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**RECENT DEVELOPMENTS IN THE INTERNATIONAL USE OF
CURRENCIES:
TOWARDS A TRIPOLAR REGIME?***

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** *The views expressed are those of the author and do not necessarily reflect the opinions of the organization to which she belongs.
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PART II**CHAPTER 5****RECENT DEVELOPMENTS IN THE INTERNATIONAL USE OF CURRENCIES:
TOWARDS A TRIPOLAR REGIME?**

The first part of this report identifies the criteria which a currency must satisfy in order to play an international role. Thus, it must be convertible and stable so as to limit the exchange risks, hedging costs and information costs associated with its use. In order to meet demand from international investors, a country whose currency is used as an international currency must also have adequately developed and liberalized financial markets that offer a wide variety of instruments and developed secondary markets as well as guarantee sufficient liquidity in each market segment. Lastly, there are also economies of scale, positive externalities and network effects in the use of international currencies: the greater the number of people holding a currency, the lower the transaction and information costs associated with its use. These two factors explain the inertia effects which prolong the role of an international currency even when it has lost the intrinsic qualities of such a currency.

Since the turn of the century, a number of currencies have established themselves as international currencies - first the pound sterling, then the dollar. However, since the collapse of the Bretton Woods system, a question mark has been placed over the dominance of the dollar, partly as a result of the decline in the international role of the United States, whose share of GDP in the OECD has fallen by just under 20 percentage points over the last thirty years. In recent years, it has often been suggested that a tripolar international monetary system based on three currencies - the US dollar, the Japanese yen and the German mark - is emerging. Different factors could contribute to this development: good inflation performances in Japan and Germany, deregulation and growth of their financial markets, their increasing weight in world trade, etc. This chapter examines whether this theory is borne out by the facts, analysing developments in the international role of these three currencies since the beginning of the 1980s.

The usefulness of this analysis is that it brings together comparable statistics on the different functions of the principal international currencies at global level. Studies have already been carried out that examine the international role of individual currencies (e.g. Tavlas, 1991, on the mark; Tavlas and Ozeki, 1992, on the yen; Hakkio, 1993, on the dollar) or compare several currencies in terms of one of their international functions (e.g. Page, 1981, on the factors influencing the choice of a currency for invoicing purposes). However, this study contains an exhaustive analysis comparing the role of the dollar, the mark and the yen with regard to their various international monetary functions¹.

This chapter is set out as follows. First, it examines the international use of currencies by private economic agents: their role in the denomination of international trade, in transactions on foreign exchange markets and as a financial investment asset or precautionary balance. Next, it looks at use by the official sector in defining parities and reserve assets. However, for reasons of data confidentiality, it is difficult to obtain a clear picture of the use made of the principal currencies as an instrument for central bank intervention².

A. USE BY THE PRIVATE SECTOR

1. Currency denomination of international trade

In order to measure the use of the principal currencies in the denomination of international trade³, statistics had to be compiled from several sources and a number of assumptions made to compensate for the lack of data for a number of regions in the world. Thus, the export-denomination practices for the United States, Japan, France, Italy, the Netherlands, the United Kingdom and the petroleum-exporting countries were reconstituted from different sources, essentially statistics provided by central banks⁴, and extrapolated to the world as a whole⁵. This statistical work made it possible to produce a breakdown of 85% of world exports by currency of denomination (see Table 1).

1.1 Breakdown of world exports

The dollar remains the principal currency used to denominate international trade: in 1992, 47.6% of world exports were denominated in dollars. However, there has been a sharp decline in the role of the dollar, mainly between 1980 and 1987, when the figure fell from 56.1% to 47.9%.

	1980		1987		1992	
	Share of world exports (X) denominated in (%)	Share relative to country's weight in world trade ¹	Share of world X denominated in (%)	Share relative to country's weight in world trade ¹	Share of world X denominated in (%)	Share relative to country's weight in world trade ¹
Dollar	56.1	4.5	47.9	3.4	47.6	3.6
Mark	13.6	1.4	16.1	1.5	15.3	1.4
Yen	2.1	0.3	4.0	0.5	4.8	0.6
Sterling	6.5	1.1	5.5	0.9	5.7	1.0
French franc	6.2	0.9	6.5	1.0	6.3	1.0
Italian lira	2.2	0.5	3.2	0.6	3.4	0.7
Dutch guilder	2.6	0.7	2.8	0.7	2.8	0.8

Sources:

(1)

See footnotes 4 and 5, and calculations by the European Commission.

In order to offset the influence of the size of a particular country, the relative share is calculated by taking into account the country's weight in world trade. For example, for the US dollar, the ratio is defined as:

Share of world X denominated in dollars

Share of United States in world trade.

While it is true that between 1980 and 1987 the dollar exchange rate fluctuated sharply and that this dollar instability contributed to the decline in its role as an invoicing and payment currency for international trade, the main explanation is the **fall in the value of exports from OPEC countries**, which are almost exclusively denominated in dollars (92% in 1992)⁶. Thus, between 1980 and 1992, the share of world exports by the petroleum-exporting countries shrank from 16% to 5.1%, with the share of those exports that were denominated in dollars also falling, from 15.3% to 4.7% (see Table 2). If the impact of the OPEC countries is disregarded, the dollar share of world exports has remained virtually unchanged.

Currency ⇒	Dollar		DM		Yen	
Region ↓	1980	1992	1980	1992	1980	1992
United States	11.2	11.2	0.1	0.2	0.0	0.2
Japan	4.5	4.3	0.1	0.3	2.0	3.7
EC 5 ¹	4.9	4.5	10.6	11.6	0.0	0.2
Petroleum exporting countries	15.3	4.7	0.2	0.1	0.0	0.0
TOTAL	36.0	24.7	11.0	12.2	2.0	4.1

Sources: See footnotes 4 and 5 and calculations by the European Commission.
(1) Germany, France, Italy, Netherlands, United Kingdom.

While the share of the dollar fell, the share of the mark increased between 1980 and 1992. Thus, the share of world exports denominated in marks rose from 13.6% to 15.3%, reflecting Germany's growing importance in world trade. However, as stressed by Tavlas (1991), one factor would have tended to reduce the role of the mark as an invoicing or payment currency if it had not been for the increased weight of Germany in world trade. The geographical breakdown of Germany's international trade has changed, with the weight of trade with the industrialized countries rising at the expense of trade with the developing countries. Invoicing practices show that trade between developed countries and developing countries is denominated in the currency of the developed country (or in dollars).

It is chiefly in Europe that the role of the mark has increased. In the European Union, it is used essentially in commercial transactions involving Germany and remains little used as a vehicle currency⁷, i.e. in commercial transactions between two countries other than Germany⁸. However, it is likely that the role of the mark has increased in transactions involving Eastern European countries.

Lastly, even though the share of world exports denominated in yen has increased, from 2.1% in 1980 to 4.8% in 1992, the role of the yen remains limited, even in Asia, especially if account is taken of the fact that this region's weight in world trade has almost doubled. Against this, the dollar continues to play a dominant role in this region, and in particular in Japan. As shown in Table 2, the share of world exports from Japan denominated in dollars was still higher in 1992 than that denominated in yen (4.3% and 3.7% respectively). This phenomenon is brought out even more clearly in the tables below, which show the breakdown of Japanese imports and exports by currency of denomination. In the same way, the dollar still plays a pre-eminent role in Asia: 15.5% of world exports from this region are denominated in dollars against 4.2% in yen (see Table A1, Annex 1). Even for intra-regional trade in this area, the dollar is preferred to the yen⁹.

