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August 14, 1995

To: Members of the Executive Board
From: The Secretary
Subject: Review of the Method of Valuation of the SDR

Attached for consideration by the Executive Directors is a paper on the review of the method of valuation of the SDR, which is tentatively scheduled for discussion on Wednesday, August 30, 1995. Conclusions appear on page 45.

Ms. N. Wagner (ext. 37808) or Ms. Westin (ext. 34982) is available to answer technical or factual questions relating to this paper prior to the Board discussion.

Att: (1)

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Department Heads

INTERNATIONAL MONETARY FUND

Review of the Method of Valuation of the SDR

Prepared by the Treasurer's Department

(In consultation with other Departments)

Approved by David Williams

August 11, 1995

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I. Introduction

This paper provides the basis for the quinquennial review by the Executive Board of the method of the SDR valuation and its interest rate, in accordance with the 1980 Decision on the valuation of the SDR. It will be recalled that under that Decision, the Executive Board agreed, *inter alia*, (i) to maintain the principle of valuing the SDR as the equivalent of a basket of currencies containing a specified number of units for each currency included in the basket (i.e., the "standard basket" form of valuation) and (ii) beginning on January 1, 1981, to provide for future quinquennial revisions of the list of currencies and their percentage weights in the valuation basket in accordance with changes in agreed economic variables, unless the Executive Board decided otherwise. The Executive Board also decided in 1980 that the SDR interest rate basket would be identical with the SDR valuation basket.

As provided for in the 1980 Decision, the Executive Board conducted quinquennial reviews of the SDR valuation basket in 1985 and 1990. ^{1/} On those occasions, the Executive Board agreed to revise the SDR valuation basket using the criteria specified in the 1980 Decision. The present paper proposes to maintain unchanged the fundamental features of the 1980 Decision, and the next quinquennial revision of the SDR basket is therefore intended to take effect on January 1, 1996, and to replace the current basket which took effect on January 1, 1991. As regards the SDR interest rate basket, it is proposed that this basket remain identical with the valuation basket and to maintain unchanged the financial instruments for each of the five currencies in the interest rate basket.

The paper does not raise issues as regards the possible future role of the SDR, or possible different functions for the SDR--such as the "hard" SDR--or different forms of valuing the SDR, including whether the SDR should be valued according to any specific method. These wider issues are intended to be considered in the seminar on the SDR, scheduled for early 1996. As indicated above, this paper is limited to the operational aspects of the current method of valuing the SDR, as required under the 1980 Decision.

The paper is organized as follows: Section II reviews the principles underlying the standard basket form of SDR valuation and its performance over the long run. The criteria adopted in the 1980 Decision for use in the quinquennial revision of the SDR valuation basket are applied and supplementary criteria regarding the relative financial importance of the currencies included in the SDR basket are discussed in Section III. Section IV discusses the rounding of the weights, the determination of the currency amounts in the new basket, and procedural matters concerning the

^{1/} See "Review of the Valuation of the SDR," SM/85/163 (6/7/85) and EBM/85/102 (7/1/85); and "Review of the Method of Valuation of the SDR," SM/90/141 (7/16/90) and EBM/90/146 (10/5/90).

transition to the new basket and its application for the period 1996-2000. Section V reviews the SDR interest rate basket, and Section VI summarizes the main operational conclusions of the paper.

II. Principles Underlying the Standard Basket Form of SDR Valuation and Its Performance

As noted above, the SDR is valued on the basis of averaging the exchange rates of the component currencies in the SDR basket. The Fund decided in 1974 to adopt this form of valuation, the standard basket, after extensive discussion in the Executive Board of various alternative techniques of valuation, as the method which would best assure the stability of the SDR in terms of the major currencies. ^{1/} Thus, with the use of a standard basket, the value of the SDR was expected not to change sharply over time in terms of currencies in general, irrespective of whether individual currencies were subject to devaluation or revaluation or were floating. The Fund also adopted the principle that the currencies included in the basket should be representative of the currencies used in international transactions. Decisions to change the principle of SDR valuation or to effect a fundamental change in the application of the existing principle require an 85 percent majority of total voting power; any other decision on the method of valuation of the SDR requires a 70 percent majority of the total voting power (Article XV, Section 2).

It may be recalled that prior to the adoption of the basket form of valuation, the value of the SDR was fixed in terms of gold at the par value of the U.S. dollar, so that one SDR was initially equal to one dollar. (The SDR was not convertible into gold, but it could be exchanged against convertible currencies using the official exchange rates for currency against the dollar.) Until June 30, 1974, the value of the SDR was in practice fixed in terms of the dollar on the basis of the dollar's par value in terms of gold. The par value of the dollar was changed in 1971 and again in 1973. ^{2/} Consequently, the first SDR basket was set equal on June 28, 1974, to \$1.20635, the effective par value that had been established in February 1973, i.e., the value of the SDR was set equal under the old (par value) and new (basket) method of valuation on the last business day before the new basket form of valuation came into effect.

^{1/} Before the Fund decided on the standard basket, three alternative forms of valuation (the "asymmetrical basket," the "adjustable basket," and the "par value" technique) were also considered. These other techniques were rejected because they involved operational difficulties in a world of floating exchange rates (see "The Future of the SDR as a Reserve Asset," EBS/93/89, 6/15/93), pp. 12-14.

^{2/} When the U.S. dollar was devalued in December 1971, the SDR became equal to \$1.08571, and on the occasion of the second devaluation of the dollar in February 1973, the SDR became equal to \$1.20635.

The Executive Board has conducted five formal reviews of the method of valuing the SDR (in 1976, 1977-78, 1980, 1985, and 1990). The reviews before 1980 were particularly concerned with establishing the procedures for periodic revisions of the method of SDR valuation to reflect changes in the relative importance of currencies over time, and to reduce any uncertainty that may accompany impending changes in the valuation of the SDR. None of these reviews resulted in any major changes in the principles governing the standard basket form of valuation, although the 1980 review provided for a major simplification of the size of the SDR basket (from 16 to five currencies). (Table 1 presents the SDR valuation baskets used by the Fund from July 1, 1974.)

The practical intent of the 1980 Decision and the subsequent reviews of the method of SDR valuation in 1985 and 1990 under that Decision was, *inter alia*, (i) to keep the composition of the SDR valuation basket stable for a considerable number of years while including the currencies of those members with well-developed foreign exchange markets, and (ii) to improve the attractiveness of the SDR as a reserve asset by increasing its acceptability, both in its official and private forms, through making it easier to cover exchange risks in terms of the SDR and ensure that SDR-denominated claims would be traded at or close to the official valuation of the SDR. ^{1/} While these objectives have been broadly achieved since 1980, it is useful to provide a brief review of the performance of the standard five-currency SDR basket since it came into effect in January 1981, in terms of (1) the stability of the value of the SDR against the major currencies; (2) the effective yield of the SDR; and (3) the acceptance by the official and private sectors of SDR-denominated assets, and the influence that the present particular form of valuation adopted by the Fund may have had on the acceptability of the SDR. The following paragraphs accordingly review the long run performance of the SDR basket.

The overall trend in the value of the SDR since the beginning of 1981 has been its cumulative appreciation against the U.S. dollar, the pound sterling, and the French franc, and a cumulative depreciation against the Japanese yen and the deutsche mark. (See Charts 1 and 2). Chart 1 illustrates that the movement in the value of the SDR against the dollar was not unidirectional throughout the period. During the first five-year period beginning in 1981, the SDR depreciated sharply against the dollar, reaching a record low of \$0.94620 per SDR in early 1985. However, beginning in February 1985 and, in particular, following the Plaza Agreement of 1985 and the Louvre Accord in 1987, the SDR appreciated against the dollar, and it reached a record high of \$1.59342

^{1/} The 1980 Decision was taken in the context of discussions at the time concerning the establishment of a Substitution Account in which large-scale conversion from U.S. dollar-denominated assets to SDR-denominated assets was envisaged (see "Substitution Account - Choice of Number of Currencies on the SDR Valuation and Interest Rate Baskets and Timing of Change," SM/80/60, 3/13/80 and EBM/80/54, 3/26/80).

Table 1. SDR Valuation Baskets

	July 1, 1974- June 30, 1978		July 1, 1978- December 31, 1980		January 1, 1981- December 31, 1985		January 1, 1986- December 31, 1990		From January 1, 1991	
	Percentage weight at inception	Currency units	Percentage weight at inception	Currency units	Percentage weight at inception	Currency units	Percentage weight at inception	Currency units	Percentage weight at inception	Currency units
U.S. dollar	33.0	0.40	33.0	0.40	42	0.54	42	0.452	40	0.572
Deutsche mark	12.5	0.38	12.5	0.32	19	0.46	19	0.527	21	0.453
Japanese yen	7.5	26.0	7.5	21.0	13	34.0	15	33.4	17	31.80
French franc	7.5	0.44	7.5	0.42	13	0.74	12	1.02	11	0.800
Pound sterling	9.0	0.045	7.5	0.050	13	0.071	12	0.0893	11	0.0812
					100		100		100	
Canadian dollar	6.0	0.071	5.0	0.070						
Italian lira	6.0	47.0	5.0	52.0						
Netherlands guilder	4.5	0.14	5.0	0.14						
Belgian franc	3.5	1.6	4.0	1.6						
Swedish krona	2.5	0.13	2.0	0.11						
Australian dollar	1.5	0.012	1.5	0.017						
Danish krona	1.5	0.11	--	--						
Norwegian krone	1.5	0.099	1.5	0.10						
Spanish peseta	1.5	1.1	1.5	1.5						
Austrian schilling	1.0	0.22	1.5	0.28						
South African rand	1.0	0.0082	--	--						
Saudi Arabian rial	--	--	3.0	0.13						
Iranian rial	--	--	2.0	1.7						
	100.0		100.0							

Chart 1. Exchange Rate of the SDR

(January 1973 to July 14, 1995)

