell, Bankers Trust and Reuters. Graph VI.7

Export competition and exchange rates in Asia



Note: The dots represent pairs of exporters, where 1 = China, 2 = Hong Kong, 3 = Singapore, 4 = Taiwan, 5 = Philippines, 6 = Malaysia, 7 = Thailand, 8 = Korea and 9 = Indonesia. The shaded area indicates where the dots would fall if trade competition tightly constrained exchange rate changes.

[1] Correlations measured across shares in total exports of goods sent to the European Union, the United States and Japan in 11 merchandise trade categories (SITC 65, 75 - 78, 82 - 85 and 87 - 88). A high correlation indicates a similar merchandise mix and similar export destinations. [2] Absolute difference in the percentage changes in exchange rates (measured as US dollars per unit of domestic currency) over 12 months to end-March 1998.

Sources: W. Melick and BIS using OECD data, Bankers Trust and Reuters. Graph VI.8

when their currencies came under pressure. Asian businesses that had staked their net worth on exchange rate stability, by contrast, responded to prospective and realised losses in a manner that made the losses more likely and larger. Moreover, with such hedging proving both belated and partial, the consequent decline in corporate net worth left foreign banks anxious to cut their predominantly short-term credits, reinforcing the currency depreciation.

… and the withdrawal of funds from markets linked by …

In the third mechanism, foreign investors may withdraw their funds from a range of markets considered somehow similar. After the Mexican crisis, investors screened economies for wide current account deficits and rigid exchange rate regimes and put pressure on the Thai baht and the Hong Kong dollar. The linking of Thailand and the Czech Republic in 1997 makes sense in these terms, since both were maintaining stable exchange rates and running large current account deficits.

… historical returns …

A particular similarity in the earlier exchange rate policies of Thailand and the Czech Republic created a further but spurious resemblance. Relying on data from 1994 onwards, dollar-based investors had observed a quite high historical

correlation between returns on money market instruments in korunas and baht of 0.32 (0.48 excluding two days in January 1995 when the baht, but not the koruna, was affected by the fall in the Mexican peso). Table VI.4 shows that this was the second-highest historical correlation among 45 pairs of money markets for which data had been assembled by the spring of 1997. This well-known relationship encouraged investors to sell korunas on signs of strains in the baht.

However, what was not appreciated so widely was that the high correlation derived from this long data set was in large part a by-product of the fact that the baht and the koruna were both tightly managed against baskets containing the dollar and the mark. Although the Thai authorities assigned a very small weight in their basket to currencies other than the dollar, and the Czech authorities assigned them a heavy weight, the tightness of the two exchange rate arrangements, given normal volatility in the dollar/mark rate, sufficed to create the high correlation. When in early 1996 the Czech authorities moved to a wider band (replacing a ½% band around a basket central rate with a 7½% band), a correlation measure calculated over a shorter period declined markedly (Graph VI.9), and by May 1997 the two returns showed only a modest correlation of about 0.2. When the baht came under pressure, portfolio managers may have hastened to sell korunas on the basis of the earlier correlation.

… proxy hedging …

Variations in liquidity over time and across markets can also lead to behaviour that spreads the withdrawal of foreign investment across a number of countries. Investors may sell in markets where available liquidity permits selling on a large scale. For instance, Brazil's dollar bonds were the most heavily traded emerging market instruments last year, and indeed they number among the most actively traded bonds in the world. In effect, market participants at times sell what they can sell rather than what they want to sell. (Similar so-called proxy hedging occurred during the European exchange rate crisis in 1992, when holders of relatively illiquid Swedish bonds sold UK gilt futures.) Demand for such approximate hedges arose in 1997 because currencies subject to depreciation also tended to lose liquidity. The bid/ask spreads on indicated prices for currency