In Table 1 the share of world exports denominated in a given currency has also been adjusted to take account of the issuing country's share of world trade. A ratio greater than 1 represents a situation where the use of the currency exceeds the issuing country's share of world trade. On the basis of these ratios, only the dollar and the mark are international currencies: in 1992, this ratio was as high as 3.6 for the dollar and 1.4 for the mark but, while it is stable for the latter, it is falling for the dollar. For the yen, however, this ratio - even if has been rising steadily since 1980 - is only 0.6, indicating that the use of the yen is less than it could be given Japan's weight in world trade.

1.2 Breakdown of national imports and exports

The national currency remains the principal currency used for the denomination of national exports. Thus, in 1992, 92% of US exports, 77% of German exports and 62% of UK exports were denominated in the national currency (see Table 3).

One reason to explain why invoicing in the exporter's currency is most frequent is that it is harder for exporters to cut their predetermined costs expressed in national currency, in response to an appreciation of this currency. Consequently, it is more difficult for them to maintain their margins. On the other hand, it is easier for importers to pass on in domestic prices any exchange-rate fluctuations and thus to safeguard their margins when the national currency depreciates (pass-through effect)¹⁰. This effect is less pronounced than at the beginning of the 1980s in so far as the share of national exports denominated in national currency has fallen in all the countries examined, except in Japan, where it is very low relative to the other industrialised countries. This trend could be the result of stiffer competition at world level, with exporters preferring to fix prices in the currency of the importer. In addition, in a situation of exchange-rate instability, exporters of differentiated products who have invested substantial resources (sunk costs) to enter new markets will be hesitant to adjust the foreign currency level of their prices in response to exchange rates movements if they perceive these movements as temporary. Consequently, they prefer to invoice goods in the currency of their customers and to bear the exchange risk themselves so as not to lose market shares (see also Part I).

TABLE 3								
BREAKDOWN OF NATIONAL EXPORTS BY CURRENCY OF DENOMINATION (%)								
1980								
Currency ⇒ Country ↓	Dollar	Yen	DM	French franc	Sterling	Italian lira	Dutch guilder	Other
United States	96.0 ^e	0.2 ^e	1.0	0.7 ^e	1.0	0.2 ^e	0.3 ^e	0.6
Japan	65.7	29.4	1.9	0.6 ^e	1.1 ^e	0.1 ^e	0.6 ^e	0.6
Germany	7.2	0.0	82.5	2.8	1.4	1.3	1.2	3.6
France (1981)	20.3	0.1 ^e	9.1	60.5	2.1 ^e	1.5 ^e	0.8 ^e	5.6
UK	17.0	0.1	3.0	2.0	76.0	0.5 ^e	1.0 ^e	0.4
Italy	30.0	0.1 ^e	14.0	8.0	2.4 ^e	36.0	1.0 ^e	8.5
Netherlands	16.5	0.0 ^e	21.5	5.4	4.2	0.9 ^e	43.5	8.0
1992								
Currency ⇒ Country ↓	Dollar	Yen	DM	French franc	Sterling	Italian lira	Dutch guilder	Other
United States	92.0 ^e	1.5 ^e	1.3	0.9 ^e	0.9	0.4 ^e	0.6 ^e	2.4
Japan	46.6	40.1	3.3	0.9 ^e	1.6 ^e	0.4 ^e	1.0 ^e	6.1
Germany	7.3	0.3	77.0	3.3	3.2	2.2	0.9	5.8
France (1981)	16.5	0.8 ^e	10.4	54.6	4.1 ^e	3.3 ^e	1.5 ^e	8.8
UK	22.0	0.7	5.0	3.5	62.0	1.7 ^e	2.3 ^e	2.8
Italy	18.0	0.6 ^e	19.0	9.0	3.0 ^e	40.0	1.3 ^e	9.1
Netherlands	16.0	0.5 ^e	21.7	4.8	4.8	1.8 ^e	43.1	7.3

Sources: Page (1981), MITI (Japan), Bundesbank, Banque de France, Banca d'Italia, Nederlandsche Bank.
e: estimates.

Japan stands out from the other industrialized countries in two respects. First, it is the only country where the dollar rather than the national currency is the principal currency used to

denominate its exports: in 1992, 46.6% of Japanese exports were dollar-denominated against 40.1% that were yen-denominated. This is the result of the privileged position enjoyed by the United States among Japan's trading partners. Second, Japan is the only country where the proportion of exports denominated in national currency has increased - substantially - between 1980 and 1992¹¹. In 1980, only 29.4% of Japanese exports were denominated in yen compared with 65.7% in dollars. It thus appears that Japan is gradually moving over to invoicing practices closer to those followed in the other industrialized countries.

Table 3 confirms the **declining role of the dollar in the denomination of exports between 1980 and 1992**. This was **particularly the case in Japan** and, to a lesser degree, in Europe, with the exception of the United Kingdom. However, the dollar plays a much less important role in Europe than in Japan: in 1992, the proportion of national exports denominated in dollars varied between 7.3% (Germany) and 22% (United Kingdom), compared to 47% for Japan.

On the other hand, the mark is used more widely in Europe and the proportion of national exports denominated in marks is even higher than that denominated in dollars in certain countries such as Italy (19%) and the Netherlands (21.7%). In the case of the Netherlands, one reason for this is its status as a small, open economy whose main trading partner is Germany. In the case of Italy, one factor is the importance of the machine-tools industry for Italian exports: prices in this industry are very often expressed in marks on the European market in view of German leadership. The mark is essentially used to denominate intra-EU trade with Germany, and this explains why its role is less prominent (5%) in a country like the United Kingdom, whose exports are more oriented to the United States.

In relative terms, national currencies are used less to denominate imports than exports: 80% of US imports, 56% of German imports and 17% of Japanese imports are denominated in the national currency (see Table 4). However, whereas national currencies are tending, over time, to become less important for exports, the opposite is true of imports (except in the United States). This indicates that **importers in industrialized countries are endeavouring more and more to impose the use of their currency in denominating imports**.

This trend is particularly pronounced for Japan, where the proportion of imports denominated in yen rose from 2.4% in 1980 to 17% in 1992. However, as was already the case for exports, the national currency plays a much smaller role and the dollar a much more important role than in other industrialized countries, in particular because Japan imports a large proportion of primary products. The proportion of German imports denominated in marks is also showing a significant increase, rising from 43% in 1980 to 55.9% in 1992, at the expense of the dollar. This trend is the result of both the reduction in the proportion of German imports accounted for by primary products and the increase in the proportion of intra-EU German imports.