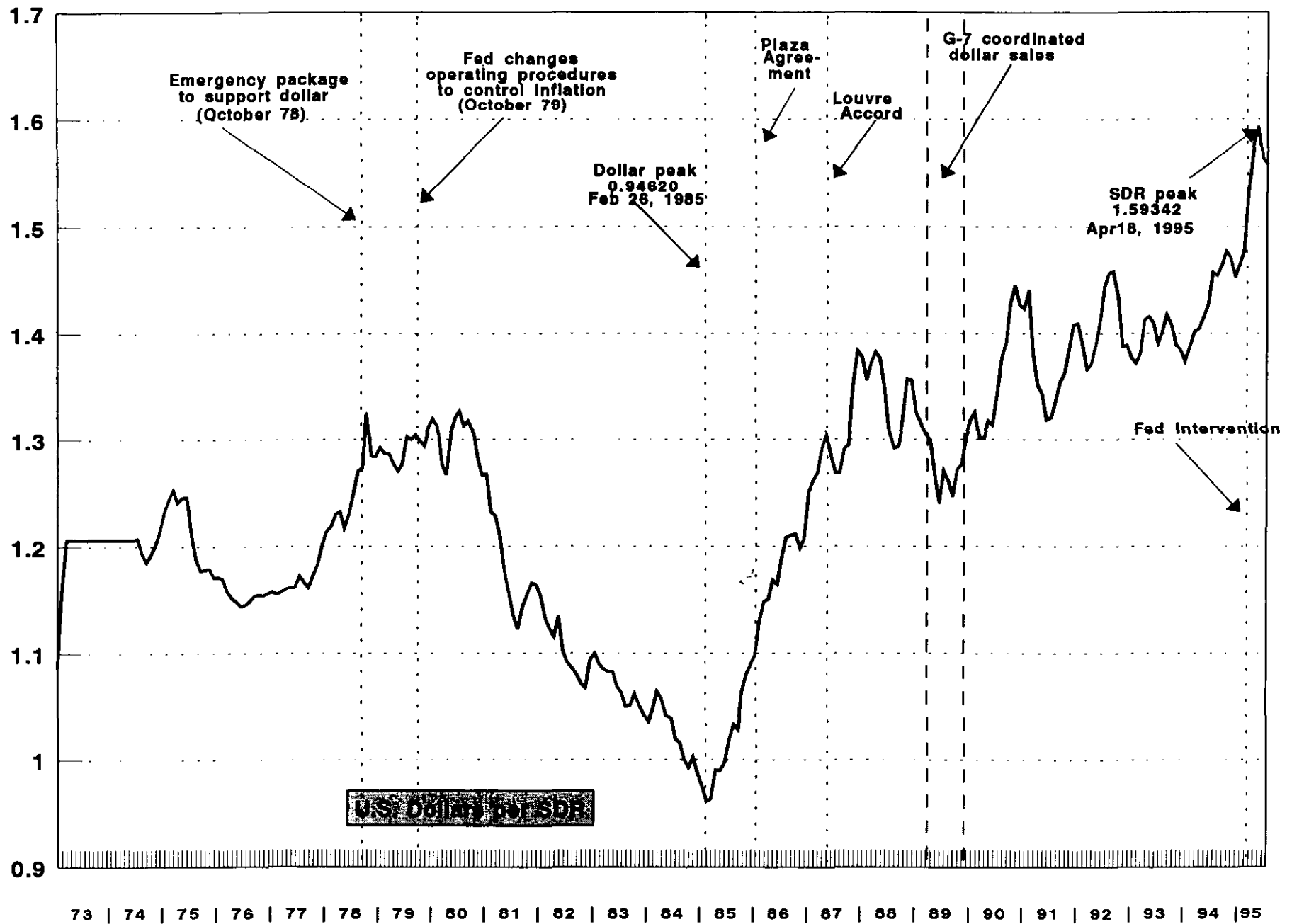
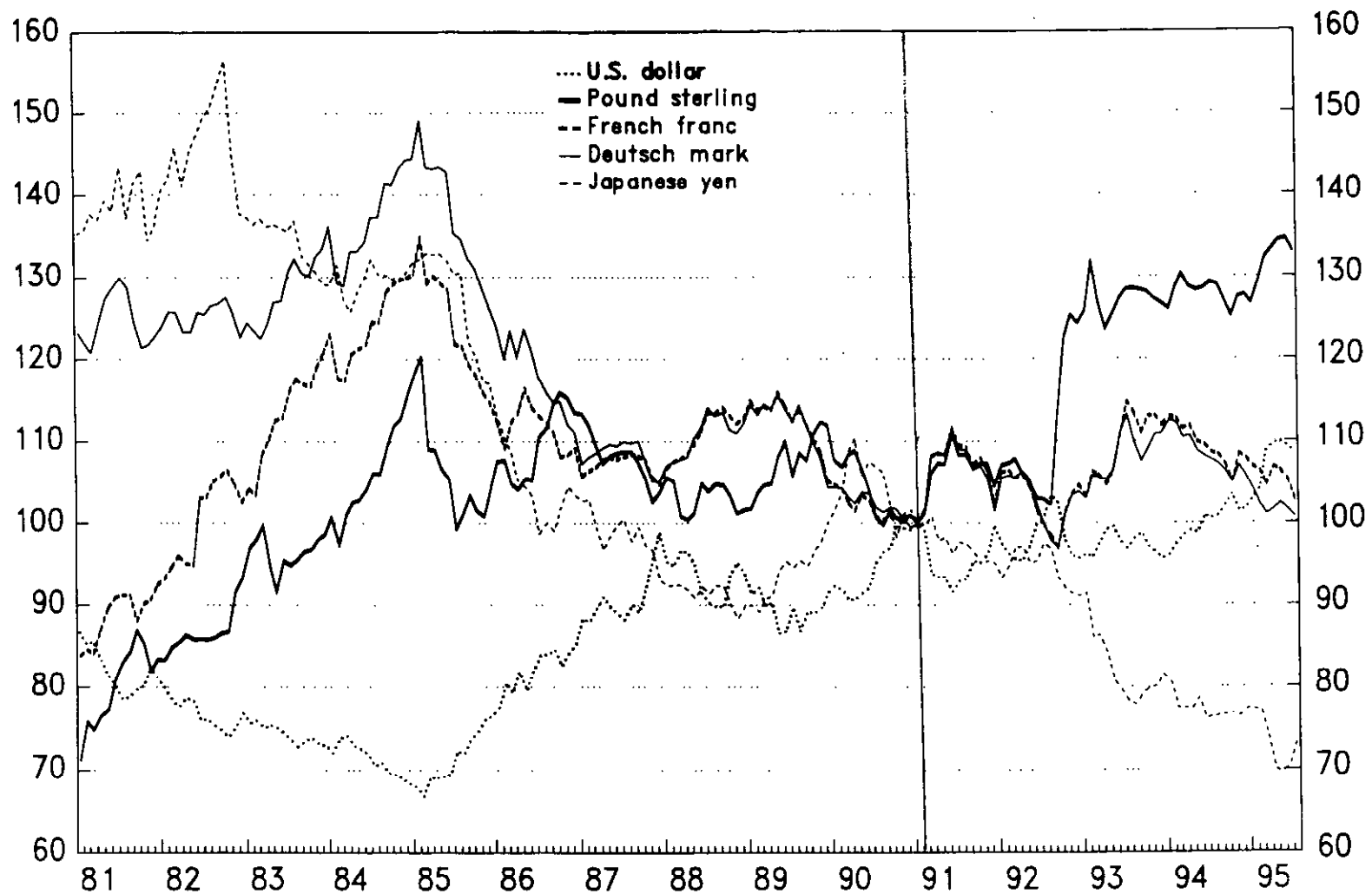


Chart 2. Indexes of Exchange Rates of the SDR Against
the Five Major Currencies

(January 1981 to July 1995)

(January 1991 = 100)



per SDR in April 1995. It may also be noted that the depreciation of the SDR against the Japanese yen has been particularly sharp, with a cumulative decline of almost 50 percent since early 1981; at the same time, the SDR exhibited a considerable appreciation against the pound sterling and the French franc, rising by more than 80 percent and 30 percent, respectively, since the beginning of 1981. ^{1/} During this period, the SDR has fallen by almost 15 percent against the deutsche mark.

Over the course of nearly a decade and a half, the changes in the value of the SDR against each of the five major currencies has reflected the exchange rate fluctuations in the system of (managed) floating exchange rates (Chart 2). In other words, the overall change in the value of the SDR has reflected the offsetting individual appreciations and depreciations of its constituent currencies. Furthermore, reflecting the working of the standard basket method of valuation, the movements in the SDR in terms of the major currencies have been less pronounced than those of the bilateral rates of exchange for these same currencies against each other. The day-to-day volatility of the SDR/U.S. dollar exchange rate has been significantly smaller than the volatility of its component currencies measured in terms of the dollar, as can be seen in Table 2. The SDR has therefore exhibited long-run overall stability against the major currencies which constitute the asset.

From the perspective of the investment or portfolio performance of the SDR, compared with the performance of other reserve assets, the combined exchange rate performance of each of the currencies in the SDR basket is an important factor in determining the effective yield of the SDR, i.e., the rate of interest on the SDR adjusted for any change in its exchange rate. In this connection, the relative stability of the exchange rate of the SDR tends to result in a relative performance of the SDR as a reserve asset, measured in terms of effective yield per unit of risk (or the yield divided by its standard deviation), which is generally superior to those of reserve assets in any individual currency (see Appendix II and Appendix Table 16). In the period since the current SDR basket has been in effect, the SDR has clearly outperformed the U.S. dollar on this basis as an investment measured in terms of the alternative component currencies. Similarly, the SDR has been associated with a higher effective yield as compared with the pound sterling. The evidence is somewhat mixed with respect to the deutsche mark and the French franc, given the linkage of the two currencies through the exchange rate mechanism (ERM) in the European Monetary System (EMS), although an investment in SDRs would have been superior to either of the ERM currencies when measured in dollars. In contrast, the sharp appreciation of the Japanese yen has led to a markedly superior performance of investments in the yen relative to either the SDR or any of the other

^{1/} As can be seen in Chart 2, the SDR's appreciation against the pound sterling was particularly sharp following the pound's suspension from the exchange rate mechanism of the EMS in 1992.

Table 2. Exchange Rate Volatility 1/

	1991	1992	1993	1994	1995 <u>2/</u>
SDR	0.31	0.32	0.25	0.24	0.32
Deutsche mark	0.65	0.65	0.54	0.47	0.62
Japanese yen	0.43	0.39	0.50	0.49	0.58
French franc	0.62	0.63	0.51	0.44	0.55
Pound sterling	0.58	0.67	0.60	0.32	0.41

1/ Measured as the mean of absolute daily percentage changes in spot exchange rates against the U.S. dollar at noon in the London market.

2/ January 1-July 14, 1995.

component currencies in the SDR valuation basket. 1/ On balance, then, the SDR has retained its overall competitiveness as a reserve asset as measured by its effective yield in relation to the effective yields on its component currencies.

The attitudes of official and private institutions toward their holdings of SDRs and SDR-denominated assets provide a mixed picture of the performance of the SDR in terms of its valuation and yield characteristics. As regards the official institutions, their transactions and operations in SDRs and SDR-denominated assets have been effected smoothly and promptly. Such assets represent only a relatively small part of members' official reserve assets, but the rate of turnover is quite large. The stock of SDRs in circulation has remained unchanged at SDR 21.4 billion since 1981, while the stock of officially created SDR-denominated assets (other than SDRs 2/) rose from SDR 16.8 billion at the end of 1980 to SDR 41.6 billion in 1984, but has since declined to SDR 34.7 billion at the end of June 1995. 3/ However, on an annual-average basis, the volume of transfers of SDRs among participants, prescribed holders, and the General Resources Account (GRA), has remained high at SDR 18.7 billion in the five financial years ended April 1995, compared with the average total volume of annual transfers of SDR 16.8 billion in FY 1983-90. This relatively large-scale volume of transfers and the large volume of transactions in the GRA, all of which are SDR-denominated, include conversions against currencies using the exchange rates for the SDR as determined daily by the Fund on the basis of the SDR valuation basket. As noted above, no operational difficulties have arisen with respect to the valuation of these transactions, and in the SDR Department, the level of voluntary transactions by agreement has remained at SDR 5.5 billion per year, on average, in the past five years, which have been conducted

1/ It is possible to conceive of a basket that would have appreciated with the Japanese yen since 1991. For example, the "asymmetrical basket" approach provides for the amount of a depreciating component currency to be increased in order to stabilize the value of the basket in terms of the stronger, or nondepreciating, currencies. Such a basket could potentially be subject to a sharp appreciation compared with a standard basket approach, and thereby have a very high rate of return unless the interest rate on the SDR were adjusted downward. However, as noted in EBS/93/89, operational difficulties arise in the working of the asymmetrical basket with respect to the choice of numeraire and the base period from which to measure exchange rate changes needed to adjust the components of the valuation basket. Changes in the SDR interest rate also have important implications for the working of the GRA.

2/ That is, members' reserve tranche positions and loan claims on the Fund.

3/ Altogether, including SDRs, the stock of official SDR-denominated reserve assets has amounted to as much as 18 percent of total foreign exchange reserves in 1984, but the stock of such assets is equivalent to about 7 percent of total foreign exchange reserves in June 1995.

without resort to the designation mechanism since 1987. This experience would suggest that the existing method of valuing the SDR has continued to function in a manner that is both acceptable and convenient to members in their Fund-related transactions, and insofar as the SDR Department is concerned, also to prescribed holders. 1/

Since 1980, the developments in the private market in SDR-denominated assets reflect a decline in both demand for and supply of such assets, despite the aim of the 1980 Decision to facilitate public understanding of the SDR and thereby increase its general usability. As noted in SM/90/141, a private market in SDR-denominated assets emerged in the late 1970s, and the adoption of the five-currency basket in 1980 initially enhanced the growth of the SDR-denominated bank deposit market. The private market has, however, declined since 1982, in part because investor interest waned with the sharp appreciation of the U.S. dollar in the first half of the 1980s, and, thereafter, the development of the deutsche mark and the Japanese yen as reserve currencies with relatively sharp appreciation attracted investor demand. Furthermore, the private SDR faced competition from the officially promoted private market in ECU-denominated assets. The simplification of the SDR basket in 1980 also reportedly induced some active market participants to compose their own currency baskets rather than transact in formally composed SDR-denominated assets. These factors, together with relatively high overhead costs in the private SDR market and the inability of market participants to achieve a sufficient volume to avail themselves of economies of scale, contributed to the decline in activity in the private SDR market. These developments do not, however, appear to be related to the specific features of the method of valuation of the SDR. As indicated in EBS/93/89, the attractive financial characteristics of the SDR relative to those of the major reserve currencies, and the growth of SDR-denominated liabilities (i.e., to the Fund) have apparently been insufficient in stimulating growth in the demand for SDR-denominated assets of their own accord, or as a means of covering exchange risks.

In light of the above, the staff is of the view that the existing standard basket method of valuation of the SDR has continued to work well on balance, particularly in terms of the principles adopted by the Fund in 1974 that the SDR should be assured of stability in terms of the major currencies and that the currencies included in the basket should be representative of the currencies used in international transactions. The existing method of valuation and the simplification of the basket in 1980 have also provided for competitive risk-adjusted returns for SDR-denominated assets and have thereby contributed to the attractiveness

1/ Outside the Fund, the SDR is used as the basis for the unit of account of 15 international and regional institutions, and a few members peg their currencies to the SDR. As of June 1995, three countries (Libya, Myanmar, and the Seychelles) pegged their currencies to the SDR.

of the SDR as a reserve asset. In view of these conclusions, the staff considers that there would not seem to be any operational reasons to suggest any fundamental changes in the existing method of valuing the SDR.

III. Revision of the SDR Valuation Basket

This section (i) outlines the specific criteria agreed in 1980 for use in future revisions of the components of the SDR valuation basket, unless the Executive Board decides otherwise and (ii) discusses the results of applying the economic criteria provided in the 1980 Decision for determining the revised SDR valuation basket to take effect at the beginning of 1996. This section also reviews some supplementary data that give an indication of the use of currencies in international financial transactions, and considers the question of frequency of revision of the SDR valuation basket, including a suggestion made at the time of the last review in 1990 to include the ECU in the SDR basket.