Correlations of dollar returns in emerging money markets

	AR	CZ	ID	MX	MY	PH	PL	TH	TR	ZA
Argentina	1.00									
Czech Republic	0.06	1.00								
Indonesia	0.01	0.02	1.00							
Mexico	0.02	0.07	0.03	1.00						
Malaysia	0.04	0.24	0.12	0.01	1.00					
Philippines	0.01	0.00	0.00	0.03	0.01	1.00				
Poland	0.06	0.65	0.02	0.06	0.20	0.03	1.00			
Thailand	0.04	0.32	0.06	0.08	0.20	0.05	0.31	1.00		
Turkey	0.03	0.11	0.03	0.02	0.04	0.04	0.13	0.07	1.00	
South Africa	0.07	0.22	0.02	0.03	0.13	0.02	0.15	0.10	0.00	1.00

Note: These correlations were computed using daily percentage changes of the individual country components of the emerging local markets index in US dollars (ELMI) over the period January 1994–April 1997.

Sources: J.P. Morgan Securities Inc. and BIS calculations. Table VI.4

Correlation of dollar returns in money markets in the Czech Republic and Thailand

Note: Each point shows the correlation over the current and previous 125 working days of returns on bank deposits in Czech korunas and forward purchases of Thai baht against the US dollar. The green line shows the correlation calculated excluding 12th and 13th January 1995, when dollar returns on Thai baht, but not Czech koruna, money market instruments were affected by the Mexican crisis. The vertical line is drawn at 28th February 1996, when the fluctuation band of the koruna was widened. The koruna and baht were floated on 26th May and 2nd July 1997 respectively.

Sources: J.P. Morgan Securities Inc. and BIS. Graph VI.9

options in Asia widened very substantially, suggesting that the availability of hedges diminished or disappeared just when local corporations realised they most needed to hedge. Measured in dollars, transaction volumes in the currencies that depreciated earliest, the Czech koruna and Thai baht, declined by one-third or more between April and October 1997 (Table VI.5). The Indonesian rupiah and Korean won also recorded lower dollar turnover than in April 1997. These declines occurred notwithstanding generally higher volatility, which is commonly associated with higher turnover (as in the case of the Italian lira; see below).

… or credit-rating changes

Events in the past year have led to much discussion about the role of the rating agencies in the dynamics of the Asian crisis. Many observers will remember the events of the days before Christmas, when Moody's announced a downgrading of Korean, Indonesian and Thai sovereign bonds to non-investment grade, citing the risks posed by short-term debt, including the possibility of a rescheduling of foreign currency bank deposits. One trading day later, the won had fallen by 9%, the rupiah by 3% and the baht by 2%. Standard & Poor's leapfrogged its rival the next day, downgrading Korea almost two notches from BBB– to B+, and the won fell a further 15% (see Graph VI.7 and Table VII.3). Since some investors are precluded from holding assets with lower credit ratings, these downgradings could help explain the negative currency response to the rating changes.

It is misleading, however, to consider rating changes in isolation. Standard & Poor's announcement highlighted the uncertainty about the willingness of foreign banks to roll over their maturing placements with Korean banks, and this uncertainty weighed on the won and other Asian currencies. Thus, it would be easy to overstate the independent impact of the rating agencies on the generalisation of foreign disinvestment. While rating changes may at times have led the exchange market, they mostly accompanied market developments.