TABLE 4 BREAKDOWN OF NATIONAL IMPORTS BY CURRENCY OF DENOMINATION (%)								
1980								
Currency ⇒ Country ↓	Dollar	Yen	DM	French franc	Sterling	Italian lira	Dutch guilder	Other
United States	85.0 ^e	1.0 ^e	4.1	1.0 ^e	1.5	0.5 ^e	0.2 ^e	6.7
Japan	93.0	2.4	1.5	0.9 ^e	1.0 ^e	0.2 ^e	0.1 ^e	0.9
Germany	32.3	0.0	43.0	3.3	3.4	2.4	2.0	13.6
France (1981)	37.1	0.7 ^e	11.5	37.1	2.6	2.5 ^e	1.8 ^e	6.7
United Kingdom	29.0	1.3	9.6	4.7	38.0	1.7 ^e	2.8 ^e	12.9
Italy	45.0	0.5 ^e	14.0	9.0	3.2 ^e	18.0	1.7 ^e	8.6
Netherlands	29.4	0.8 ^e	22.9	4.4	4.7	1.1 ^e	25.1	11.6
1992								
Currency ⇒ Country ↓	Dollar	Yen	DM	French franc	Sterling	Italian lira	Dutch guilder	Other
United States	80.0 ^e	3.0 ^e	4.3	1.2 ^e	1.7	0.8 ^e	0.4 ^e	8.6
Japan	74.5	17.0	3.6	1.3 ^e	1.3 ^e	0.7 ^e	0.3 ^e	1.3
Germany	18.4	1.7	55.9	3.1	2.2	1.7	1.3	15.7
France (1981)	23.1	1.3 ^e	11.7	46.7	3.6 ^e	3.2 ^e	1.5 ^e	8.9
United Kingdom	22.0	2.4	11.9	5.3	43.0	2.2 ^e	3.2 ^e	10.0
Italy	26.0	0.9 ^e	16.0	7.0	3.5 ^e	34.0	2.4 ^e	10.2
Netherlands	21.4	2.0 ^e	21.8	3.7	3.9	1.1	38.9	7.2

Sources: MITI (Japan), Bundesbank, Banque de France, Banca d'Italia, Nederlandsche Bank, Central Statistical Office (UK).

e: estimates.

In the industrialized countries, the dollar is used more to denominate national imports than national exports. Thus, in 1992, 74.5% of Japanese imports and 46.6% of Japanese exports were dollar-denominated, the corresponding figures for Germany being 18.4% and 7.3%. One explanation is that **the industrialized countries import relatively more primary products and export relatively more manufactured products**, with the dollar remaining the reference currency for pricing and invoicing primary products. However, as with exports, there has been a fall in the proportion of national imports denominated in dollars, but this fall has been even more marked.

* * *

By way of conclusion to this first section, it is clear that, as a currency for denominating international trade:

the dollar continues to play a major, albeit declining, role at world level and in Asia and in industrialized countries it is used more to denominate imports than exports;

the mark has a relatively important and growing position in Europe, but its role as a vehicle currency within the EU remains limited;

the yen cannot really be regarded as an international currency and, even at regional level, it is little used.

In support of this last point, the analysis shows that the share of world exports denominated in yen is lower than Japan's share of world trade (ratio 0.6), that only 40.1% of Japanese exports are denominated in yen against 46.6% in dollars, and that only 17% of Japanese imports are denominated in yen against 75% in dollars. There are three reasons for the yen's more limited role as a currency for denominating exports (Tavlas and Ozeki, 1992; Iwami, 1994). First, a large proportion of Japanese exports go to the United States, 80% of whose imports are denominated in dollars. Second, a large proportion of Japanese imports are imports of primary products denominated in dollars. Lastly, Japanese exporters appear to have taken a strategic decision to set their prices in the importer's currency in order to preserve their market share.

2. Transactions on foreign exchange markets

The degree of internationalization of a currency depends to a large extent on its use on foreign exchange markets. Economies of scale are very important on these markets and, accordingly, vehicle currencies are often used. In 1992 the dollar was the most widely used vehicle currency on foreign exchange markets since 83% of total transactions had a dollar counterpart (see Table 5). However, the role of the dollar has tended to diminish since 1989 (-7 percentage points). The mark is the second most used currency on foreign exchange markets; it is used in 38% of transactions. It became more important between April 1989 and April 1992 (+11 percentage points) at the expense of the dollar and, to a lesser extent, the yen. The role of the ecu remains marginal - 3% of transactions in 1992 - even if it has been expanding strongly, since it represented only 1% of transactions in 1989.

Currency	Gross turnover; Daily average (%)	
	April 1989	April 1992
US dollar	90	83
DM	27	38
Yen	27	24
Sterling	15	14
Ecu	1	3
Other	40	38
All currencies ² (%)	200	200
US \$ bn	932	1353.5

Sources: BIS Annual Report.

- (1) These data are taken from a study carried out by the BIS and involving a survey, on a specific date, of the activity of the banks participating in the study. The data for 1989 and 1992 are not fully comparable since in 1992 more countries (including Germany) took part in the study.
- (2) Because two currencies are involved in each transaction, the sum of transactions in individual currencies comes to twice total reported turnover or 200%.

The dollar is also the currency most widely used as the counterpart in foreign exchange transactions involving local currencies: in 1992, 75% of transactions in local currency had a dollar counterpart and, on Asian markets, this percentage was as high as 91.5% (see Table 6). On European markets, the dollar's role is less prominent but it still accounts for 65% of transactions in local currency. It should also be noted, as the BIS has done, that in Europe the situation varies considerably from country to country, with the dollar's share in transactions involving local currencies ranging from 17% in Portugal to 77% in Norway. The use of the mark is quite significant on European and North American markets and it seems that the mark is used more as a counterpart currency in transactions involving local currency on the smaller financial markets.

TABLE 6 BREAKDOWN OF TRANSACTIONS ON FOREIGN EXCHANGE MARKETS INVOLVING THE LOCAL CURRENCY ¹ BY CURRENCY AND GEOGRAPHICAL AREA								
Gross turnover; Daily average								
Currency ⇒ Country ↓	1989 (%)			Total (US \$ bn)	1992 (%)			Total (US \$ bn)
	\$	DM	Other		\$	DM	Other	
EU and EFTA ²	76.2	17.9	5.7	176.7	65.2	21.4	13.4	228.0
United States and Canada	6.7	29.1	64.2	179.0	7.8	35.0	57.2	185.2
Asia ³	93.2	0.3	6.5	129.1	91.5	4.5	4.0	104.4
Total (excluding transactions in United States ⁴)	84.7	9.4	5.9	340.0	75.4	14.8	9.8	363.6

Source: BIS, Survey of foreign exchange market activity, 1989 and 1992.

- (1) These transactions involve the local currency as the counterpart: accordingly, the sum of the proportions is 100%.
- (2) Germany, Austria and Luxembourg were not included in 1989.
- (3) Japan, Singapore, Hong Kong.
- (4) Excluding transactions in the US from the total provides a picture of the use of the dollar as a counterpart currency in transactions involving local currencies outside the US.

As a rule, the local currency is utilised most in its home country. However, it is only in Frankfurt that the use of the local currency exceeds that of the dollar (83% for transactions in marks and 76% for transactions in dollars; see Table 7). This is not the case for the financial markets in Tokyo, Zurich and above all London, where transactions involving sterling account for only 24% of the total, far below the proportion of transactions in dollars (80%) and even those in marks (41%).

1989								
	Dollar	DM	Yen	Sterling	Ecu	Other	Total	
							%	US\$ bn
London	89.6	29.0	17.4	30.7	1.7	31.5	200	241
New York	96.0	33.3	27.6	14.4	0.3	28.4	200	174
Tokyo	95.2	9.7	80.0	3.7	0.0	11.4	200	145
Singapore	95.2	28.6	28.6	17.5	0.0	30.2	200	68
Zurich	75.0	32.4	7.8	7.6	0.7	76.5	200	63
Hong Kong	93.3	20.0	25.0	12.8	0.2	48.7	200	60
Paris	71.9	43.8	5.3	1.9	2.2	75.0	200	32
1992								
London	80.4	41.4	15.2	23.9	5.0	34.1	200	300.2
New York	88.7	43.8	25.6	11.5	0.9	29.5	200	192.3
Tokyo	92.4	18.6	73.9	5.6	0.4	9.1	200	126.1
Singapore	90.4	36.6	31.5	14.7	0.9	25.8	200	75.9
Zurich	72.9	43.5	8.8	8.2	3.4	63.1	200	68.1
Hong Kong	90.2	32.4	28.0	13.5	0.5	35.3	200	60.9
Frankfurt	75.8	83.4	7.1	5.8	0.0	27.9	200	56.5
Paris	61.2	54.7	6.8	6.6	7.1	63.5	200	35.5

Source: BIS, Survey of foreign-exchange market activity, 1989 and 1992.