1. The adjustment of the valuation basket under the 1980 Decision

Under the 1980 Decision, which is reproduced in Appendix I, the criteria to be followed in the five-yearly revisions of the SDR valuation basket, unless the Board should decide otherwise, may be summarized as follows:

a. The currencies to be included in the valuation basket shall be the currencies of the five member countries of the Fund with the largest exports of goods and services, in terms of value, during the five-year period ending 12 months prior to the effective date of the revision.

b. A new currency shall not replace an existing currency in the valuation basket unless the value of exports of goods and services of the issuer of the former currency exceeds that of the issuer of the latter currency by at least one percentage point for the relevant five-year period.

c. Revisions of the percentage weights for the five currencies that are included in the valuation basket shall reflect the values of the exports of goods and services and also the balances of the currencies of the five countries whose currencies comprise the basket that are held by the monetary authorities of other members during the relevant five-year review period. The percentage weights calculated in this manner are to be rounded to the nearest percentage point or as may be convenient.

d. The amounts of each of the five currencies in the valuation basket shall be determined on the last working day preceding the effective date of the new basket such that, at the average exchange rates for the three-month period ending on that date, the values of the amounts of the currencies in relation to the value of the SDR will equal the new percentage weights for these currencies.

e. The calculation of the new currency amounts will be made in such a manner that, on the last business day preceding the effective date of the new basket, the value of the SDR will be the same under the methods of valuation in effect on and after that date.

Data on the value of exports of goods and services are presented in Table 3. 1/ It should be noted that, where appropriate, the data have been adjusted to exclude interest received on international banking activities, as indicated in footnote 1 to Table 3. As can be seen, the five largest exporters of goods and services in terms of value during the period 1990-94, inclusive, continue to be the same member countries issuing the currencies which currently comprise the SDR valuation basket. Consequently, the list of currencies in the SDR basket shall remain unchanged for the period 1996-2000 unless the Executive Board decides otherwise.

As shown in Table 3, the U.S. share in world exports of goods and services has increased from 13.6 percent in the 1985-89 period to 14.3 percent in the 1990-94 period. The shares of Japan, Germany, and France have also increased relative to the earlier period. Moreover, with the decline in the U.K. share from 6.1 percent to 5.7 percent, France has replaced the United Kingdom as the world's fourth largest exporter of goods and services with a 6.7 percent share. The exports of goods and services of the fifth largest exporter (United Kingdom) in 1990-94 are about 14 percent larger than those of the sixth largest exporter (Italy). Although historically there had been a substantial gap between the fifth and sixth ranking countries, 2/ reflecting a natural break in the ranking of countries after the five countries with the largest exports of goods and services, this gap has declined in recent years. Nevertheless, it would appear that the list of five currencies contained in the SDR basket is likely to remain stable over the medium term.

With respect to the overall representativeness in world trade of the five currencies in the SDR basket, it may be noted that the combined share in world exports of goods and services of the countries issuing these currencies has increased to 47.1 percent in the 1990-94 period, compared with 44.3 percent in 1985-89 and 44.2 percent in 1980-84. Thus, the relative importance in total world exports of goods and services of the five countries whose currencies are included in the present SDR basket has increased over the past ten years, which is an indication of the extent to which they may be judged to be representative of global current account transactions.

1/ Consistent with past practice, the data on exports of goods and services include data on merchandise exports, services, and income.

2/ For the 1985-89 period, the exports of goods and services of France (the fifth largest exporter at the time) were almost 38 percent larger than those of Italy (the sixth largest exporter).

Table 3. Exports of Goods and Services, 1985-1994 1/

	1985-89				1990-94		
	Average (In billions of SDRs)	Percent Shares in World Exports of Goods and Services			Average (In billions of SDRs)	Percent Shares in World Exports of Goods and Services	
		Share	Cumulative share			Share	Cumulative share
<u>Eight largest members</u>				<u>Eight largest members</u>			
		<u>(In percent)</u>				<u>(In percent)</u>	
United States	367.2	13.6		United States	525.6	14.3	
Germany	269.2	9.9		Germany	387.2	10.5	
Japan	235.6	8.7		Japan	364.8	9.9	
United Kingdom	165.8	6.1		France	245.6	6.7	
France	162.0	6.0	44.3	United Kingdom	211.4	5.7	47.1
Italy	117.5	4.3	48.7	Italy	186.2	5.1	52.1
Canada	97.4	3.6	52.3	Netherlands	133.8	3.6	55.7
Netherlands	91.4	3.4	55.6	Canada	117.9	3.2	58.9
World total	2,706.5			World total	3,686.4		
<u>Five countries whose currencies are included in SDR</u>				<u>Five countries whose currencies are included in SDR</u>			
		1985-89 average Relative share, <u>in percent</u>				1990-94 average Relative share, <u>in percent</u>	
United States		30.6		United States		30.3	
Germany		22.4		Germany		22.3	
Japan		19.6		Japan		21.0	
United Kingdom		13.8		France		14.2	
France		13.5		United Kingdom		12.2	
Memo: Share of five countries in world total				Memo: Share of five countries in world total			
44.3				47.1			

Source: IMF Economic Information System (EIS) and staff estimates.

1/ Data for goods and services exclude interest on international banking, which is consistent with the practice followed in adjusting data to exclude entrepôt trade transactions and in making calculations under the Tenth and Eleventh General Reviews of Quotas. Data on international banking interest for the United States and France were provided by the U.S. and French authorities, respectively, but the downward adjustment for the data for the United Kingdom and Japan are based on staff estimates. According to the German authorities, data for Germany have been provided net of international banking or offshore interest.

2. Relative weights of component currencies

Since 1980, the weights for the currencies to be included in the SDR valuation basket have been based on two economic variables: (i) the average *annual value of exports of goods and services of the issuer of the currency* over the five-year period ending one year before the effective date of the new valuation basket and (ii) the average value of the amount of each of the component currencies that is held by the monetary authorities of other members at the end of each year in the same review period as in (i). In past reviews, Directors have concluded that the use of these two economic variables has generally provided a reasonably broad economic base for determining the weights for the individual currencies in the basket, and that this methodology would result in a valuation of the asset whereby no one currency could unduly influence the exchange rate for the SDR. It was also agreed during previous reviews that supplementary information would be collected on the use of the component currencies both as units of account (e.g., for the denomination of external debts, including commercial bank foreign liabilities) and as means of payment for international transactions. These data are discussed further below.

Table 4 provides data on the value of members' official holdings of each of the five currencies included in the SDR valuation basket. These five currencies continue to comprise the bulk of the nongold official external holdings of members, accounting for 79 percent of total foreign exchange holdings in the 1990-94 period, compared with 89 percent during the 1985-89 period. The total value of these five currencies held by members rose by almost 60 percent in 1990-94, compared with the average in 1985-89.

As can be seen in the table, the U.S. dollar has remained the dominant currency in the foreign exchange holdings of member countries. However, the relative importance of the dollar in total holdings of the five currencies has declined to about 67 percent in the 1990-94 period, from approximately 76 percent in the 1980-84 period and about 70 percent in 1985-89. Corresponding to the decline in the share of the dollar has been an increase in the shares of the other four currencies since 1980. The sharp increase since 1980 in foreign holdings of deutsche mark and, in particular, of the Japanese yen is partly accounted for by the changing pattern of official intervention in the foreign exchange markets, although the changes in the relative importance of currencies in members' reserves also reflect to some extent changes in exchange rates.

The data on average exports of goods and services for the individual countries and average official holdings of their currencies in foreign exchange reserves of other members for the 1990-94 review period have been

Table 4. Official Holdings of Currencies Included
in the SDR Valuation Basket

	Average 1980-84	Average 1985-89	End of Year					Average 1990-94	Average 1990-94 with ECUs Treated Separately
			1990	1991	1992	1993	1994		
(In billions of SDRs)									
U.S. dollar <u>1/</u>	185.0	232.4	285.1	309.5	344.1	390.2	424.4	350.7	329.4 <u>2/</u>
Deutsche mark	34.5	58.7	95.2	89.0	79.6	95.5	104.2	92.7	92.7
Japanese yen	12.6	28.4	44.6	49.7	46.4	53.7	57.1	50.3	50.3
Pound sterling	7.1	10.0	17.4	19.3	18.8	20.8	25.5	20.4	20.4
French franc	3.5	3.7	12.0	15.2	13.7	13.7	13.8	13.7	13.7
Total of the five currencies	242.7	333.2	454.3	482.7	502.6	573.9	625.0	527.7	506.5
All identified currencies <u>3/</u>	281.7	374.1	593.5	625.2	646.3	710.0	767.5	668.5	668.5
(Percentage share in five-currency total)									
U.S. dollar <u>1/</u>	76.2	69.7	62.8	64.1	68.5	68.0	67.9	66.5	65.0
Deutsche mark	14.2	17.6	21.0	18.4	15.8	16.6	16.7	17.6	18.3
Japanese yen	5.2	8.5	9.8	10.3	9.2	9.4	9.1	9.5	9.9
Pound sterling	2.9	3.0	3.8	4.0	3.7	3.6	4.1	3.9	4.0
French franc	1.4	1.1	2.6	3.1	2.7	2.4	2.2	2.6	2.7

1/ European Currency Units (ECUs) held by EMS countries that correspond to their U.S. dollar deposits in the European Monetary Cooperation Fund (EMCF) are treated as official holdings of U.S. dollars, except in the last column.

2/ Data exclude the ECUs corresponding to U.S. dollar deposits in the EMCF.

3/ Including total ECUs issued against U.S. dollars and gold, Swiss francs, and Netherlands guilders.

combined to obtain the weights for each of the currencies in the revised valuation basket (Table 5). For comparison, the table also presents the calculations that were made for the 1990 review. 1/

The relative weights calculated using these two economic criteria for the five-year period through 1994, as specified in the 1980 Decision, indicate only a marginal decrease to 38.7 percent in the relative share of the U.S. dollar, from 39.1 percent in the 1985-89 period. Of the other currencies, the relative share of the deutsche mark is little changed at 21.2 percent, while that of the Japanese yen has increased slightly from 17.2 percent to 18.4 percent. While the relative share of the pound sterling has declined by about one percentage point to 10.2 percent, that of the French franc has increased from 10.8 percent to 11.5 percent, reflecting the fact that France ranks as the fourth largest exporter of goods and services.

The procedure of adding the totals of the two variables effectively assigns the same (unit) coefficients for the values of annual exports of goods and services and for currency reserves for the purpose of the calculation of the currency weights for the new basket. Consequently, as can be seen in Table 5, the relative significance of exports of goods and services and of reserve currency holdings stood at 77 percent and 23 percent, respectively, of the total aggregate value of the two variables in 1990-94, compared with 78 percent for exports and 22 percent for reserve holdings calculated using data for the 1985-89 period, and which are little changed from their relative significance in the 1980-84 and 1976-80 periods. 2/ The 1980 Decision stipulates that the calculation should be such as "would maintain broadly the relative significance of the factors that underlie the percentage weights" of the currencies in the basket. The stability in the relative significance of the two factors since 1976 suggests that there is no compelling need to make any statistical adjustment to the relative contribution of the two factors in the calculation of the weights for the currencies in the basket.

3. Treatment of ECUs in reserve holdings

For the purpose of measuring the use of currencies as reserves, the staff has continued to follow the practice in past reviews of the SDR basket of including in the total holdings of U.S. dollars the amount of official

1/ Consistent with past practice, the data are expressed in SDRs. Since consistent market exchange rates are used in the conversion, the use of another currency to express the data would not affect the calculated weights, which are expressed in terms of relative shares.

2/ For the 1980-84 period, the relative significance of exports of goods and services amounted to 79 percent, and that of reserve holdings to 21 percent; for the basket agreed in 1980, i.e., for the 1976-80 period, the corresponding figures were 77 percent and 23 percent, respectively.

Table 5. Basis for Determining the Weights of Currencies in the SDR Valuation Basket

Currency	Issuing Countries' Exports of Goods and Services (1)	Official Holdings of Currency <u>1/</u> (2)	Total of Cols. (1) and (2) (3)	Weights as Percentage of Totals in Col. (3) (4)	Rounded Percentage Weight <u>2/</u> (5)	Proposed Percentage Weight to be Decided by Board (6)
<hr/>						
I. Latest data for 1990-94	(In billions of SDRs)					
U.S. dollar	525.6	350.7	876.3	38.73	39	40
Deutsche mark	387.2	92.7	479.9	21.21	21	21
Japanese yen	364.8	50.3	415.1	18.35	18	18
French franc	245.6	13.7	259.3	11.46	11	11
Pound sterling	211.4	20.4	231.8	10.24	10	10
Total	1,734.6	527.7	2,262.3	100.0	99	100
Relative weight, in percent	76.7	23.3	100.0			
II. 1985-89 data						
U.S. dollar	367.2	232.4	599.6	39.11	39	40 <u>3/</u>
Deutsche mark	269.2	58.7	327.9	21.39	21	21
Japanese yen	235.6	28.5	264.1	17.23	17	17
French franc	162.0	3.7	165.7	10.81	11	11
Pound sterling	165.8	10.0	175.8	11.47	11	11
Total	1,199.8	333.3	1,533.1	100.0	99	100
Relative weight, in percent	78.3	21.7	100.0			

1/ Average of year-end figures; includes ECUs issued against the U.S. dollar.

2/ To nearest percentage point.

3/ These were the weights proposed to and accepted by the Board in the previous revision.

ECUs that were issued against dollars. ^{1/} The rationale for this approach is based on the fact that these ECU holdings were created as a result of the establishment of revolving three-month swaps of dollars between EMS members and the European Monetary Cooperation Fund (EMCF), and the swap effectively guaranteed the value of the ECUs issued against dollars in terms of dollars. This approach is also consistent with that used in the international liquidity tables presented in the Fund's Annual Report. In view of the relatively small amount of ECUs that have been created against the deposit of dollars with the EMCF, and as indicated in previous reviews of the SDR basket, the practice of treating ECU holdings separately from holdings of dollars has only a marginal effect on the calculation of the weights of the currencies in the SDR basket.