Foreign exchange turnover and volatility in emerging currencies

Currencies	Turnover[1]				Volatility[2]			
	in billions of US dollars per day				in percentages			
	April 1995	April 1996	April 1997	October 1997	April 1995	April 1996	April 1997	October 1997
Asia	>13.6	19.0	22.1	20.5				
Indonesian rupiah	4.8[3,4]	7.8[3,4]	8.7[3,4]	8.5[3,4]	1.5	1.5	3.2	39.3
Korean won	3.1	3.2	4.0	3.6	2.5	1.5	1.6	9.3
Thai baht	2.6	4.0	4.6	2.5	2.3	1.6	1.9	15.6
New Taiwan dollar	1.5	1.6	1.7	2.3	8.7	0.9	1.2	18.2
Indian rupee	1.6	1.2	1.7	2.0	1.5	6.0	0.5	1.3
Malaysian ringgit	n.a.	1.1	1.2	1.5	5.3	3.4	2.7	31.5
Philippine peso	0.02	0.1	0.2	0.1	2.9	0.6	0.4	25.0
Latin America	10.1	12.9	17.5	23.7				
New Mexican peso	3.2[4]	4.2[4]	7.1[4]	9.5[4]	28.3	5.5	5.0	30.2
Brazilian real	4.3[4]	5.5[4]	6.7[4]	8.5[4]	13.9	3.8	6.2	1.6
Argentine peso	1.7	2.0	2.2	3.0	0.0	0.5	0.6	0.5
Chilean peso	0.8	1.0	1.1	2.2	6.2	3.0	2.3	8.5
Colombian peso	n.a.	0.1	0.2	0.3	4.6	2.2	3.8	8.2
New Peruvian sol	0.1	0.1	0.2	0.2	4.0	2.5	2.2	6.4
Eastern Europe	1.8	7.5	8.8	15.3				
Russian rouble	0.6	2.6	3.7	10.7	5.2	2.2	0.3	0.2
Czech koruna	0.6	2.5	3.2	2.1	6.1	2.1	14.6	8.6
Polish zloty	0.3[3]	1.6[3]	0.9[3]	1.7[3]	9.7	5.1	3.4	15.5
Hungarian forint	0.3	0.6	0.4	0.6	3.6	11.2	2.9	6.0
Slovak koruna	0.03	0.2	0.6	0.2	9.0	2.7	4.8	7.0
Other currencies	5.4	6.7	5.2	7.3				
South African rand	3.7	4.7	3.6	5.4	2.9	19.0	2.6	5.9
Saudi Arabian riyal	1.4	1.5	1.1	1.3	0.1	0.1	0.0	0.2
Israeli shekel	0.3	0.5	0.5	0.5	7.4	7.4	3.6	9.4
Turkish lira	0.01	0.02	0.04	0.1	7.8	3.9	5.1	5.5
Total	>30.9	46.1	53.6	66.8				

[1] Estimates as reported by the respective central banks, net of double-counting unless otherwise specified. For Thailand, 1995 second half and 1996 annual averages. For Indonesia and Argentina, 1995 and 1996 annual averages. The turnover of the Russian rouble and South African rand in April 1996 was well above the annual average. [2] Annualised standard deviation of percentage changes in the exchange rate against the US dollar. For the shekel, Turkish lira and Eastern European currencies other than the rouble, volatility is measured against a basket consisting of the US dollar and the Deutsche mark with equal weights. [3] On a gross basis. [4] Includes other currencies. Table VI.5