(1) In 1992, 81% of total turnover on foreign exchange markets was transacted through eight financial centres.

London, the largest financial centre in the world with 27% of global foreign exchange transactions, is a financial centre where foreign currency transactions play a major role. Thus, in 1992, 26% of dollar transactions took place in London against 18% in New York, while 27% of transactions in marks were handled in London compared with 10% in Frankfurt. In addition, London is specialized in transactions in ecus, handling 43% of foreign exchange transactions denominated in ecus (see Table 8)¹².

1992								
	Transactions involving							Total transactions
	Dollar	DM	Yen	Sterling	Swiss franc	French franc	Ecu	
London	26.0	27.0	17.9	47.9	23.6	30.2	43.1	26.6
New York	18.4	18.3	19.3	14.8	19.9	12.3	4.9	17.0
Tokyo	12.6	5.1	36.5	4.7	2.8	2.2	1.5	11.2
Singapore	7.4	6.0	9.3	7.5	8.0	2.4	2.0	6.7
Zurich	5.4	6.4	2.4	3.7	32.8	4.7	6.7	6.0
Hong Kong	5.9	4.3	6.7	5.5	2.9	1.3	0.9	5.4
Frankfurt	4.6	10.2	1.6	2.2	2.6	0.0	0.0	5.0
Paris	2.3	4.2	1.0	1.6	1.0	40.0	7.3	3.1
Other	17.4	18.5	5.4	12.1	6.4	6.9	33.5	19.0
Total	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00

Source: BIS, Survey of foreign exchange market activity, 1989 and 1992.

The dollar's role is relatively more significant on the financial markets in Asia: Tokyo (92%), Singapore and Hong Kong (90%)(see table 7). It is also interesting to note that the mark is involved in a significant share of foreign exchange transactions not only in Europe (over 50% in Paris, over 40% in Zurich and London) but also in New York (44%) and Asia (Singapore 37%, Hong Kong 32%). In addition, the share of foreign exchange transactions in marks on these eight financial markets rose between 1989 and 1992, and this increase is likely to have been underestimated since no German bank took part in the 1989 survey.

On the other hand, the role of the yen is relatively marginal outside the financial centres in Asia¹³. Even on the financial markets in Singapore and Hong Kong, the yen is ranked third in terms of its share of foreign exchange transactions, behind the dollar and the mark. Lastly, this share is falling in five financial centres (excluding Hong Kong and Singapore)¹⁴.

If the mark is becoming more important on all foreign exchange markets, the dollar and the mark are not specialized in the same type of transactions (see Table 9). The dollar is clearly dominant on the futures markets (97.2% of transactions) and swap markets (95.3%) whereas the mark is relatively more visible on the spot market (53.2%). This difference is attributable to the intensive use of the dollar for hedging transactions¹⁵. In terms of breadth and depth, the dollar markets surpass those in other currencies, and so it is easier to manage exchange risks and interest-rate risks through this currency.

TABLE 9							
BREAKDOWN OF TRANSACTIONS ON FOREIGN EXCHANGE MARKETS BY CURRENCY AND SEGMENT							
NET TURNOVER; DAILY AVERAGES							
1992 (%)							
Currency ⇒ Segment ↓	Dollar	DM	Yen	Ecu	Other	Total (%)	Total in US\$ bn
Spot	72.1	53.2	20.1	3.0	51.6	200	393.7
Forward	75.6	36.3	26.5	2.7	58.9	200	58.5
Swap	95.3	22.4	25.7	3.3	53.3	200	324.3
Futures	97.2	42.3	30.2	0.0	30.3	200	9.5
Options	77.3	50.6	35.1	0.2	36.8	200	37.7
Total	82.0	39.6	23.4	2.9	52.1	200	832.0

Source: BIS, Survey of foreign exchange market activity, 1989 and 1992.

Lastly, the importance of European financial markets should be stressed. Transactions on European markets (EU and EFTA countries) account for 56.2% of global turnover on foreign exchange markets compared with 24.2% for Asian markets and 19.7% for North American markets (see Table 10a). In addition, more than 50% of transactions involving the dollar and 65% of transactions in marks are concluded on European markets.

	1989				1992			
	Dollar	DM	Yen	Total gross turnover	Dollar	DM	Yen	Total gross turnover
EU and EFTA¹	45.2	56.8	20.5	48.4	51.4	64.7	25.4	56.2
United States and Canada	23.0	25.0	19.7	21.5	21.6	19.5	20.4	19.7
Asia²	31.8	18.3	59.8	30.1	27.0	15.7	54.2	24.1
Total	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0

Source: BIS, Survey of foreign exchange market activity, 1989 and 1992.

(1) Germany, Luxembourg and Austria were not included in 1989.

(2) Japan, Singapore, Hong Kong.

Taking account of the respective size of these markets, European markets are more specialized in transactions in marks (index of 120), North American markets in transactions in dollars (index of 110) and Asian markets in transactions in yen (index 230). However, it is interesting to note that **specialization is much more pronounced on Asian markets than in the other two regions.**

	1989			1992		
	Dollar	DM	Yen	Dollar	DM	Yen
EU and EFTA¹	0.9	1.2	0.4	0.9	1.2	0.5
United States and Canada	1.1	1.2	0.9	1.1	1.0	1.0
Asia²	1.1	0.6	2.0	1.1	0.7	2.3

Source: BIS, Survey of foreign exchange market activity, 1989 and 1992.

(1) Germany, Luxembourg and Austria were not included in 1989.

(2) Japan, Singapore, Hong Kong.

(3) In this table, the share of transactions concluded in a given currency on a given market has been adjusted to take account of the size of the market. For example, for the EU and EFTA, we have:

Share of transactions in dollars concluded in the EU and EFTA in the total of transactions in dollars

Share of transactions in all currencies concluded in the EU and EFTA in the total of all transactions

A ratio greater than 1 indicates that a market is relatively specialized in transactions concluded in a given currency.

* * *

The following conclusions may be drawn from this analysis of the use of currencies on foreign exchange markets:

- the dollar remains by far the principal vehicle currency on foreign exchange markets, its use being particularly widespread on financial markets in Asia and, to a slightly lesser extent, on European markets; it is dominant on the swap and futures markets;
- the use of the mark has increased in recent years; it is now used outside European markets and is more important on the spot and options markets;
- the yen is relatively little used outside markets in Asia and Asian markets are characterized by a pronounced specialisation in transactions in yen.