4. Supplementary financial criteria

In past reviews of the SDR basket in 1985 and 1990, suggestions were made to examine other variables, in addition to exports of goods and services, and reserve holdings, stipulated in the 1980 Decision, in determining the relative weights of the component currencies in the SDR basket. In this connection, it was noted that the aggregate flow of annual exports of goods and services for the five countries is roughly three to four times the stock of other members' reserve holdings of their currencies, so that assigning the same arithmetical coefficient to exports and to reserve holdings implicitly gives a weight to exports of goods and services that is about three to four times larger than that given to the currency composition of official reserves. Thus, the statistical distribution of the two economic variables has tended to result in a small relative weight for the financial factor as represented by the reserves variable. Consequently, Directors have generally agreed that supplementary indicators of the relative financial importance of currencies in international transactions should be reviewed when considering the application of the criteria specified in the 1980 Decision. In this connection, suggestions were made in past reviews of the SDR valuation basket as regards the possible need to increase the relative importance of the "financial factor" in the calculation of the weights of the currencies in the SDR basket in view of the evolution of the international financial system and in the light of supplementary financial criteria, which are discussed below.

Among the measures of relative financial importance of individual currencies that were reviewed in 1990, but were not at that time taken explicitly into account in determining the weights for the currencies in the SDR basket, were the turnover of currencies in the leading foreign exchange markets, the role of individual currencies in international capital markets,

^{1/} Activation of the EMS intervention credit facilities gives rise, temporarily, to additional amounts of ECU-denominated official assets and liabilities, which do not by themselves affect the calculation of the relative weights of currencies for the purpose of the 1980 Decision.

and the relative importance of currencies in the invoicing of international trade. ^{1/} The following paragraphs review these supplementary criteria in light of the changes in their relative importance over the last five years.

a. Turnover in foreign exchange markets

Data on exchange market turnover compiled by the Federal Reserve Bank of New York, the Bank of England, and the Bank for International Settlements (BIS) provide an updated indication of the relative importance of the major currencies in foreign exchange markets worldwide (Tables 6 and 7). Overall, there was a large and widespread increase in the global volume of foreign currency trading, reflecting in part the move toward deregulation of financial markets, the greater opening of the economies of many countries, increased capital flows from industrial countries to the emerging market developing countries, recent moves toward monetary cooperation among European countries, and a series of major foreign exchange crises in Europe in 1992 and 1993. London, New York, and Tokyo maintained their positions as the world's three largest centers, respectively, for foreign currency trading. Singapore recently replaced Switzerland as the fourth largest such trading center. The most recent survey also includes data from the Frankfurt market, which ranks as the seventh largest market, just behind Hong Kong.

Comprehensive surveys carried out by 26 central banks (virtually all countries with significant foreign exchange markets) indicate that the use of the U.S. dollar on one side of foreign exchange transactions declined from 90 percent in 1989 to 83 percent in 1992. This decline in dollar transactions, as well as a fall in the share of the Japanese yen, is associated with a significantly increased share of the deutsche mark, from 27 percent to 38 percent during the same period. The rise in the volume of mark transactions reflects, for the most part, EC-related transactions and the greater intensity of use of the deutsche mark in transactions involving European currencies, including the ERM crises in 1992 and 1993.

As in 1989, the U.S. dollar/deutsche mark and U.S. dollar/Japanese yen remained the two most frequently traded currency exchanges in both the United States and Singapore in 1992 (summarized in Table 8). In London, the dollar/mark and dollar/pound sterling remained the two dominant currency pairs; between 1989 and 1992, there was a decline in dollar/pound trading

^{1/} For further discussion of the international role of currencies, see G. Tavlas, "On the International Use of Currencies: The Case of the Deutsche Mark," Essays in International Finance, No. 181 (Princeton, New Jersey: International Finance Section, Princeton University, March 1991); G. Tavlas, and Y. Ozeki, "The Internationalization of Currencies: An Appraisal of the Japanese Yen," Occasional Paper 90, International Monetary Fund, January 1992; and Oppers, S.E., "Trends in the International Use of the U.S. Dollar," Chapter IV, pp. 30-46 in "United States - Background Papers," SM/95/181 (7/26/95).

Table 6. Total Gross Reported Foreign Exchange Turnover
Involving Selected Currencies on One Side of
the Transactions: Daily Averages ^{1/}

	April 1989		April 1992		Share on a comparable basis ^{2/} ^{3/}	Change in Gross Turnover (In percentage points)
	Daily turnover (In billions of U.S. dollars)	Share (In percent)	Daily turnover (In billions of U.S. dollars)	Share (In percent)		
U.S. dollar	838	90	1,114	82	83	-7
Deutsche mark	247 ^{3/}	27 ^{3/}	544	40	38	11
Japanese yen	253	27	313	23	24	-3
Pound sterling	138	15	185	14	14	-1
French franc	--	--	51	4	4	--
Swiss franc	--	--	116	9	9	--
ECU	8	1	40	3	3	2

Source: Reproduced from Central Bank Survey of Foreign Exchange Market Activity, BIS, Basle.

^{1/} Data adjusted neither for interdealer nor cross-border double counting.

^{2/} Relates only to the 21 countries reporting in both 1989 and 1992.

^{3/} Excluding domestic trading involving the deutsche mark in Germany.

Table 7. Currency Composition of Foreign Exchange Market Activity
in April 1992: Average Daily Turnover

(In billions of U.S. dollars)

	Turnover in All Currencies	Specified Currency Against All Other Currencies 1/							
		U.S. dollar	Deutsche mark	Japanese yen	Pound sterling	French franc	Swiss franc	ECU	Other
United Kingdom	300.2	241.5	124.2	45.7	71.8	13.2	22.7	14.9	66.5
United States	192.3	170.6	84.2	49.2	22.1	5.4	19.2	1.7	32.3
Japan	126.1	116.5	23.5	93.2	7.0	1.0	2.7	0.5	7.9
Singapore	75.9	68.6	27.8	23.9	11.2	1.0	7.7	0.7	10.9
Switzerland	68.1	49.7	29.6	6.0	5.6	2.1	31.6	2.3	9.3
Hong Kong	60.9	55.0	19.8	17.1	8.2	0.6	2.8	0.3	18.0
Germany	56.5	42.9	47.1	4.0	3.3	...	2.5	--	13.2
France	35.5	21.8	19.4	2.4	2.4	17.4	0.9	2.5	4.3
Australia	29.9	27.5	7.8	6.6	3.2	0.4	1.0	--	13.3
Denmark	27.6	17.5	14.9	1.1	2.4	...	--	1.1	18.2
Canada	22.5	21.6	3.8	1.3	1.5	0.3	1.3	0.1	15.1
Sweden	21.4	13.7	10.3	0.3	1.1	0.6	1.0	2.6	13.2
Netherlands	20.1	13.0	9.1	0.9	1.9	...	--	1.4	13.9
Belgium	15.9	12.5	5.8	1.1	1.3	0.8	0.7	2.8	6.8
Italy	15.5	9.0	4.9	...	0.2	...	0.1	1.2	15.6
Luxembourg	13.3	10.5	7.1	0.4	1.1	0.4	1.0	1.2	4.9
Spain	12.5	8.1	4.7	0.5	1.1	0.2	0.4	0.1	9.9
Finland	6.8	5.5	3.1	0.2	0.2	0.1	0.2	0.2	4.0
Ireland	6.0	3.1	4.0	0.3	2.8	...	0.1	0.6	1.1
Norway	5.2	4.2	1.8	0.3	0.2	--	0.2	0.2	3.4
Austria	4.4	3.5	3.7	0.1	--	...	0.1	--	1.4
New Zealand	4.2	4.0	0.9	0.4	0.3	...	--	--	2.7
Bahrain	3.4	3.3	0.9	0.3	0.5	...	--	--	1.8
South Africa	3.4	3.3	0.7	0.2	0.2	--	0.1	--	2.3
Portugal	1.3	0.5	1.0	--	--	--	--	0.1	1.0
Greece	1.1	0.8	0.6	--	--	--	--	--	0.8
Total 2/	1,130.3	928.0	460.8	255.5	149.7	43.5	96.2	34.6	292.2

Source: Reproduced from Central Bank Survey of Foreign Market Activity, BIS, Basle, March 1993.

1/ Because two currencies are involved in each transaction, the sum of transactions in individual currencies comes to twice the total reported turnover.

2/ There are no adjustments made for cross-border double counting.

Table 8. Foreign Exchange Market Turnover in Currency Pairs:
an International Comparison 1/

(In percent)

	London		New York		Tokyo		Singapore		Total <u>2/</u>	
	1989	1992	1989	1992	1989	1992	1989	1992	1989	1992
U.S. dollar/Deutsche mark	22	24	33	34	10	...	24	29	22	23
U.S. dollar/Japanese yen	15	12	25	23	72	...	27	27	15	13
U.S. dollar/Pound sterling	27	17	15	9	4	...	16	12	27	19
U.S. dollar/Swiss franc	10	6	12	8	...	...	14	9	10	6
U.S. dollar/Canadian dollar	2	...	4	3	...	...	...	...	2	2
U.S. dollar/French franc	4	...	3	3	--	...	...	...	2	3
U.S. dollar/Australian dollar	...	...	...	2	...	...	...	...	2	1
U.S. dollar/other	11	20	8	7	12	...	...	...	9	11
Total <u>3/</u>	91	79	100	88	99	...	81	77	89	78
Deutsche mark/Japanese yen	2	3		3	...	...	...	...	2	3
Deutsche mark/Pound sterling	...	...		2	...	...	...	...	3	6
Deutsche mark/Swiss franc	...	...		2	...	...	...	...	...	...
Deutsche mark/other	...	16		3	...	...	...	...	...	...
Other <u>4/</u>	7	2		1	2	...	19	23	6	13

Sources: U.S. Foreign Exchange Market Turnover, Federal Reserve Bank of New York; The Foreign Exchange Market in Bank of England Quarterly Bulletin, November 1992.

1/ Data for London and New York are adjusted for double counting of domestic interbank business.

2/ For world foreign exchange markets expressed as a sum of foreign exchange turnover in spot and forwards for 1989; in addition, data for 1992 include futures and options markets. Data not adjusted for double counting.

3/ Transactions involving the dollar are an underestimate in cases when data for U.S. dollar/other is not available.

4/ Where data is available, for pairs of currency other than those accounted for in any given column.

from 27 percent to 17 percent of total turnover, and a rise in dollar/mark trading from 22 percent to 24 percent and in dollar/other currencies trading from an estimated 11 percent to 20 percent. Dollar/yen transactions fell in London from a 15 percent share to 12 percent between 1989 and 1992; a similar pattern was reportedly experienced in Frankfurt and Tokyo, although detailed data on turnover in both 1989 and 1992 for these two centers are lacking.

The decline in the role of the U.S. dollar and the concurrent rise in the role of the deutsche mark are partly explained by a decline in the use of the dollar as a vehicle currency, i.e., by a higher incidence of direct trading among the European currencies. For example, in April 1992, the dollar was involved in 80 percent, 89 percent, and 92 percent of the transactions in London, New York, and Tokyo, respectively; the corresponding figures in 1989 were 90 percent, 96 percent, and 95 percent, respectively. In contrast, the dollar remains the dominant vehicle currency in transactions in Singapore, Hong Kong, and Australia. The relative decline in the Japanese yen within a sharply increased total of foreign exchange transactions would appear to reflect to some extent the reduced outflows of capital from Japan.