Commodity prices and exchange rates

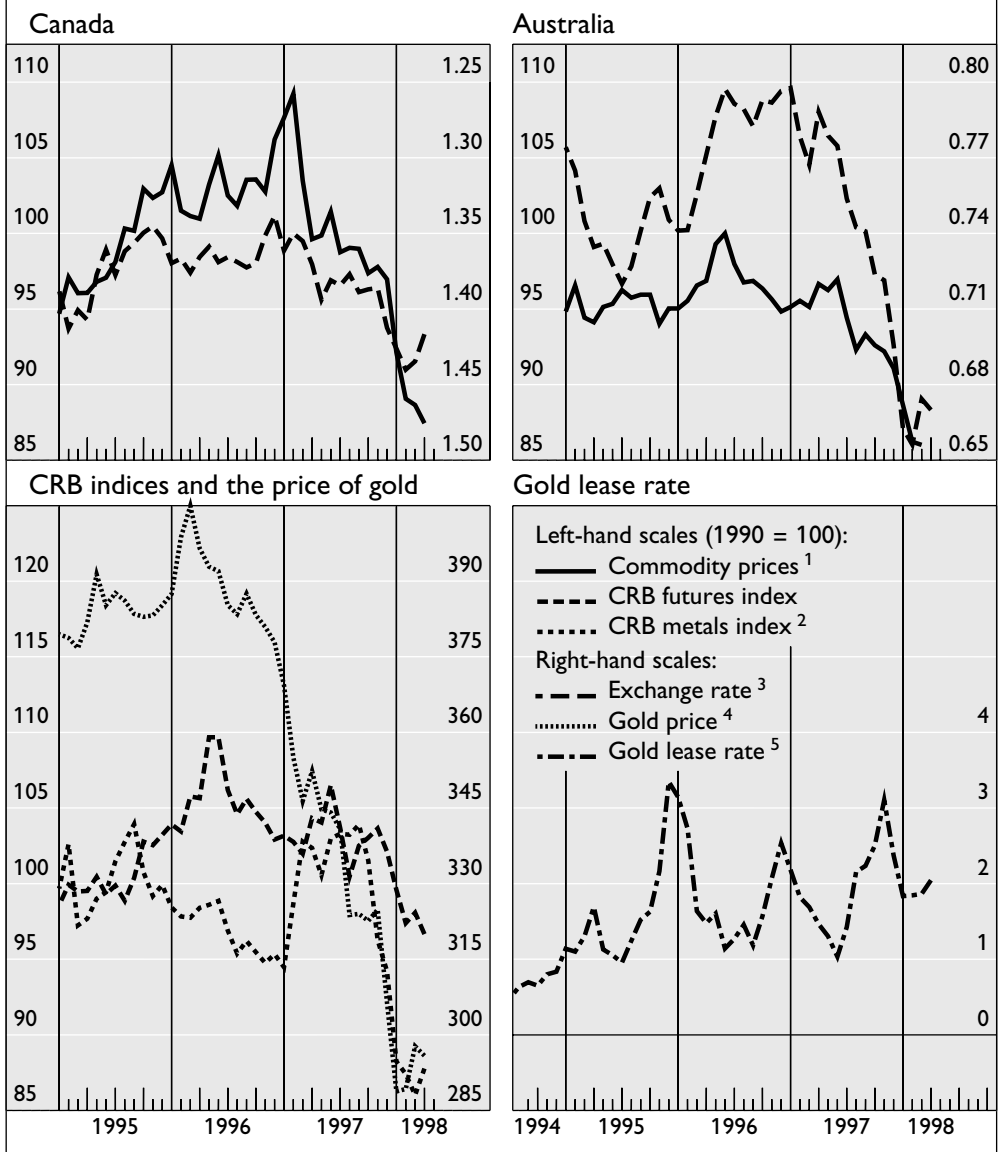
Slower activity and wealth losses in Asia …

Slower activity and the loss of international wealth in Asia put downward pressure on commodity and gold prices from mid-1997. Weak commodity prices weighed on the value of the Canadian and Australian dollars.

… depress commodity prices, certain exchange rates …

In recent years, Asia has accounted for a substantial part of world commodity demand growth, including that for gold. Just a year ago, market participants and official agencies alike reckoned on a continuation of this trend, but as these expectations were revised in the latter half of 1997, commodity prices fell. Lower commodity prices then affected the Canadian and Australian dollars to different extents. As can be seen from Graph VI.10, experience has

Commodity prices, exchange rates and the gold lease rate



[1] In US dollar terms; for Canada, raw materials prices; for Australia, Reserve Bank of Australia's all commodities index. [2] Includes copper, lead, steel, tin and zinc. [3] For Canada, C$/US$ (inverted scale); for Australia, US$/A$. [4] In US dollars per fine ounce. [5] On three-month gold deposits in London.

Sources: Commodity Research Bureau (CRB), Reuters, national data and BIS. Graph VI.10

shown that the Canadian dollar falls by considerably less than half of the percentage decline in Canada's commodity price index, while the Australian dollar falls by even more than the Australian commodity price index. The odd implication of this strong reaction is that commodity prices expressed in Australian dollars have actually risen over the past year.

… and the price of gold

The price of gold responded to Asian developments and declining world inflation. Observers also cited official gold sales, Germany's decision to lease official gold and a proposal to sell Swiss gold reserves in explaining gold's weakness. Abstracting from the earlier timing of the decline in the gold price, however, the price of gold performed no worse than the price of metals in general in the 12 months to April 1998.