3. Store of value

Any attempt to analyse the currency composition of the global portfolio of private financial assets is fraught with many statistical and methodological difficulties. Table 11 presents the results of an attempt at global representation and a breakdown of this portfolio by component is given in the annex (Table A4). **The role of the dollar as a store of value in the global portfolio has declined, from 67.3% in 1981 to 44.3% in 1993. This decline became evident during the second half of the 1980s. During the same period, the European currencies, in particular the mark, and the yen became more important, the former increasing their market share from 13.2% to 35.6% and the latter from 2.2% to 8.0%. On the other hand, the Swiss franc became slightly less important, its market share falling from 8.7% in 1985 to 6.1% in 1993. It should also be pointed out that the ecu has a fairly significant and growing share of international financial assets since its market share is 4.2%, higher than that of most other European currencies¹⁶. It is mainly the ecu's function as a store of value that has expanded, and much more rapidly so than its other two functions.**

	US dollar	EU currencies			Swiss franc	Yen	Other
		Total	DM	Ecu			
1981	67.3	13.2	n.a.	n.a.	n.a.	2.2	n.a.
1985	65.4	18.0	9.4	2.2	8.7	4.7	3.2
1988	55.2	24.3	12.3	3.2	8.2	6.7	5.6
1989	53.9	26.7	12.0	3.2	7.2	5.9	6.3
1990	49.2	30.6	13.1	3.7	7.7	6.3	6.2
1991	45.9	34.1	13.6	5.1	7.0	6.8	6.2
1992	46.1	34.9	14.7	4.8	6.4	7.0	5.6
Sept. 1993	44.3	35.6	15.0	4.2	6.1	8.0	6.0

Source: BIS, Banking activity and international finance.

However, if the share of a currency in the global portfolio is adjusted to take account of the issuing country's share of OECD GDP, it will be seen that **the financial role of the dollar continues to surpass the relative importance of the United States (ratio of 1.3) whereas the converse is true for the yen (ratio of 0.4).** Indeed, the emergence of Japan as the world's leading lender has not been accompanied by corresponding growth in use of the yen on international financial markets. **The financial role of European currencies has gradually increased so that it currently matches the EU share of world GDP.** In this respect, the mark is the currency whose financial role is the most developed relative to its weight (ratio of 1.6).

	United States	European Union	of which (Germany)	Japan
1981	1.8	0.5	n.a.	0.2
1985	1.4	0.6	(1.3)	0.3
1988	1.6	0.7	(1.4)	0.3
1989	1.5	0.8	(1.5)	0.3
1990	1.5	0.8	(1.4)	0.4
1991	1.4	0.9	(1.5)	0.4
1992	1.4	0.9	(1.5)	0.4
Sept. 1993	1.3	1.1	(1.6)	0.4

Source: BIS, Banking activity and international finance; OECD, Main economic indicators.

(1) For the US: (share of world portfolio invested in dollars)/(share of EU GDP in OECD GDP).

An analysis of the global portfolio by component (see annexed Table A4) reveals **greater diversification (away from the dollar) in the portfolio of international bonds¹⁷**, where the dollar accounts for 38%, European currencies 33% and the yen 14%, and in **deposits with foreign banks**, where the dollar accounts for only 38% (against 72% in 1981) and European currencies 47%¹⁸. At European level, the breakdown of international bonds by currency suggests that it is above all currencies other than the mark, though linked to the mark, which have increased their market share most strongly. These investments, while benefiting from the mark's stability, generally offered higher interest rates. The dominance of the dollar is more marked for foreign currency deposits (58%) and above all for Euronotes (61%). These are shorter-term assets which are often the counterpart of commercial transactions, where the dollar continues to play a dominant role. In addition, the criteria of liquidity and transaction costs, where the dollar enjoys a comparative advantage, are more important for these shorter-term assets.

B. USE BY THE OFFICIAL SECTOR

1. Official reserves

A country's monetary authorities hold currency reserves in order to intervene on foreign exchange markets or to cope with shocks affecting the balance of payments. The latter aspect is particularly important for developing countries, where reserves are used to pay for imports and to service and repay foreign debt.

From a global viewpoint, the dollar remains the principal reserve currency: in 1992 almost two thirds of official reserves were held in dollars (see Table 12). However, the dollar's share of official reserves fell by some 15 percentage points between 1976 and 1992, mainly to the benefit of the mark and the yen, whose shares of official reserves in 1992 rose to 13% and 8% respectively compared with 7% and 0.8% in 1976.

Currency	All countries		Industrialized countries		Developing countries	
	1976	1992	1976	1992	1976	1992
US dollar	79.7	64.4	87.0	64.9	72.8	63.6
DM	7.0	13.0	3.8	14.4	10.1	10.9
Yen	0.8	8.1	0.3	7.4	1.1	9.0

Source: IMF, Annual Reports.

The decline in the dollar's share is more marked in the case of industrialized countries' reserves than in the case of developing countries' reserves: for industrialized countries, the share of reserves held in dollars decreased by 22 percentage points, from 87% in 1976 to 65% in 1992, whereas, for developing countries, it fell by only just over 10 percentage points, from 73% to 64%.

It should be pointed out that the decline in the dollar's share of developing countries' reserves occurred mainly at the end of the 1970s (see annexed Table A5) and since then its share has been relatively stable. This greater stability in the dollar's share of reserves in developing countries may stem from the fact that a number of them have retained a de facto link with the dollar independently of any formal commitment. This issue is discussed in the following section. These countries also have a tendency to diversify their reserves in favour of the yen rather than in favour of European currencies. Thus, during the period 1976-92, the share of the yen rose from 1.1% to 9% whereas the share of the mark held steady at around 10-11%. A study by Tavlas and Ozeki (1992) finds that the share of reserves held in yen is higher in Asian countries¹⁹ (17% in 1990) than in the rest of the world (9%) but that growth in that share was less pronounced during the 1980s.

For the industrialized countries, the decline in the dollar has been continuous throughout the period, except for 1986 and 1987, when concerted intervention took place in support of the dollar. In addition, the fall in the dollar share of reserves was noticeable in 1984 and in particular in 1985, a period of rapid appreciation of the dollar culminating in the Plaza Accord, which enabled it to fall gradually. Use of the mark has grown substantially in the industrialized countries (3.8% of reserves in 1976 and 20% in 1991²⁰), in particular at the end of the 1970s; this trend can be explained by the establishment of the EMS. The role of the mark as a reserve currency is much more developed in European countries, while the converse applies to the yen (according to Tavlas, 1991).

2. Definition of parities or target zones

The role of the dollar as a unit of account/standard in the official sector has also declined. In 1975, 54 currencies were pegged to the dollar, compared with only 22 in 1993 (see Table 13). During that same period, there was an increase in the number of countries that pegged the value of their currency to a basket of their own design reflecting the geographical structure of their external trade or that allowed their currencies to float.

If the number of countries is weighted by their share of world GDP, **the 22 countries which peg their currencies to the dollar - essentially developing countries - now account for only 1.4% of world GDP.** Countries with limited flexibility - the EMS countries - account for some 18% of world GDP but the **floating-currency arrangement is by far the most important since it applies in 73 countries accounting for 78% of world GDP.**

However, the dollar's role as a reference currency could remain more important in so far as a number of countries continue to peg their currency to the dollar, even in the absence of any formal link. Similarly, whereas the mark is not officially a reference currency, it plays an important de facto role in Europe.

Pegged to	By number of countries (%)		By number of countries weighted by their share of world GDP (%)
	1975	1993	1993
US dollar	46	26	1.4
Sterling	8	0	-
French franc	13	14	0.2
Other currencies	5	17	0.02
SDR	9	3	0.06
Basket of own design	18	28	2.5
Limited flexibility	13	12	18.4
Floating	15	78	77.4
(Number of countries)	(127)	(178)	(100)

Sources: "Exchange arrangements and exchange restrictions", IMF Annual Report; CHELEM, CEPII databases for GDP data; calculations see Benassy and Deusy-Fournier (1994).

To measure this effect, Frankel and Wei (1993) empirically tested whether countries attempted to stabilize their currency in terms of a given currency (dollar, mark, yen)²¹. Their analysis covered the period 1979-90. They came to the following conclusions:

- the countries of the EU and EFTA tie their currencies to the mark;
- the currencies of the Latin American countries and Canada are closely linked to the dollar;
- the dollar, and not the yen, is dominant in Asia.