These survey results suggest an increase in the relative importance of the deutsche mark and a slight fall in the relative shares of the U.S. dollar, the Japanese yen, the pound sterling, and the French franc in total turnover in foreign exchange markets over the 1989-1992 period. The data on exchange market turnover therefore help confirm the modest decline in the role of the dollar in the calculations based solely on the criteria specified in the 1980 Decision (Table 5). The data also indicate that the deutsche mark and the Japanese yen account for 20 percent and 11 percent of global exchange market turnover, respectively, whereas the pound sterling accounts for almost 7 percent of foreign exchange trading worldwide. These shares indicate a ranking of these three currencies--the U.S. dollar, the deutsche mark, and the Japanese yen--which is not materially different from the new weights for these currencies as calculated in Table 5 using the traditional criteria. The shares of the French and Swiss francs are significantly smaller, at about 2 percent and 4 percent, respectively. However, the limited nature of these surveys and, in particular, the lack of recent data on the Tokyo market, suggest that these results should be interpreted as merely indicative of recent developments, and do not materially reflect a different ranking of the relative importance of currencies in the international monetary system than indicated above.

b. Importance in international capital markets

Table 9a presents data that indicate the relative importance of particular currencies in the international capital markets in terms of the currency denomination of: (1) external bank loans, (2) external bond issues, and (3) eurocurrency deposits. The U.S. dollar has remained the dominant currency of denomination in these markets, accounting for

Table 9A. Relative Shares Based on External Capital Market Data

(In percent)

	1981-81 ^{1/} Average	1985-89 Average	1990	1991	1992	1993	1994 ^{2/}	1990-94 Average
I. Currency denomination of external bank loans ^{3/}								
U.S. dollar	83.3	67.9	58.9	84.5	75.4	81.0	75.2	75.0
Japanese yen	5.9	8.1	1.7	1.2	1.5	0.8	0.4	1.0
Deutsche mark	1.7	5.8	6.7	2.1	1.7	2.8	0.9	2.9
Pound sterling	3.1	10.3	17.5	4.1	1.5	1.7	6.9	6.9
Swiss franc	1.2	1.1	0.1	0.6	0.3	0.4	0.2	0.3
ECU	1.3	2.9	8.7	3.9	15.0	6.4	7.9	8.4
Other	3.5	3.9	6.4	3.6	4.6	6.9	8.5	5.5
Total	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
II. Currency denomination of external bond issues ^{4/}								
U.S. dollar	63.2	47.6	34.8	30.2	37.9	38.0	36.2	35.4
Japanese yen	5.7	10.4	13.4	13.3	12.3	12.4	17.8	13.8
Deutsche mark	6.3	7.9	8.0	6.7	10.1	11.4	6.9	8.6
Pound sterling	3.4	7.8	9.2	8.3	7.0	8.9	8.2	8.3
French franc	0.0	1.0	4.0	5.5	7.3	8.3	7.3	6.5
Swiss franc	14.7	10.3	10.1	6.5	5.4	5.6	5.3	6.6
ECU	1.7	4.2	7.8	10.6	6.4	1.5	1.4	5.5
Other	5.0	10.9	12.7	18.9	13.6	14.0	16.9	15.2
Total	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
III. Currency denomination of eurocurrency deposits								
U.S. dollar	74.0	61.5	53.2	50.9	50.4	47.9	47.3	49.9
Japanese yen	1.8	4.9	5.0	4.9	4.5	4.7	5.5	4.9
Deutsche mark	11.4	13.4	16.5	15.7	16.4	16.7	16.6	16.4
Pound sterling	1.4	2.7	3.9	3.7	3.6	3.5	3.4	3.6
Swiss franc	5.8	6.3	5.8	5.2	4.7	4.4	4.5	4.9
French franc	0.9	1.3	2.2	2.9	3.8	4.3	3.4	3.3
ECU ^{5/}	0.5	2.7	4.5	5.1	5.3	4.9	4.5	4.8
Other ^{6/}	4.3	7.1	9.0	11.8	11.3	13.6	14.8	12.1
Total	100.0	100.0	100.0	100.0	100.0	100.0	100.00	100.0

Source: "Financial Market Trends," OECD, various issues, and "International Banking and Financial Market Developments," BIS, various issues, and IMF staff estimates.

^{1/} The average of 1981-84 data are used since the 1980 data are not consistent with the 1981-84 data.

^{2/} Through August for bank loans and bond issues; through September for deposits.

^{3/} Foreign and international bank loans, excluding loan renegotiations.

^{4/} Includes international issues, foreign issues, and special placements.

^{5/} Includes in other category prior to 1983.

^{6/} Includes foreign currency position of banks in the United States for which no currency breakdown is available.

75.0 percent of external bank loans, 35.4 percent of external bond issues, and 49.9 percent of eurocurrency deposits in 1990-94. Although the dollar's share in external bank loans has increased in the 1990s relative to the latter half of the 1980s, the dollar's shares in both external bond issues and eurocurrency deposits have been on the decline. Conversely, the use of the Japanese yen has shown an increase in external bond issues, while its share in denominating external bank loans has dropped sharply. The increase has been partially attributed to the internationalization of the yen and the liberalization of the Japanese financial system. ^{1/} The deutsche mark's share, on the other hand, has tended to rise in all three of the above categories.

The interpretation of the data in Table 9a is complicated by the changing relative importance of the three categories of financial instruments included in the table. External bank loans have fallen dramatically in relative terms as borrowers have turned to medium-term euronotes (Table 9b). The attractiveness of euronotes to many investors has been attributed to their liquidity and cost-effectiveness, as well as to the continuing difficulties of arranging new syndicated commercial bank loans to sovereign borrowers in the wake of debt reduction and restructuring packages.

Table 9c combines the data in Table 9a and Table 9b in order to provide an overall picture of the relative importance of individual currencies in the denomination of assets in international nonequity capital markets. The U.S. dollar has remained by far the most significant currency of denomination, accounting for 46 percent of all nonequity external offerings in 1990-94. Issuance denominated in Japanese yen and French franc has tended to increase to 11.4 percent and 4.2 percent, respectively, while that in deutsche mark has steadied. The international use of the Japanese yen continues to be supported by continuing efforts by the Japanese authorities to liberalize capital flows, as discussed earlier. The two currencies with notable downturns in their use in international capital markets are the pound sterling and the Swiss franc. The relatively sharp increase in importance of the ECU through 1992 and its sharp fall in 1993-94 should also be noted.

In addition to the categories of international borrowing mentioned above, international capital is also raised through primary and secondary offerings on equity markets. This form of capital financing, albeit relatively small in relation to the fixed-income markets, has grown in

^{1/} Financial liberalization in Japan has recently included the removal of the 90-day "lock-up" period on primary sales into Japan by certain foreign borrowers. Other recently implemented or forthcoming regulatory changes in Japan include: (a) as of April 1995, Japanese issuers of foreign bonds were permitted to set up medium-term note programs; and (b) the Japanese Ministry of Finance announced that, starting in 1996, Japanese corporations will be able to issue external bonds without first securing a credit rating.

Table 9B. Selected Borrowing on International Capital Markets 1/

(In percent)

	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994 <u>2/</u>
Instruments:										
External bank loans	19.3	18.2	32.0	33.7	30.6	33.4	24.7	21.4	18.7	19.1
External bonds	75.9	78.8	63.0	61.0	64.6	61.8	65.9	60.6	65.8	54.0
Medium-term euronotes <u>3/</u>	4.8	3.0	5.0	5.2	4.8	4.8	9.4	18.0	15.5	26.9
Total	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0

Source: "Financial Market Trends," OECD, various issues.

1/ Excludes note-issuance facilities, other back-up facilities, noncommitted europaper programs, and international equities. Currency denomination breakdowns were unavailable for these categories.

2/ Through August 1994.

3/ Includes only nonunderwritten MTENs.

Table 9C. Currency Denomination of Selected Capital Market Instruments 1/

(In percent)

	1985-89 Average <u>2/</u>	1990	1991	1992	1993	1994 <u>3/</u>	1990-94 Average
U.S. dollar	54.4	44.4	46.1	47.4	46.9	43.6	45.7
Japanese yen	10.0	9.2	9.7	9.4	10.9	17.7	11.4
Deutsche mark	6.6	7.2	5.1	7.1	8.9	5.4	6.7
Pound sterling	8.2	11.6	7.0	5.6	7.2	7.4	7.8
Swiss franc	7.6	6.3	4.4	3.3	3.8	2.9	4.1
French franc	0.7	2.5	3.7	4.6	5.7	4.6	4.2
ECU	3.9	8.0	8.6	7.9	2.6	2.8	6.0
Other	8.6	10.8	15.4	14.6	14.0	15.7	14.1
Total	100.0	100.0	100.0	100.0	100.0	100.0	100.0

Source: "Financial Market Trends," OECD, various issues, and "International Banking and Financial Market Developments," BIS, various issues.

1/ Includes syndicated bank loans, external bonds (straights, floating rate, convertibles, equity warrants, zeros and various other variants), and medium-term euro-notes; excludes note-issuance facilities, other back-up facilities, non-committed europaper programs, and international equities, due to lack of data on currency denomination breakdowns.

2/ Currency denomination of eurocurrency deposits was used as a proxy for euronotes in the period prior to 1990, since data on currency denomination for the euronote market was unavailable for this time period; the euronote market's relatively small share in total international capital during this period presumable minimizes any estimation error.

3/ Through August of 1994.

recent years as large institutional investors sought global diversification, and large-scale privatization continued in many industrial and middle-income developing countries. Between 1987 and 1990, placement of new international equity issues nearly doubled, reaching over \$35 billion. Table 10 indicates the shares of the major countries as corporate issuers in the international equities market. ^{1/} Typically, large corporations from the United States have been active players in this market, with a portion of their domestic initial public offerings (IPOs) designated for international placement. The United Kingdom has also been a dominant fund-raiser in the international equity marketplace. The "Other" category has increased significantly over the years as middle-income countries have been able to sell equity shares to foreign investors.

While Tables 9a-9c and Table 10 provide an indication of the currency denomination of capital borrowing needs, such figures do not fully reflect the flow of capital, particularly with regard to normal secondary transactions in the equity markets, data for which are not available. By 1993, for example, outstanding U.S. residents' holdings of international equity were about \$210 billion, more than double the level of 1990, and foreign holdings in emerging markets have increased almost 8,000 percent between 1990 and 1993, reaching \$160 billion. Consequently, the data on new issues of international capital provide only a partial indicator of the relative importance of a given currency.

c. Invoicing of international trade

Another potentially useful indicator of the relative importance of currencies in international trade and payments is their use as a means of denominating the prices of commodities or services or the invoicing of international trade. As was the case in past reviews, consistent and up-to-date data concerning the currency denomination of trade invoicing are difficult to assemble, with the data being incomplete and, in many cases, out of date. The available data can, however, give some idea of trends in the use of currencies in denominating international trade and payments. For the currencies included in the SDR basket, the available

^{1/} International equities as defined in Table 10 include only primary and secondary placements that were partially or fully floated outside of the domestic equities market of the issuing corporation. The figures cited in Table 10 do not necessarily represent currency denomination of international equities but rather international capital raised by the respective countries but possibly denominated in a foreign currency. For example, many middle-income countries have raised international capital via American Depositary Receipts (ADRs). An ADR is a U.S.-denominated equity-based instrument backed by shares in a foreign corporation held in trust and is traded on both U.S. exchanges and over-the-counter markets. Such international equity is classified in Table 10 as "other," even though the currency denomination is in U.S. dollars.

Table 10. International Equities

(In percent)

Country of Residence of Issuing Corporations	1985-89 Average	1990	1991	1992	1993	1994 <u>1</u> /	1990-94 Average
United States	17.3	21.9	21.4	29.4	24.3	10.2	21.4
Japan	0.6	5.5	--	--	--	--	1.1
Germany	2.7	--	3.0	0.9	0.5	7.7	2.4
United Kingdom	21.4	--	27.4	14.0	10.8	--	10.4
Switzerland	4.6	--	--	1.7	--	--	0.3
France	10.1	9.6	7.2	7.2	9.1	8.2	8.3
Other	43.4	63.0	41.0	46.8	55.3	73.9	56.0
Total	100.0	100.0	100.0	100.0	100.0	100.0	100.0

Source: "Financial Market Trends," OECD, various issues.

1/ Through August 1994.

data are presented in Table 11, from which only broad and tentative indications of relative importance might be drawn. In general, the greater majority of each country's exports are denominated in its own currency, with the exception of Japan where more than 60 percent of exports are denominated in U.S. dollars and the remainder in Japanese yen. Also regarding imports, the domestic currency is generally the most common invoicing currency, even though it is less important than for exports. Again, the exception is Japan where close to 80 percent of imports are denominated in dollars.

Table 12 presents estimates of the volume of global trade invoiced in each of the five currencies, taking into account the use of each currency in a country's own external trade and in the trade of other countries. ^{1/} Overall, the U.S. dollar has remained the most important currency for invoicing external trade and is used in more than half of the international trade of the five countries whose currencies are included in the SDR basket. The use of the dollar has risen slightly above its average use in 1985 and 1988. The deutsche mark's relative importance in invoicing has also tended to increase, while the relative importance of the other currencies in the SDR basket has tended to fall. It may, however, be noted that the estimation technique used to derive the data in Table 12 understates the relative importance of the dollar in the invoicing of world trade as the underlying data exclude petroleum trade, which is invoiced primarily in dollars. In addition, these data do not, of course, necessarily indicate the distribution of the use of particular currencies in the settlement of payments, though it may be reasonably presumed that the distribution of the use of currencies in invoicing would also be broadly reflected in the settlement of payments.

d. Overall importance of supplementary criteria

It is difficult to draw precise or firm indications of the relative importance of individual currencies from the data on supplementary financial criteria, which are fragmentary and incomplete. The data confirm the large, though in some cases, relatively declining role of the U.S. dollar in each of the categories of financial activity analyzed. Furthermore, these supplementary data tend to confirm the ranking of the relative importance

^{1/} The estimates shown in Table 12 have been benchmarked to the overall importance of the five major countries in invoicing of world trade in the late 1970s, when the five currencies accounted for nearly 90 percent of total world trade invoicing (see S.A.B. Page, "The Choice of Invoicing Currency in Merchandise Trade," Economic Review, National Institute of Economic and Social Research, London, November 1981). The overall importance of the five major currencies in trade invoicing does not seem to have changed on the basis of information collected by the staff for the early 1980s for countries other than the five members whose currencies are in the SDR basket (see D. Kar, "Currency Invoicing and Exchange Conversion in International Trade," PIFS/86/1, 2/14/86).