European exchange rates and monetary union

Stable European exchange rates point to monetary union …

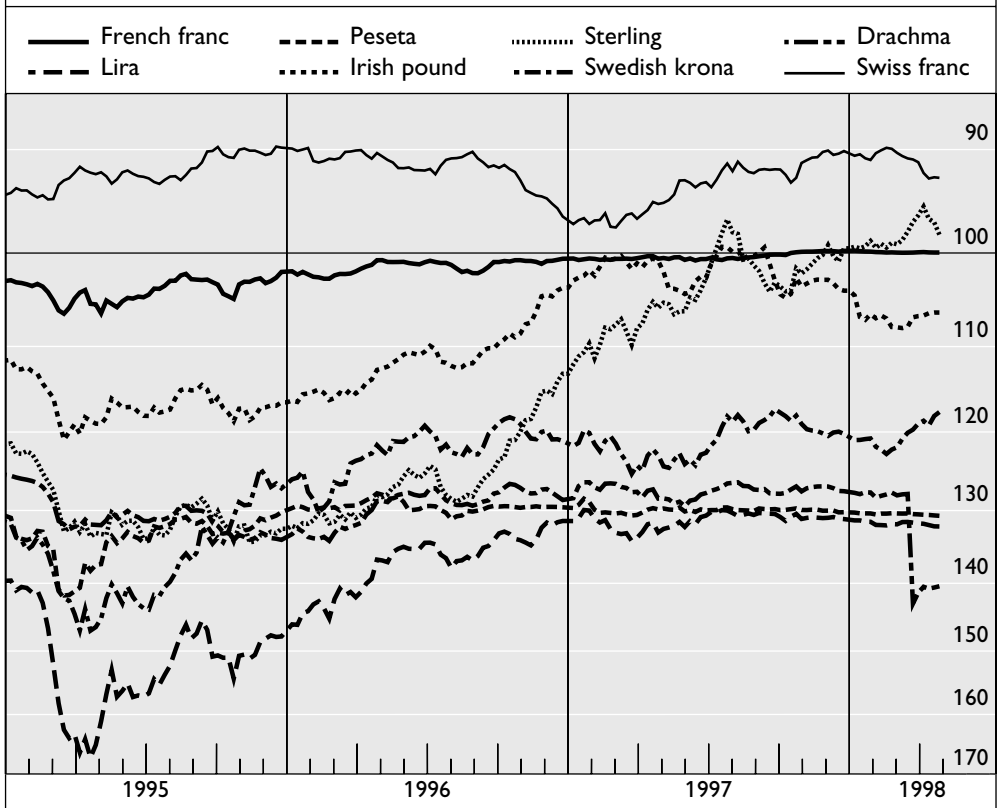
Against the background of dollar strength, European currency markets awaited the arrival of the euro calmly. As emphasised in Chapter V of last year's Annual Report, a strong dollar lends stability to major European exchange rates, and this association was again in evidence last year (Graph VI.11). Countries whose fiscal and inflation performance supported official intentions to join monetary union enjoyed stable exchange rates vis-à-vis the mark. Sterling, benefiting from a business cycle more synchronous with that of the United States than with that of continental Europe, rose against the mark. The Irish pound having shared part of sterling's rise, its central rate was revalued on 14th March 1998. At the same time, the drachma joined the exchange rate mechanism with a one-day depreciation of 10% against the mark; the Greek authorities announced that they would apply to join the euro area at some point before the end of 2001.

… with a broad membership …

Since last summer, forward exchange rates have mirrored the results of polls of market participants in identifying the range of likely candidates for monetary union (Graph VI.12). Market prices have expressed a consensus that monetary union would include a broad group of countries. Moreover, the fall in the implied volatility of French franc/mark, lira/mark and peseta/mark currency options indicates how confident market participants had become in their expectations.