Benassy and Deusy-Fournier (1994) come to similar conclusions by analysing the relative volatility of currencies in relation to the dollar, the mark and the yen. More specifically, they conclude that the yen zone is restricted to Japan and that the "EMS core" zone covers Western Europe and part of Africa. As for the dollar zone, far from breaking up since the collapse of the Bretton Woods system, it now encompasses the American continent, Asia, the Persian Gulf, Australia and New Zealand.

These studies confirm that the **dollar continues to be a reference currency in Latin America and Asia**, and this despite the fact that fewer currencies are officially pegged to it.

CONCLUSION

The above empirical study presented comparable statistics on the different international functions of the principal currencies at global level. In contrast to most studies on this subject, it therefore provides an exhaustive account of the situation that makes it possible to compare the international roles of the dollar, the yen and the mark.

The analysis shows that, since the collapse of the Bretton Woods system, inertia effects have enabled the dollar to continue to play a dominant role as an international currency. Thus, the dollar remains the most frequently used currency for the denomination of international trade. It is also by far the main vehicle currency on foreign exchange markets and has a relatively stronger presence in the most sophisticated segments of this market (swaps, futures). Use of the dollar for these two functions is particularly widespread in Asia. On the other hand, the share of the dollar as a currency for denominating international financial assets has declined and the portfolio of international bonds is now more diversified in favour of European currencies and the yen. Lastly, the official role of the dollar as a reserve currency and as a reference currency has also diminished, at least in terms of official ties. However, a number of countries, particularly in Latin America and Asia, continue to shadow the dollar, even if their currency is no longer formally pegged to it, and this explains why the share of the dollar in the official reserves of the developing countries is more stable than in those of industrialized countries.

The mark is growing in importance as an international currency. More specifically, its importance has grown primarily in Europe under the impact of regional and monetary integration and the reinforcement of commercial and financial links between the EU and Eastern European countries. On the other hand, international use of the yen remains limited and lags way behind the weight of Japan in the world economy, even in Asia, where the dollar is pre-eminent. For example, the yen is little used for the denomination of international trade because of structural factors (destination and composition of trade) but also because of strategic decisions by Japanese exporters, who prefer to bear the exchange risk themselves so as to maintain their market share. In the same way, the emergence of Japan as the world's leading lender has not been accompanied by corresponding growth in the use of the yen on financial markets despite the deregulation of Japanese markets that has been under way since the mid-1980s.

The conclusion of this analysis is therefore that a tripolar international monetary system is not yet taking shape. However, in the longer term, the hegemony of the dollar should come more and more into question. In particular, the emergence of the ecu as the single currency in EMU is likely to increase its international role and should intensify competition between it and the dollar. More intense competition between currencies could generate greater instability within the international monetary system and makes it necessary to strengthen international coordination. These different aspects are discussed in Part III of this report, which analyses the implications of EMU for the international role of the ecu and for international coordination.

FOOTNOTES

- 1 The detailed statistical report forming the basis of this analysis is available from the European Commission (see van de Koolwijk (1994)).
- 2 According to Tavlas (1991), the share of the mark in intervention by European central banks increased at the expense of the dollar share between 1979 and 1987, the mark share rising from 24% to 59% and the dollar share falling from 71% to 26%. On the other hand, the share of the mark in intervention by the Federal Reserve - exclusively in marks or yen - fell from 90% to 57.5%, the yen share showing a corresponding rise from 10% to 42.5%.
- 3 Since it is not possible to distinguish between the use of a currency for invoicing purposes and its use as a means of payment, these two functions have been combined here.
- 4 More specifically, the European Commission (Directorate-General for Economic and Financial Affairs) has referred to the studies by Black (1981), Hakkio (1993), Kenen (1983), Magee and Rao (1980), Page (1981), Scharrer (1979), Tavlas (1991), and Tavlas and Ozeki (1992), and has used statistics on foreign-currency payment and invoicing of national exports and imports supplied by the Banque de France, the Bundesbank, the Banca d'Italia, the Nederlandsche Bank, the "Business Bulletin" published by the Central Statistical Office (UK), MITI and the Japanese Ministry of Finance.
- 5 More specifically, the following assumptions have been made:
- (i) The EFTA countries and the other EU countries behave in the same way as the average for the five European countries (Germany, France, Italy, Netherlands, United Kingdom). However, so as to avoid any bias, the country of issue of the currency in question has always been excluded from the average. For example, the average percentage of exports denominated in marks is calculated on the basis of four countries, excluding Germany.
 - (ii) The rest of Continental Europe, Western countries not included in any category and African countries are assumed to have invoicing behaviour between that of the United States and that of the five European countries, with respective weightings of $(\frac{1}{2}, \frac{1}{2})$, $(\frac{3}{4}, \frac{1}{4})$ and $(\frac{2}{3}, \frac{1}{3})$.
 - (iii) Canada, Australia and New Zealand are assumed to have a breakdown by currency based on that of the United States and Japan, with a $(\frac{2}{3}, \frac{1}{3})$ weighting, except for the yen, where we have based ourselves on data supplied by the Japanese Ministry of Finance and MITI.
 - (iv) The whole of the Near East is equated to OPEC.
 - (v) Estimates of the use of the dollar and the yen in Asian countries are based on data from the Japanese Ministry of Finance and MITI. For the other currencies that are little used in this area, the Asian countries are assumed to have a behaviour between that of the United States and that of Japan, with a $(\frac{2}{3}, \frac{1}{3})$ weighting.
- 6 There was a slight fall in the use of the dollar by OPEC countries between 1980 and 1992: the dollar share of OPEC exports was 97% in 1980.
- 7 Goods traded internationally are invoiced in a vehicle currency when the currency used is neither that of the exporter nor that of the importer, and in a non-vehicle currency where the currency used is that of one of the trading partners. Non-vehicle currencies can be divided into three groups (Magee and Rao, 1980):
- a major non-vehicle currency is a currency used for invoicing trade (imports or exports) between two partner countries; the other currency which could have been used is termed a minor non-vehicle currency,
 - trade is invoiced in symmetric non-vehicle currencies where one country's currency dominates trade in one direction and the other country's currency dominates trade in the other direction.
- 8 For example, data from the Banque de France and the Banca d'Italia show that the mark is not a vehicle currency in trade between these two countries.
- 9 Data from the MITI show that, in 1993, 75% of Japanese imports from south-east Asia and 52% of Japanese exports to that region were denominated in dollars. The figures for the yen are 24% and 44% respectively.
- 10 This rule, known as Grassman's Law, is valid for exports of manufactures. Trade in primary products is generally invoiced in dollars.
- 11 This is also the case but to a lesser extent for Italy.
- 12 A table similar to Table 8 but for 1989 is given in the Annex (Table A2).
- 13 It is involved in 25.6% of foreign exchange transactions in New York, 15.2% in London, 8.8% in Zurich, 7.1% in Frankfurt and 6.8% in Paris (see Table 7).