Table 11. Currency Denomination of Trade Invoicing

(In percent)

Country	1980	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994 1/	1995 1/
United States												
Exports 2/												
U.S. dollar	...	...	...	...	...	...	...	...	...	...	...	98.0
Other	...	...	...	...	...	...	...	...	...	...	...	2.0
Imports 3/												
U.S. dollar	...	80.4	...	...	...	82.7	...	...	...	...	...	88.0
Other	...	19.6	...	...	...	17.3	...	...	...	...	...	12.0
Germany 4/												
Exports												
Deutsche mark	82.5	79.5	81.5	81.5	...	...	...	77.2	77.0	74.1	76.4	...
U.S. dollar	7.2	9.5	7.7	7.4	...	...	...	8.1	7.3	10.4	9.8	...
Japanese yen		0.4	0.4	0.5	...	...	...	0.4	0.6	0.8	0.6	...
Pound sterling	1.4	1.8	1.7	1.8	...	...	...	2.4	3.2	2.6	2.4	...
French franc	2.8	2.7	2.7	2.5	...	...	...	3.3	3.4	3.4	2.8	...
Other	6.1	6.1	6.0	6.3	...	...	...	8.6	8.5	8.7	8.0	...
Imports												
Deutsche mark	43.0	47.8	51.7	52.4	52.6	52.8	54.3	55.4	55.8	54.2	53.3	...
U.S. dollar	32.3	28.1	23.1	22.0	21.6	22.5	20.9	20.4	18.4	18.6	18.1	...
Japanese yen		1.8	2.6	2.5	2.4	2.0	1.8	2.0	1.7	2.0	1.5	...
Pound sterling	3.4	3.0	2.3	2.6	2.4	2.6	2.5	2.3	2.2	2.1	1.9	...
French franc	3.3	3.8	4.1	3.9	3.6	4.0	3.6	3.0	3.0	2.9	4.4	...
Other	18.0	15.5	16.2	16.6	17.4	16.1	16.9	16.9	18.9	20.2	20.8	...
Japan												
Exports												
Japanese yen	29.4	39.3	35.3	33.4	...	...	37.5	39.4	40.1	39.9	...	35.7
Other 5/	70.6	60.7	64.7	66.6	...	...	62.5	60.6	59.9	60.1	...	64.3
Imports												
Japanese yen	2.4	7.3	9.7	10.6	13.3	...	14.4	15.6	17.0	20.9	...	24.4
Other 5/	97.6	92.7	90.3	89.4	86.7	...	85.6	84.4	83.0	79.1	...	75.6
United Kingdom												
Exports												
Pound sterling	76.0	59.0	54.0	57.0	...	...	...	...	...	...	...	...
U.S. dollar	14.0	28.0	29.0	26.0	...	...	...	...	...	...	...	...
Other	10.0	13.0	17.0	16.0	...	...	...	...	...	...	...	...
Imports												
Pound sterling	32.0	37.0	37.0	40.0	...	...	...	...	...	...	...	...
U.S. dollar	36.0	32.0	24.0	24.0	...	...	...	...	...	...	...	...
Other	32.0	32.0	39.0	36.0	...	...	...	...	...	...	...	...
France												
Exports												
French franc	64.0	61.5	62.9	61.6	58.5	58.6	56.6	53.5	53.4	52.9	...	...
U.S. dollar	13.4	15.4	11.7	11.8	12.0	11.7	12.4	14.3	12.9	19.1	...	...
Deutsche mark	8.8	9.2	10.3	10.2	9.9	10.3	10.7	11.9	11.9	10.3	...	...
Other	13.8	13.9	15.1	16.4	19.6	19.4	20.3	20.3	21.8	17.7	...	...
Imports												
French franc	33.9	40.9	46.5	46.5	48.9	50.1	47.6	46.0	47.7	46.1	...	...
U.S. dollar	32.2	29.2	19.3	18.7	16.4	15.4	19.5	21.1	18.3	24.6	...	...
Deutsche mark	13.3	12.4	14.9	15.3	14.3	14.3	13.2	12.8	13.0	11.2	...	...
Other	20.6	17.5	19.3	19.5	20.4	20.2	19.7	20.1	21.0	18.1	...	...

Source: Data supplied by national authorities.

1/ Preliminary data. Invoice data for the United Kingdom are no longer available.

2/ U.S. exports are almost completely denominated in U.S. dollars.

3/ Excludes petroleum imports.

4/ West Germany, except for imports which includes east Germany starting 1990.

5/ Mostly denominated in U.S. dollars.

Table 12. Estimated Currency Denomination of "World Trade"

(In percent)

	1985		1988		1994 ^{1/}	
	Exports	Imports	Exports	Imports	Exports	Imports
U.S. dollar	46.4	60.5	44.3	54.2	51.0	56.4
Deutsche mark	17.4	10.0	20.9 ^{2/}	12.4	...	...
Japanese yen	7.5	1.2	6.7 ^{2/}	1.9	8.0	5.2
Pound sterling	7.1	4.7	6.3 ^{2/}	6.1 ^{2/}	...	...
French franc	7.1	5.1	7.2	7.0	...	...

Sources: For 1985 and 1988, Table 6 and Balance of Payments Statistics Yearbook. Figures shown are based on data in Table 6, multiplied by each country's share in other countries' merchandise exports and imports, and then benchmarked to total estimated shares in S.A.B. Page, "The Choice of Invoicing Currency in Merchandise Trade," Economic Review, National Institute of Economic and Social Research, London, November 1981. This estimation necessarily introduces asymmetries in the distribution of global trade by currency of denomination, i.e., the estimates shown for exports and imports are not equal, reflecting mainly the partial nature of the component data. For 1994, staff estimates.

^{1/} Based on trade invoicing in the United States, Japan, Germany, and France.

^{2/} For 1987.

of the currencies in the international monetary system but would not suggest a major redistribution of shares among the currencies. Application of these data into the distribution of the combined weights shown in Table 5 would suggest some increase in importance of the dollar, but it is not possible to quantify the relative importance of the supplementary criteria or the extent to which the relative weights of the five currencies might be changed, bearing in mind that changes in one currency should not, by itself, determine changes in the value of the SDR. It is also to be noted that the supplementary criteria indicate a modest decline in the importance of the dollar over the last five years, particularly as regards the use of the dollar in the international capital markets, which would be consistent with the marginal decline of the share of the dollar in the two criteria used in the 1980 Decision. In these circumstances, use of the supplementary criteria should not be of an order that would effectively mask the long-run trend of the relative positions of the individual currencies in the SDR basket.

In general, the data on supplementary financial criteria discussed above could be viewed as broadly confirming the relative importance of the currencies in the international financial system as calculated under the 1980 Decision for the purposes of valuing the SDR. Furthermore, the supplementary criteria do not in themselves suggest that greater weight might be specifically given to reserve holdings as the proxy for the financial variable in the calculation. The relative importance of the individual currencies in the basket is, in general, confirmed by the various indicators. On balance, the staff considers that there would not seem to be an operational need at this time, and as on previous occasions in 1985 and 1990, to qualify the results of the calculations of the new weights made on the basis of the economic criteria specified in the 1980 Decision.

5. Frequency of revision of the SDR basket

a. General considerations

The 1980 Decision calls for maintaining the currency amounts unchanged for five-year periods while allowing the actual currency shares in the SDR basket to change daily with the movement of exchange rates. In past reviews of the SDR valuation basket, the staff concluded that the five-yearly adjustment has provided reasonable overall stability in the exchange value of the SDR, and that the certainty and predictability of a five-year review period have been beneficial to users of the SDR and SDR-denominated assets. A more frequent adjustment of the basket, as occurred in the late 1970s, could, in contrast, generate uncertainty and could adversely affect the working of the SDR system. Furthermore, the market is now attuned to periodic five-year revisions in the SDR basket and to taking the appropriate covering operations as regards their SDR-denominated liabilities in the market. More frequent revisions of the SDR basket would not necessarily contribute to a greater degree of stability in SDR exchange rates and could make it more expensive for market participants to cover their SDR operations. Exchange rate movements over the medium term often seem to

partly or fully reverse themselves, while undue day-to-day volatility in exchange rates does not basically affect the trend of the currency shares in the basket nor the general stability of the SDR in terms of currencies. On balance, the staff is of the view that the quinquennial frequency for adjustment of the weights for the currencies in the basket remains appropriate.

b. Impact of European monetary unification on the SDR valuation

While more frequent adjustments of the SDR basket would not seem to be called for, as indicated above, it may be necessary to consider an adjustment of the SDR basket valuation at the next quinquennial review in 2000, or perhaps just prior to that date, if the European Union (EU) proceeds, as planned under the Maastricht Treaty of 1992, toward an Economic and Monetary Union (EMU). The Treaty requires a commitment by all EU member states that are "economically fit" to join, 1/ other than by the United Kingdom and Denmark, 2/ to implement monetary union by January 1, 1999. Indeed, the EU could introduce a unified currency earlier than 1999 if it is determined that at least half of the EU members are fit to join.

The introduction of such a unified currency has obvious implications for the present set of currencies which comprise the SDR. In particular, the European currency components of the SDR (the deutsche mark, the French franc, and the pound sterling) may no longer function as independent currencies. At such time, the currency composition of the SDR basket, as specified in the 1980 Decision, would need to be reviewed, and indeed such a change could call for a review of the method of valuing the SDR.

6. The ECU as a proxy for the European currencies in the SDR basket

In previous reviews of the valuation of the SDR, the issue of including the ECU in the SDR basket has been raised. 3/ The replacement of the European currencies in the SDR basket with the ECU raises difficult issues of principle, measurement, and implementation.

1/ Although determining whether a member state is "economically fit" to join involves some judgement, several convergence criteria have been provided in the Treaty as guidelines for such judgment. The convergence criteria include benchmarks for relative inflation performance, relative long-term interest rate levels, exchange rate stability, and fiscal performance (deficit/GDP and debt/GDP ratios).

2/ The United Kingdom and Denmark chose for the time being to opt out of this aspect of commitment to EMU.

3/ See Appendix V for a description of the official ECU and its method of valuation. The ECU also uses a standard currency basket form of valuation.

At present the ECU is not the currency of the EU, but, like the SDR, is a composite currency unit used as an official unit of account in the Union and is widely used in the context of official transactions between the European Commission (EC) and the individual sovereign states that comprise the Union. As with the SDR, private transactions in ECU are not widespread despite the ECU settlement system. It would, therefore, not be appropriate to substitute the ECU for the European currencies in the SDR basket until the ECU has been accepted, and implemented, as the single currency of the EU.

Use of the ECU in the SDR basket would at present also give rise to operational difficulties. The ECU has been importantly affected by the changes following the crises in the ERM in 1992 and 1993 with the withdrawal of some currencies from the ERM and the widening of the bands of fluctuation of some currencies in the mechanism. The day-to-day functioning of the ECU has been importantly affected by these changes - in particular, the market value of the ECU tends to diverge from its theoretical par, and as indicated in Table 9C above, the use of the ECU in international capital transactions fell sharply in 1993 and has not recovered to its relative importance in 1990-91.

Furthermore, it is not clear how the Fund should determine the proper weight for the ECU in the context of the weighting system of the 1980 Decision which is based on the use of the exports of goods and services of a member and its reserves liabilities. The methodology for applying these two variables for the ECU would no longer be self-evident. For example, an issue arises as to whether the data for exports of goods and services should include such data for all 12 of the ECU's component currencies, including intra-EU trade. If intra-EU trade were excluded, as would be called for if the EU were treated as a single country issuing its own currency, the value of exports of goods and services associated with the ECU would decline significantly. 1/ Such issues might be avoided by deciding that the ECU's weight would be the sum of the weights for the three current European components of the SDR basket, which would yield an ECU weight of 42 percent of the basket, greater than the weights of either the U.S. dollar or the Japanese yen. However, the weight of the three major European currencies in the ECU is only 64 percent, or about 27 percent in an SDR that contained the ECU, and the countries issuing these currencies would tend to be underrepresented in the SDR. 2/

1/ It has been estimated that intra-EU trade accounts for about 60 percent of all trade conducted by the EU countries (see "On the Practical Arrangements for the Introduction of the Single Currency," European Union Green Paper, May 31, 1995).

2/ Using data for July 24, 1995, the joint share of the deutsche mark, the French franc, and the pound sterling in the ECU's value was approximately 64 percent, so that the sum of the weights of these three currencies in the SDR would be effectively reduced from 42 percent to less than 27 percent. The remaining share would effectively be allocated to the other currencies in the ECU basket.

In this connection, it is also worth noting that the ECU is not widely used in reserves by countries outside the EU, and the role of the ECU as a reserve within the Union, as noted earlier, is that of a substitute for other reserve assets. In practice, the weight of the ECU in reserves is minor, though the use of the three individual European currencies is of major importance in the reserve holdings of other members.

On balance, it is the view of the staff that the weights of the three European currencies currently included in the SDR basket are representative of their individual relative importance in the international monetary system, and these currencies should continue to be included in the SDR basket in accordance with the criteria of the 1980 Decision. Furthermore, in view of the current role of the ECU, it would seem inappropriate at this time to contemplate the use of the present ECU, which may differ from the initial unified currency under EMU. ^{1/} However, in view of the envisaged monetary union among the states of the EU, and the role of a single currency within that Union, it may be necessary to review the impact of the determination of a single European currency on the SDR basket before the end of the forthcoming five-year period for the next review of the SDR.