European currencies against the mark

Weekly averages, ERM central rate in August 1992 = 100 *



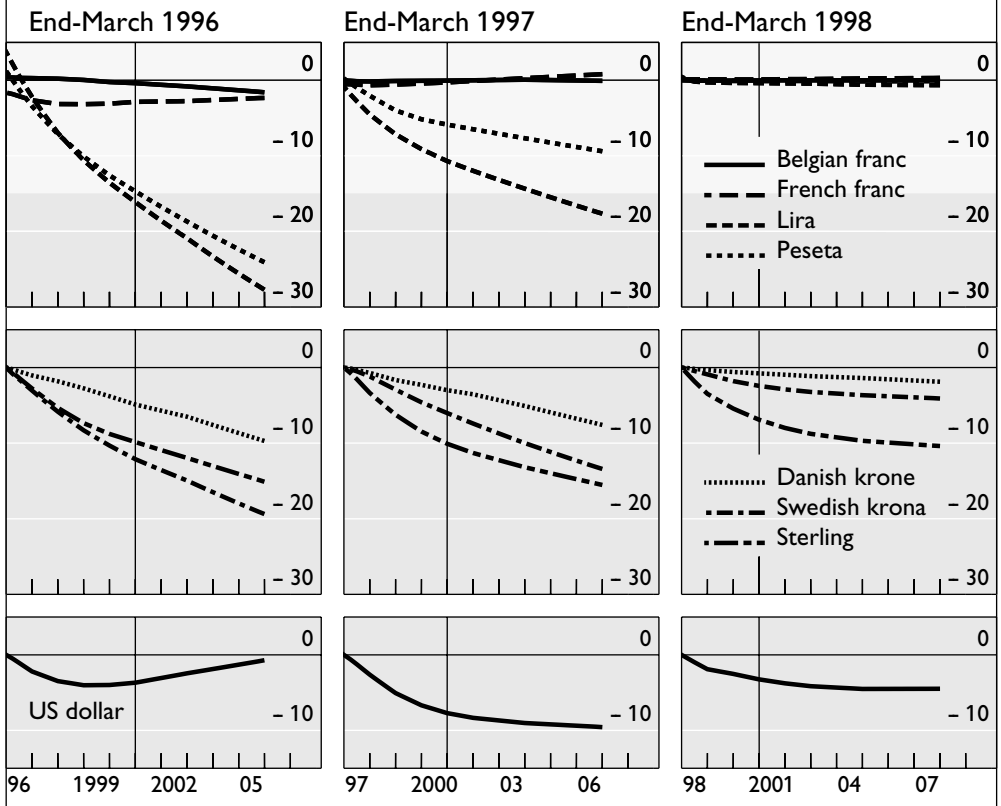
Note: A rise indicates an appreciation against the mark.

* Semi-logarithmic, inverted scale; for the krona, drachma and Swiss franc, August 1992 = 100.

Graph VI.11

Forward exchange rate changes against the mark

In percentages



Note: Forward exchange rates are derived from differentials on one-year eurodeposit interest rates and, for longer horizons, on interest rate swap (midpoint) yields in the respective currencies (for Belgium, France, Italy and Spain, relative to their respective central rates). The lira re-entered the ERM on 25th November 1996; the central rate then established is also used as the base for the lira at end-March 1996.

Sources: Reuters and BIS calculations. Graph VI.12

… introduced on schedule

The slowdown in activity in the European exchange market provides a clear indication that the euro was expected to be introduced on schedule. It can be estimated on the basis of the 1995 central bank survey that the euro could eliminate 8% of global foreign exchange turnover. Available evidence suggests that market trading in major European exchange rates has already been drying up. Data on spot currency trading through the Electronic Broking Service show peak levels of activity in French franc/mark trading in 1996 and in Italian lira/mark trading in early 1997 (Graph VI.13). In 1998 to date, activity in both exchanges has barely recovered from the seasonal low reached around Christmas and the New Year. This decline in trading paralleled declines in the implied volatility in options on these same exchange rates and, in the case of Italy, the decline in the spread between long-term interest rates on lire and marks. On this evidence, many European exchange rates will, to the satisfaction of European authorities, disappear quietly from traders' screens.