- 14 Table 7 includes only transactions carried out on the world's eight leading financial markets. Extending coverage worldwide produces Table A3 (annexed), which sets out the distribution of transactions on foreign exchange markets by currency and geographical area. The conclusions which can be drawn from this table are similar to those to be drawn from Table 8: the dollar is the dominant vehicle currency in the three regions, with the mark playing a quite significant role outside Europe, and in particular in North America, but the same does not apply to the yen, which is less important than the dollar in Asia and has a marginal role outside Asia.
- 15 However, the use of the mark is also important on the option market (50.6%), where hedging operations take place.
- 16 With the exception of the mark (15%), the pound sterling (6.6%) and the Swiss franc (6.1%).
- 17 An international bond is a bond placed simultaneously on the market of at least two countries and the currency in which the bond is denominated need not necessarily be that of one of the countries concerned.
- 18 The yen accounts for only 3% of deposits with foreign banks.
- 19 The countries concerned are: Korea, Indonesia, Malaysia, Philippines, Thailand.
- 20 In 1992, the share of reserves denominated in marks fell and this may correspond to the first crisis in the EMS.
- 21 The double-logarithm equation estimated was:

$$\Delta (\text{value of currency } i) = a + b \Delta (\text{value of } \$) + c \Delta (\text{value of yen}) + d \Delta (\text{value of DM}) + e$$

BIBLIOGRAPHY

- M. Aglietta and P. Deusy-Fournier (1994), *"Les facteurs de l'internationalisation de monnaies et les modes d'organisation des Systèmes Monétaires Internationaux"*. Contribution to the report by the working group on EMU-IMS.
- G. Alogoskoufis and R. Portes (1992), *"European Monetary Union and International Currencies in a Tripolar World"*, Cambridge University Press, Cambridge.
- Bank for International Settlements (1990), *"Survey of Foreign Exchange Market Activity"*, Basle.
- Bank for International Settlements (1993), *"Central bank survey of foreign exchange activity in April 1992"*, Basle.
- A. Benassy and P. Deusy-Fournier P. (1994), *"La concurrence pour le Statut de monnaie internationale depuis 1973"*, *Economie internationale* No 59, 3rd quarter.
- A. Benassy, A. Italianer and J. Pisani-Ferry (1993), *"Les implications extérieures de l'UEM"*, EC working paper No 93-03.
- S.W. Black (1991), *"Transactions Cost and Vehicle Currencies"*, in Journal of International Money and Finance, Vol. 10, pp. 512-526.
- P. De Grauwe, (1989), *"International Money. Post-War Trends and Theories"*, Oxford University Press.
- B. Eichengreen (1993), *"International Monetary Arrangements for the 21st Century"*, University of California at Berkeley, draft.
- M. Emerson et al. (1990), *"One market, One Money"*, *European Economy*, No 44, October.
- J.A. Frankel (1992), *"Is Japan Creating a Yen Bloc in East Asia and the Pacific?"*, in NBER Working Paper No 4050.
- J.A. Frankel and S.J. Wei (1993), *"Trade Blocs and Currency Blocs"*, in NBER Working Paper No 4335.
- Ch. Goodhart (1993), *"The external dimension of EMU"*, in Recherches Economiques de Louvain, Vol. 59, Nos 1-2.
- S. Grassman (1973), *"A fundamental Symmetry in International Payment Patterns"*, in Journal of International Economics, Vol. 3, 105-116.
- D. Gros and N. Thygesen (1992), *"EMU and the Global Monetary System"*, in European Monetary Integration - From the European Monetary System to European Monetary Union, Longman, London.
- C. Hakkio (1993), *"The Dollar's International Role"*, in Western Economic Association, Contemporary Policy Issues, Vol. XI, 62-75.

T. Iwami (1994), *"The Internationalisation of the yen and Key Currency Questions"*, IMF Working Paper, WP/94/41, April.

P. Kenen (1983), *"The role of the dollar as an international currency"*, in Group of Thirty Occasional Paper N° 13, New York.

P. Kenen (1993), *"EMU, Exchange rates and the International Monetary System"*, in Recherches Economiques de Louvain, Vol. 59, Nos 1-2.

P. Krugman (1980), *"Vehicle Currencies and the Structure of International Exchange"*, in Journal of Money, Credit and Banking, Vol. 12, No 3.

P. Krugman (1984), *"The international role of the dollar; theory and prospect"*, in Exchange rate theory and practice, ed. J.F.O. Bilson et R. Marston, Chicago/London, The University of Chicago Press, pp. 261-278.

S. Magee and R. Rao (1980), *"Vehicle and non-vehicle currencies in international trade"*, in American Economic Review, Vol. 70, pp. 368-73.

S.A.B. Page (1981), *"The Choice of Invoicing Currency in Merchandise Trade"*, in National Institute Economic Review, No 98, pp. 60-72.

H.E. Scharrer (1979), *"Die Währungsstruktur im Welthandel"*, Wirtschaftsdienst, No 9, pp. 454-459.

G. Tavlas (1991), *"On the International Use of Currencies: the Case of the Deutsche Mark"*, in Essays in International Finance, N° 181, Princeton University Press, Princeton.

G. Tavlas and Y. Ozeki (1992), *"The Internationalization of Currencies: An Appraisal of the Japanese Yen"*, in Occasional Paper No 90, IMF, Washington.

P. van de Koolwijk (1994), *"The International Use of Main Currencies: A Statistical Overview of Recent Developments"*, report prepared for the Directorate General for Economic and Financial Affairs.

J. Van het Dack (1993), *"Private sector use of the ecu as an international currency"*, Bank for International Settlements, Basle.

TABLE A1
DENOMINATION OF INTERNATIONAL TRADE
BREAKDOWN OF WORLD EXPORTS BY PRINCIPAL GEOGRAPHICAL AREA AND CURRENCY
 (%)

Currency ⇒ Region ↓	Dollar		DM		Yen	
	1980	1992	1980	1992	1980	1992
North America, Australia, New Zealand	15.6	15.0	0.2	0.3	0.0	0.3
Asia	10.1	15.5	0.2	0.6	2.1	4.2
Europe (EU + EFTA)	7.1	6.7	12.1	13.6	0.0	0.3
Petr. exp. countries and Middle East	16.2	5.4	0.2	0.1	0.0	0.0
Other	7.2	4.9	1.0	0.7	0.0	0.1
TOTAL	56.1	47.6	13.6	15.3	2.1	4.8

Sources: See footnotes 4 and 5, and calculations by the European Commission.

TABLE A2										
BREAKDOWN OF FOREIGN EXCHANGE TRANSACTIONS										
BY FINANCIAL CENTRE (%)										
1989										
	Transactions involving									Total transac-
	Dollar	DM	Yen	Sterling	Ecu	Other				tions
London	25.8	28.3	16.6	53.6	47.1	20.2				25.8
New York	19.9	23.4	19.0	18.1	5.9	12.8				18.7
Tokyo	16.5	5.7	45.8	3.9	0.0	4.5				15.6
Zurich	6.1	8.9	2.1	3.8	5.9	13.6				7.3
Singapore	7.2	7.3	7.1	8.0	0.0	5.2				6.8
Hong Kong	6.7	4.9	5.9	5.6	1.2	7.6				6.4
Paris	2.7	5.7	0.7	0.4	8.2	6.3				3.4
Other	15.2	15.9	2.8	6.7	31.8	29.8				16.0
Total	100.00	100.0	100.00	100.00	100.00	100.00				100.00

Source: BIS, Survey of foreign exchange market activity, 1989.