IV. Proposed SDR Basket for 1996-2000

1. Rounding of relative weights of currency components

The 1980 Decision specifies the procedures for rounding the relative weights of the five currencies to be included in the SDR valuation basket. Paragraph 3(c) of the Decision states that the new weights for the currencies shall be rounded to the nearest one percent or as may be convenient. As indicated in SM/90/141, rounding other than to the nearest one percent is regarded as a legal matter to constitute a change in the method of valuation of the SDR, and will require a decision by the Executive Board to be adopted with a 70 percent majority of the total voting power. Furthermore, a change in the method of valuation of the SDR would require consultations with Japan, in accordance with the terms of its borrowing agreement with the Fund, on the options which Japan might wish to exercise with respect to the valuation of outstanding loans to the Fund. ^{2/}

The weights that have been calculated on the basis of the specified indicators for 1990-94 are shown in Table 5 above in both rounded and unrounded form. With rounding to the nearest percentage point, the weights for the U.S. dollar and the pound sterling would each decline by

^{1/} As described above, the initial set of EU members' currencies (to be included in a unified currency) would be based on those members which have been judged "economically fit" to join.

^{2/} Japan may opt to use the existing basket rather than the new one in the event of a change in the method of valuation of the SDR.

one percentage point to 39 percent and 10 percent, respectively. The weights for the deutsche mark and the French franc would remain unchanged at 21 percent and 11 percent, respectively, while the weight for the Japanese yen would increase by one percentage point to 18 percent. However, these rounded weights sum to 99 percent, and in view of the predominant importance of the dollar as indicated by the supplementary criteria discussed in Section III above, it would seem appropriate to round up the weight for the dollar to the next percentage point, i.e., to 40 percent, as indicated in col. (6), Table 5, thereby implying that the weight of the dollar would remain unchanged from the previous review. Moreover, this approach to rounding would have the smallest impact in relative terms on the unrounded calculations. ^{1/} Nevertheless, rounding up the weight of the dollar would constitute a change in the method of valuation of the SDR, and, as described above, would require a decision by the Executive Board to be adopted with a 70 percent majority of the total voting power.

The Executive Directors will recall that they are not committed to follow automatically the results of the formula regarding the rounding of the weights of the five currencies to the nearest percentage point. As noted above, the Executive Board may decide to select or round the weights in some other fashion, including maintenance of the weights agreed in 1990. In 1980, the Executive Board decided to round the calculated weights in a manner that made the weights for the Japanese yen (12.3 percent calculated weight), the French franc (11.7 percent), and the pound sterling (11.4 percent) each the same at 13 percent, with a consequent reduction in the weights of the U.S. dollar and the deutsche mark from their calculated weights of 43.9 percent and 20.8 percent, to 42 percent and 19 percent, respectively. In the 1985 review, the weights of the five constituent currencies in the valuation basket were all rounded to the nearest one percentage point. In 1990, it was decided to round up the weight of the dollar to the next higher percentage point, rather than to the nearest percentage point, which would have resulted in rounded weights that sum to 99 percent. The Executive Board took the decision to round up the weight of the dollar in view of the predominant importance of the dollar as indicated by the supplementary financial criteria discussed in 1990, and it was noted that the agreed rounding method had the smallest impact in relative terms on the unrounded calculations.

For the present review, there would not now seem to be any apparent reason to depart from the principle of the 1980 Decision to round the currency weights to the nearest percentage point, with the consequential

^{1/} Rounding up the weight for the U.S. dollar implies an increase over the calculated weight of 3.3 percent. For comparison, rounding up the weights for the deutsche mark, the Japanese yen, the French franc, or the pound sterling would imply increases over the calculated weights of 3.7 percent, 3.5 percent, 4.7 percent, and 7.4 percent, respectively.

further rounding needed to make the individual weights sum to 100 percent. Such a rounding procedure would be in keeping with the basic intent that the SDR valuation basket should be adjusted once in five years to reflect changes in underlying economic and financial criteria, as indicated in the calculations presented in Table 5 above. Furthermore, there is also no obvious alternative pattern of rounded currency weights that might be put forward for consideration. It is, therefore, proposed that, as provided under the 1980 Decision, the weights for the individual currencies to be included in the SDR valuation basket be rounded to the nearest percentage point, except the weight for the U.S. dollar would be rounded up, as discussed above, to the next percentage point in order to make the individual weights sum to 100 percent. Thus, the weights would be: U.S. dollar, 40 percent; deutsche mark, 21 percent; Japanese yen, 18 percent; French franc, 11 percent; and pound sterling, 10 percent.

2. Currency amounts

Given the property of the SDR as a standard basket, which is based on fixed currency amounts, the percentage share of each currency in the SDR basket will necessarily change both in relation to its initial weight and in relation to the weights for other currencies because of changes in the exchange rates for the currencies in the basket, though the shares of currencies in the basket are initially set equal to the weights for the currencies. During the 1991-95 period, the U.S. dollar, the deutsche mark, the French franc, and the pound sterling have depreciated against the SDR, as indicated earlier (see Charts 1 and 2 above and Table 13). In contrast, the Japanese yen has risen sharply against the SDR since the beginning of 1991, particularly in the period since 1993.

As a result of these exchange rate movements, as of July 14, 1995, the actual shares of the U.S. dollar and the pound sterling in the current valuation basket for the SDR were of the order of 37 percent and 8 percent, respectively (compared with weights of 40 percent and 11 percent, respectively, set at the beginning of 1991), while the actual share of the Japanese yen was 23 percent (compared with 17 percent). The actual shares of the deutsche mark and French franc were 21 percent and 11 percent, essentially unchanged from the initial weights, reflecting the currencies' much smaller cumulative movement against the SDR during this period (see Table 13 and Chart 3). At the time of the revision of the basket at the end of 1995, the actual shares will be made equal to the initial weights for each individual currency, while maintaining unchanged the official transactions value for the SDR.

Table 14 provides an illustrative calculation of the new currency amounts in the SDR basket that would come into effect on January 1, 1996, based on the rounded weights presented in col. (6) of Table 5 and using

Chart 3. Actual Percentage Shares of Currencies in the
SDR Valuation Basket

(January 1981 - July 1995)

(At end-month)

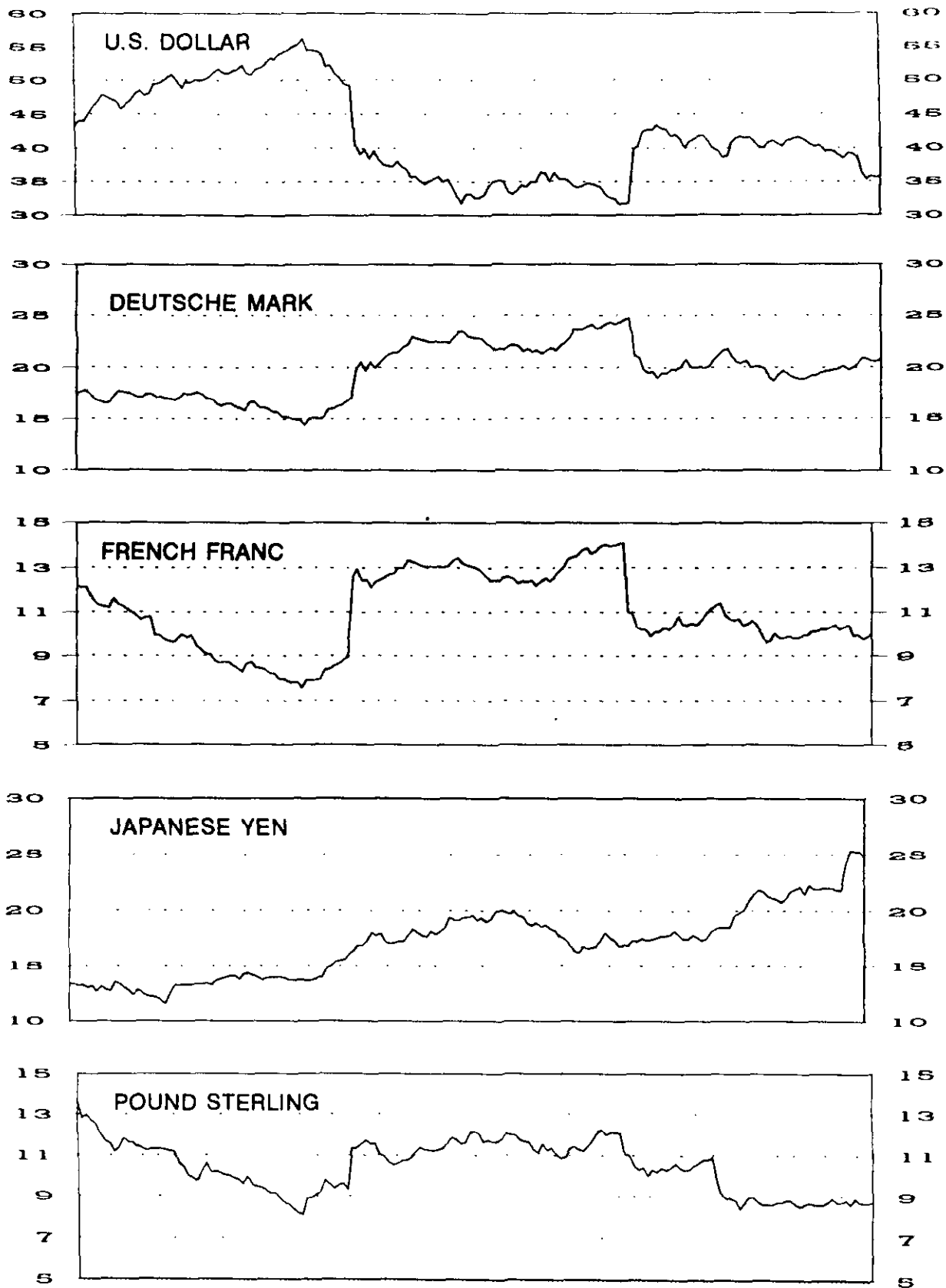


Table 13. Changes in the Exchange Value of the SDR and Actual Shares of Currencies in the SDR Valuation Basket

(In percent)

	End of Period				
	1991	1992	1993	1994	July 14, 1995
<u>Changes in nominal SDR exchange rate</u>					
Against U.S. dollar	0.5	-3.9	-0.1	6.3	6.7
Cumulative <u>1/</u>	0.5	-3.4	-3.5	2.6	9.5
Against deutsche mark	2.0	2.3	6.8	-4.6	-4.4
Cumulative <u>1/</u>	2.0	4.4	11.6	6.4	1.7
Against Japanese yen	-6.3	-4.2	-10.4	-5.2	-6.1
Cumulative <u>1/</u>	-6.3	-10.3	-19.7	-23.8	-28.5
Against pound sterling	3.6	18.9	2.0	0.8	4.4
Cumulative <u>1/</u>	3.6	23.2	25.7	26.6	32.2
Against French franc	1.5	2.2	7.0	-3.6	-3.2
Cumulative <u>1/</u>	1.5	3.8	11.0	7.0	3.5
<u>Actual shares in valuation basket <u>2/</u></u>					
U.S. dollar (40)	40.0	41.6	41.6	39.2	36.7
Deutsche mark (21)	20.8	20.4	19.0	20.0	21.0
Japanese yen (17)	17.8	18.5	20.7	21.8	23.4
Pound sterling (11)	10.6	8.9	8.8	8.7	8.3
French franc (11)	10.8	10.6	9.9	10.3	10.6

1/ Percent change from initial value on December 31, 1990.

2/ Initial weights from 1990 review in parentheses.

Table 14. Calculation of Illustrative Currency Amounts:
Revised SDR Valuation Basket

(Based on Rounded Percentage Weights and on July 14, 1995 Exchange Rates)

Currency	Current Basket			Illustrative Basket Based on 1990-94 Data		Percentage Change in Currency Amount
	Initial percentage weight	Actual	Currency amount	Rounded percentage weight <u>1/</u>	Currency amounts <u>2/</u>	
		percentage share, as of July 14, 1995				
U.S. dollar	40	36.7	0.572	40	0.625	+9.3
Deutsche mark	21	21.0	0.453	21	0.457	+0.9
Japanese yen	17	23.4	31.80	18	23.80	-25.2
French franc	11	10.6	0.80	11	0.843	+5.4
Pound sterling	11	8.3	0.0812	10	0.098	+20.7

1/ See Table 3, Part I, col. (6)

2/ For a given set of weights, the currency amounts shown are indicative amounts, which are likely to be different depending on (i) the average and end-period exchange rates of the base reference period (October-December 1995) to be used for revising the SDR basket's currency components, and (ii) the rounding procedures to be applied to the currency amounts themselves. Appendix IV reproduces the procedure and formulas used for rounding the currency amounts when the new basket is determined.

mid-July 1995 exchange rates. 1/ As can be seen from the table, the initial weights calculated for the deutsche mark and the French franc do not indicate very substantial changes in the amounts of these currencies in the basket, as the actual shares of these currencies against the SDR since the last review have remained relatively stable, and the realignment of the shares in the SDR valuation basket with their new initial weights is projected to be relatively small. 2/ Substantial changes are required for the U.S. dollar, the Japanese yen, and the pound sterling, reflecting the significant movements in these currencies against the SDR since the last revision of the basket, as well as the relatively large difference between the actual shares for these currencies and their calculated initial weights for the new basket. It should be noted, however, that the changes in the currency amounts are a consequence of the revision of the SDR basket, and these changes would not be expected to exert an impact in any predetermined direction on the future performance of the SDR valuation basket.