Portfolio shifts may present transitional challenges

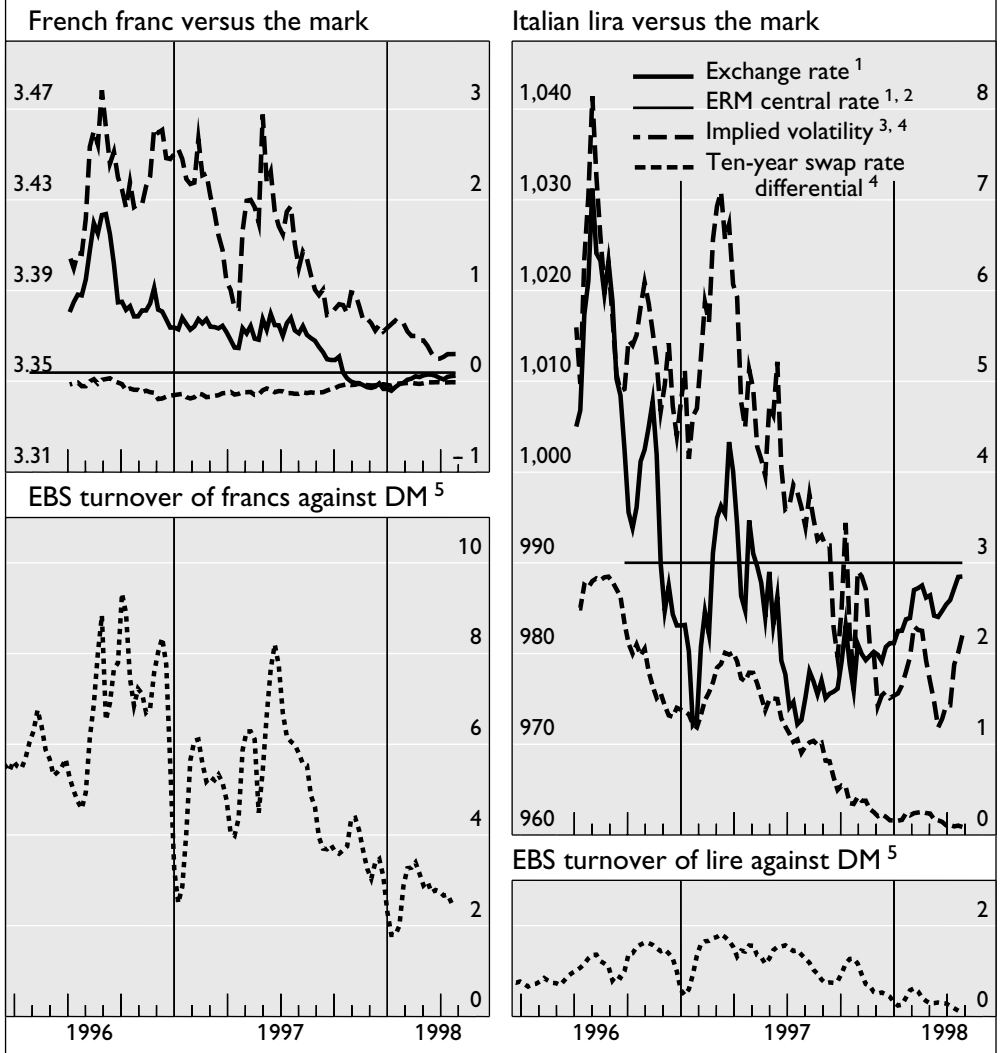
Despite the market's clearly supportive consensus, challenges remain. The response to currency union of international holders of bank deposits denominated in the participating currencies is not easy to predict (Table VI.6).

Viewed as the means to facilitate transactions, present holdings may prove unnecessarily large, since holdings of euros will settle payments in any participating country. (However, the current concentration of such deposits in the mark, which can be transformed at low cost into other European currencies, may signal that holders have already economised to a large extent.) A possible reduction of these holdings, like several possible portfolio shifts, would present a transitional challenge to the new central bank. This institution must distinguish the influence of one-off portfolio shifts from the impact of more important changes in expectations regarding prices and activity, especially if it targets a pan-European monetary aggregate in conducting monetary policy.