TABLE A3
BREAKDOWN OF TRANSACTIONS ON FOREIGN EXCHANGE MARKETS BY CURRENCY AND GEOGRAPHICAL AREA¹
GROSS TURNOVER; DAILY AVERAGE

Currency ⇒ Region ↓	1989 (%)							Total in US\$ bn
	Dollar	DM	Yen	Sterling	Ecu	Other		
EU and EFTA ²	83.5	31.6	11.8	19.6	1.8	51.9	432.2	
United States and Canada	95.8	31.3	25.6	13.5	0.3	33.3	192.0	
Asia ³	94.8	16.4	55.6	9.0	0.0	24.6	268.0	
1992 (EN %)								
Currency ⇒ Region ↓	Dollar	DM	Yen	Sterling	Ecu	Others	Total in US\$ bn	
EU and EFTA ²	74.8	47.7	10.3	15.6	5.1	46.5	611.6	
United States and Canada	89.5	41.0	23.5	11.0	0.8	34.2	214.8	
Asia ³	91.3	27.0	51.0	10.0	0.6	20.1	262.9	

Source: BIS, Survey of foreign exchange market activity, 1989 and 1992.

- 1 Because two currencies are involved in each transaction, the sum of transactions in individual currencies comes to twice total reported turnover or 200%.
- 2 Germany, Luxembourg and Austria were not included in 1989.
- 3 Japan, Singapore, Hong Kong

TABLE A4 BREAKDOWN OF GLOBAL FINANCIAL WEALTH BY CURRENCY AND COMPONENT (%)										
	Total in US\$ bn	EU currencies					Total	Other		
		US dollar	DM	Ecu	Yen	Other				
International bonds										
	194.0	52.6	n.a.	n.a.	n.a.	20.2	6.9	20.4		
	558.4	56.7	9.1	3.0	3.0	18.6	7.6	17.1		
	1,098.6	43.9	9.4	4.2	4.2	25.0	12.1	19.0		
	1,252.6	45.3	9.7	4.4	4.4	26.0	10.5	18.2		
	1,477.4	41.1	10.0	5.1	5.1	29.0	11.4	18.6		
	1,651.8	39.1	9.6	6.1	6.1	32.0	12.2	16.7		
	1,689.5	40.3	10.0	6.0	6.0	32.4	12.3	15.0		
Sep. 1993	1,843.6	38.3	10.3	5.2	5.2	33.4	14.1	14.3		
Deposits with foreign banks										
	572.0	71.7	n.a.	n.a.	n.a.	16.4	1.6	10.3		
	553.8	70.2	9.9	0.8	0.8	19.4	2.6	7.8		
	963.5	56.6	17.5	2.0	2.0	29.3	3.6	10.5		
	1,139.1	51.3	15.3	1.6	1.6	34.3	3.0	11.4		
	1,380.9	43.6	17.1	1.9	1.9	39.4	3.5	13.5		
	1,354.5	41.0	19.3	2.2	2.2	42.5	3.0	13.5		
	1,340.6	40.1	23.1	2.3	2.3	45.7	2.6	11.6		
Sep. 1993	1,363.8	38.0	24.6	2.1	2.1	47.3	2.8	12.0		
Foreign currency deposits by residents										
	245.0	68.9	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.		
	562.9	69.2	9.3	2.9	2.9	16.2	3.8	10.8		
	1,020.4	66.1	10.5	3.2	3.2	18.8	3.9	11.2		
	1,142.6	65.8	11.3	3.3	3.3	20.0	3.8	10.4		
	1,305.8	62.1	13.6	3.6	3.6	24.6	3.8	9.6		
	1,221.5	57.8	14.2	6.2	6.2	29.0	4.0	9.1		
	1,154.3	57.9	13.5	6.0	6.0	28.4	4.5	9.3		
Sep. 1993	1,134.1	58.3	13.6	5.2	5.2	28.0	4.2	9.4		
Euronotes										
	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.		
	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.		
	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.		
	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.		
	111.2	75.5	0.2	7.6	7.6	12.7	3.9	7.9		
	152.3	66.4	1.2	8.1	8.1	23.2	5.7	4.6		
	186.8	68.0	3.3	4.9	4.9	21.2	6.1	4.8		
Sep. 1993	234.6	60.7	3.9	3.2	3.2	22.8	8.5	8.0		

Source: BIS, Survey of foreign exchange market activity, 1989 and 1992.

TABLE A5
SHARES OF DIFFERENT NATIONAL CURRENCIES IN TOTAL OFFICIAL CURRENCY RESERVES
END OF YEAR 1973-92

	1973	1976	1979	1982	1984	1985	1986	1987	1989	1990	1991	1992
All countries												
US dollar	76.1	79.7	73.2	70.5	69.9	64.8	67.0	67.8	60.2	57.5	58.4	64.4
Sterling	5.6	2.0	1.8	2.5	2.9	3.0	2.5	2.4	2.7	3.4	3.6	3.2
Mark	7.1	7.0	12.0	12.3	12.6	15.1	14.6	14.4	19.0	18.6	16.5	13.0
French franc	1.1	0.9	1.3	1.2	0.8	0.9	0.8	0.8	1.4	2.3	2.8	2.5
Swiss franc	1.4	1.4	2.4	2.8	2.0	2.3	2.0	1.9	1.5	1.4	1.4	1.3
Dutch guilder	0.5	0.5	1.0	1.1	0.7	1.0	1.1	1.2	1.1	1.1	1.1	0.7
Yen	0.1	0.8	3.6	4.7	5.8	8.0	7.8	7.5	7.7	8.8	9.4	8.1
Non-specified currencies	8.1	7.8	4.8	5.0	5.4	4.9	4.1	3.9	6.5	6.9	6.9	6.8
Industrialized countries												
US dollar	86.3	87.0	83.5	77.1	73.5	65.2	69.4	71.4	59.6	56.0	55.8	64.9
Sterling	3.7	0.7	0.7	0.8	1.4	1.8	1.3	1.1	1.4	1.9	2.0	2.3
Mark	2.9	3.8	9.4	12.2	15.1	19.5	16.7	15.9	22.5	21.9	20.0	14.4
French franc	0.0	0.1	0.6	0.3	0.1	0.1	0.1	0.4	1.2	2.5	3.2	3.0
Swiss franc	0.8	0.9	1.4	1.7	1.5	2.1	1.7	1.6	1.1	1.1	0.8	0.6
Dutch guilder	0.3	0.3	0.6	0.7	0.6	1.0	1.1	1.3	1.2	1.3	1.2	0.5
Yen	0.0	0.4	2.6	4.4	6.3	8.9	8.3	7.1	8.1	9.6	10.4	7.4
Non-specified currencies	6.0	7.0	1.2	2.8	1.4	1.4	1.4	1.3	4.8	5.9	6.5	6.9
Developing countries												
US dollar	55.0	72.8	62.9	63.8	66.2	64.5	63.2	59.8	61.3	60.7	62.7	63.6
Sterling	9.5	3.2	2.9	4.1	4.4	4.3	4.6	5.2	5.6	6.4	6.0	4.6
Mark	15.9	10.1	14.6	12.4	9.0	10.0	11.0	11.1	11.3	11.6	10.8	10.9
French franc	3.3	1.6	1.9	2.2	1.5	1.9	2.0	1.8	1.8	2.0	2.1	1.9
Swiss franc	2.6	1.9	3.4	3.8	2.5	2.6	2.5	2.7	2.3	2.2	2.2	2.5
Dutch guilder	0.9	0.7	1.3	1.6	0.8	0.9	1.1	1.1	0.8	0.7	0.8	0.9
Yen	0.2	1.1	4.5	4.9	5.2	6.9	7.1	8.5	6.9	7.3	7.7	9.0
Non-specified currencies	12.6	8.6	8.3	7.3	9.6	9.0	8.5	9.7	10.0	9.0	7.7	6.7

Source: IMF Annual Reports.