Sterling and the Swiss franc react to cyclical factors …

The movements of European currencies at the edges of the prospective euro area reflected cyclical factors and monetary policies, and possibly uncertainties about the introduction of the euro. The Swiss franc's strengthening

Activity in two European exchange markets



[1] Left-hand scales, in, respectively, French francs and lire per DM. [2] The lira re-entered the ERM on 25th November 1996. [3] One-month option contracts. [4] Right-hand scale, in percentages. [5] Four-week moving averages of daily spot transactions, in billions of Deutsche marks.

Sources: National Westminster Bank, Reuters, Electronic Broking Service (EBS) and BIS. Graph VI.13

International holdings of bank deposits at end-1997

Currency	Residence of holder							
	European Union countries				Rest of the world		Total	
	Euro area		Other					
	in billions of US dollars and percentages							
Euro area currencies	200.9	*100.0*	93.1	*100.0*	165.5	*100.0*	459.5	*100.0*
Deutsche mark	109.4	*54.5*	37.3	*40.1*	72.4	*43.7*	219.1	*47.7*
French franc	21.7	*10.8*	9.8	*10.5*	28.4	*17.2*	59.9	*13.0*
Italian lira	20.1	*10.0*	19.6	*21.1*	14.3	*8.6*	54.0	*11.7*
Dutch guilder	18.2	*9.1*	5.6	*6.0*	15.6	*9.4*	39.4	*8.6*
Belgian/Luxembourg franc	11.3	*5.6*	9.9	*10.6*	17.3	*10.5*	38.5	*8.4*
Spanish peseta	6.9	*3.4*	5.2	*5.6*	5.7	*3.4*	17.8	*3.9*
ECU	11.4	*5.7*	3.1	*3.3*	9.9	*6.0*	24.4	*5.3*
Other[1]	1.9	*0.9*	2.6	*2.8*	1.9	*1.2*	6.4	*1.4*
Other EU currencies	30.0	*14.9*	8.1	*8.7*	88.4	*53.4*	126.5	*27.5*
Pound sterling	28.7	*14.3*	2.7	*2.9*	87.3	*52.7*	118.7	*25.8*
Other[2]	1.3	*0.6*	5.4	*5.8*	1.1	*0.7*	7.8	*1.7*
Total EU currencies	230.9	*114.9*	101.2	*108.7*	253.9	*153.4*	586.0	*127.5*
US dollar	158.1	*78.7*	122.3	*131.4*	470.9	*284.5*	751.3	*163.5*
Japanese yen	20.3	*10.1*	31.6	*33.9*	28.9	*17.5*	80.8	*17.6*
Swiss franc	23.1	*11.5*	5.5	*5.9*	32.7	*19.8*	61.3	*13.3*
Grand total	432.4	*215.2*	260.6	*279.9*	786.4	*475.2*	1,479.4	*321.9*

Note: Non-banks' holdings only; holdings abroad of a given currency by residents of the country of issue (for example, German residents' Deutsche mark holdings in Luxembourg) are excluded. Only the cross-border position in domestic currency is available for Austria, Denmark, Finland, Ireland, Spain and Sweden. Portugal and Greece do not report banking data to the BIS, but cross-border liabilities to non-banks resident in Portugal are included in euro area holdings, and those to non-banks resident in Greece are included in other EU holdings.

[1] Austrian schilling, Irish pound and Finnish markka. [2] Danish krone and Swedish krona. Table VI.6

… and uncertainty about the euro

during a period in which the mark was weak against the dollar, between May and July, was unusual. At work were not only the prospect of higher Swiss interest rates, but also shifts into the Swiss franc by investors uncertain about the euro. Sterling's co-movement with the dollar is in line with the closer correlation of US and UK business cycles in the 1990s. Sterling strengthened against the mark, and to a lesser degree against the dollar, in response to continuing signs of strong output growth and above-target inflation, which led market participants to expect the Bank of England to raise short-term rates in 1997.