3. Transition to a new SDR basket

Paragraphs 3b and 4 of the 1980 Decision set out the procedures regarding the transition from the present to the new basket, in particular to ensure that the new currency amounts will yield the same transactions value for the SDR on the basis of the old and new currency amounts on the last business day preceding January 1, 1996. It is proposed that the currency amounts corresponding to the new weights will be calculated on the same basis that was followed in the 1990 review and which are presented in detail in Appendix III. The initial currency amounts will be calculated on the basis of the new currency weights and the average exchange rates over the three-month period preceding January 1, 1996, subject to the constraint that the value of the SDR on the last business day preceding January 1 on the basis of the new basket will be the same as the value of the SDR actually prevailing on that day using the old basket. The currency

1/ The specific procedures for determining the currency amounts are described in Appendix III.

2/ In general, the currency amounts of the basket will change at the time of the revision of the basket because either the initial weights are changed or the exchange rates have changed since the basket was last revised, or both; the currency amounts could also be little changed if the changes in the initial weights and in exchange rates are offsetting. The currency amount would remain constant if the initial weight for the currency was reduced in the same proportion as the depreciation of the exchange rate for that currency by the end of the five-year period for the revision of the SDR basket. The larger the depreciation of a currency against the SDR, the greater the corresponding increase in the number of units in the new basket, for a given weight assigned to the currency.

amounts are to be expressed in two significant digits, 1/ provided that the resulting weights do not differ from the initial weights by more than one half percentage point for any currency. If no solution can be found at the two-digit level, the initial currency amounts will all be expressed in three significant digits, and the process may be repeated to find a solution at four significant digits. If multiple solutions are found at any level of significant digits, the solution with the smallest average deviation between the initial currency amounts and the rounded currency amounts will be employed.

For operational convenience it is appropriate to complete the revision of the weights of the currencies included in the basket, in accordance with the 1980 Decision, and to provide a sufficient period for official and private users of the SDR, as well as members and institutions with outstanding loans to the Fund, to be informed of the new weights and to familiarize themselves with the features of the new SDR basket that will take effect at the beginning of 1996. A decision within about three months before the end of the year has in the past proved to be sufficient to inform interested parties and to complete any consultations that might be required.

V. SDR Interest Rate

This section reviews the method of determining the SDR interest rate, the selection of financial instruments in the interest rate basket, and the likely consequence on the SDR interest rate when the weights and currency amounts in the SDR valuation basket are revised on January 1, 1996, under the 1980 Decision.

1. Method of setting the combined market interest rate

The SDR interest rate basket is identical in composition to the SDR valuation basket, and the determination of the SDR interest rate by the Fund has not so far been independent of the method of SDR valuation. The SDR interest rate is determined by the Fund to be equal to a "combined market

1/ Decision No. 8160-(85/186)G/S, December 23, 1985, provided for a uniform-digits approach in determining the number of digits to be used in finalizing the amount of each currency included in the basket; i.e., if a solution at two digits for each of the five currencies could not be found, the solution would be to determine a new basket in which the currency amounts would be uniformly expressed to three or four significant digits for each currency. Under the 1980 guidelines on rounding (called the minimum-digits approach), if a solution were not found that expressed the currency amounts uniformly in two significant digits, a search procedure was employed to find a solution which maximized the number of currency amounts expressed to two significant digits, and correspondingly minimized the number of currency amounts expressed to three or four significant digits. The differences in technique are mainly presentational.

interest rate" under Rule T-1, which was amended in September 1980 and May 1981 so as to make the SDR interest rate fully reflect the rates of return on the fixed currency amounts of the SDR valuation basket based on interest rates on short-term domestic money market instruments selected for that purpose. Rule T-1 is reproduced in Appendix I. The method of calculating the combined market interest rate is as follows: for each currency in the basket, the interest rate of the financial instrument is multiplied by the number of units of that currency in the basket, and the product is then multiplied by the value of the currency in terms of the SDR; the resulting products for the five currencies are then added together.

The combined market rate is constructed to produce an effective yield or total return--interest income plus exchange valuation gain (loss)--which does not deviate significantly from a market-determined rate of return on a composite investment comprising the five currency components combined in the same proportion as the SDR valuation basket and using financial instruments of the same quality and the same maturity. The convergence of the SDR interest rate with such an average of market interest rates reflects the unification of the valuation and interest rate baskets in 1980 and the setting of the SDR interest rate at 100 percent of the combined market rate since May 1981. The present method of setting the SDR interest rate has therefore aimed at aligning it closely with the yield on alternative reserve assets. ^{1/} In this context, it may be noted that the Committee of Twenty stated that "the effective yield on the SDR will be high enough to make it attractive to acquire and hold, but not so high as to make countries reluctant to use the SDR when in deficit." It is therefore important that any revision of the SDR interest rate basket would be consistent with broadly maintaining its effective yield relative to those on comparable reserve assets.

It is highly desirable that the SDR interest rate basket continues to be identical with the SDR valuation basket so that by construction the effective yield on the SDR would not deviate from that of the valuation basket. It is therefore proposed not to change the method of setting the SDR interest rate, and as already indicated, it is also proposed not to change the method of valuing the SDR. It is, however, useful to review the financial instruments included in the SDR interest rate basket so as to ensure their continued representativeness in the domestic credit markets from which they are drawn and their suitability for short-term official investments. On the basis of such a review, no changes are proposed regarding the choice of these instruments.

^{1/} See "A Note on Interest Rates on SDR-Denominated Assets," SM/84/68 (3/28/84), Annex IV and "The Future of the SDR as a Reserve Asset," EBS/93/89 (6/16/93), and "Pattern of Use and Holdings of SDRs," EBS/93/104 (6/28/93) for a discussion of the role of the SDR as a reserve asset.

2. Review of the instruments in the SDR basket

As described in previous reviews of the valuation and interest rate SDR baskets, the financial instruments included in the SDR interest rate basket are selected so that each instrument is comparable with one another in terms of quality, maturity, and availability of quotations. 1/ Furthermore, the selected financial instruments should:

a. be broadly representative of the range of financial instruments that are actually available to investors in a particular currency, and the interest rate on the instrument should be responsive to changes in underlying credit conditions in the corresponding money market;

b. have risk characteristics that are similar to the official standing of the SDR itself, i.e., have a credit risk profile of the highest quality fully comparable to that of government paper available in the market or, in the absence of appropriate official paper, comparable to the credit risk on prime financial instruments; and

c. reflect the actual reserve asset choice of reserve managers, for example, as regards the form of the financial instrument, its liquidity, and maturity.

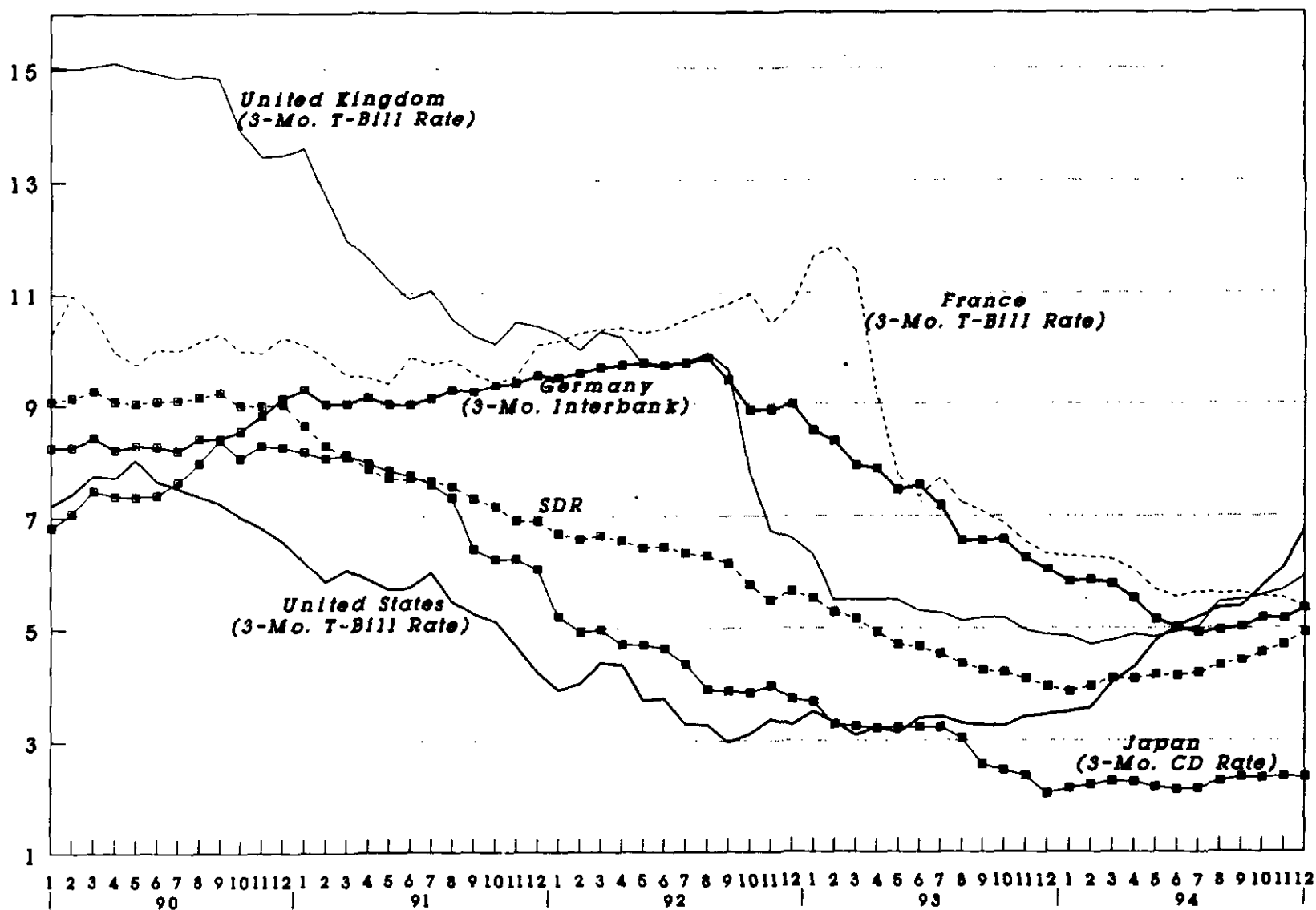
These criteria for choosing the component financial instruments of the SDR basket were generally reaffirmed by Executive Directors during the 1985 and 1990 reviews of the SDR valuation and interest rate baskets. The criteria reflect the fact that the particular choice of instruments has a direct impact on the absolute level of the SDR interest rate as the yield on different instruments for the same component currencies will vary according to particular market conditions and institutions. Furthermore, in view of the reserve character of the SDR, the financial instruments in the SDR basket should be primarily (or exclusively) short-term assets, as central banks typically hold fairly short-term foreign exchange assets in order to ensure the prompt usability of their reserves in case of balance of payments need. In practice, only a limited number of financial instruments exhibit the specific characteristics of international reserve assets described above, and in the investment of their reserves, central banks can in fact have quite different policies and practices with respect to the form, maturity, and denomination of their reserve assets. 2/ Nevertheless, the

1/ See SM/85/163, p. 27.

2/ For example, some member countries also maintain reserves in eurocurrency deposits, particularly in Eurodollars, and some consideration might be given to the possibility of using the rate on eurodeposits for the determination of the SDR interest rate. However, in most cases, eurocurrency instruments do not meet the criterion of having risk characteristics similar to those of official reserve assets, and they would tend to raise both the level and variability of the combined market rate if they were included in the SDR interest basket. Accordingly, these rates have not been considered appropriate for the calculation of the SDR interest rate (see SM/80/82, 4/2/80, pp. 5-7).

Chart 4. Interest Rates on SDR and Its Components

(In percent per annum)



staff is of the view that an SDR interest rate basket composed primarily of short-term government paper is appropriate for an international official instrument such as the SDR.

The instruments in the present SDR interest rate basket are: market yield for three-month Treasury bills for the United States, the United Kingdom, and France, three-month interbank deposit rate in Germany, and three-month rate on certificates of deposit in Japan. The instruments formerly used for France and Japan had been the three-month interbank money rate against private paper and the discount rate on two-month (private) bills, respectively, until the time of the 1990 review of the SDR interest rate basket, when it was decided to replace these instruments with the three-month Treasury bill rate and the three-month certificate of deposit rate, respectively, in light of the changes that had taken place in the French and Japanese money markets since the 1985 review. In particular, these revisions reflected the financial innovation and deregulation that had occurred within a broader restructuring of the financial markets in France and Japan as well as changes that had been effected regarding the mechanisms of implementation of monetary policy in those countries. Chart 4 shows the evolution of the SDR interest rate and its component interest rates since the beginning of 1990. The differences among the various interest rates reflect, inter alia, inflation differentials (and expected changes in the rate of inflation) as well as changes in domestic monetary policies in the various markets.

In consultation with the authorities issuing the currencies in the SDR basket, the staff has reviewed the instruments in the SDR interest rate basket in light of the developments in the financial markets of the five basket currencies since 1990. In particular, the authorities in the United States, Japan, Germany, France, and the United Kingdom were asked to review the existing instruments to ascertain that they still met the criterion of being broadly representative of government securities in which central banks would hold official reserves. ^{1/} The consultations with these authorities in 1995 indicate that this is the case for all five countries, and there is therefore no need to change any of the existing financial instruments in the SDR interest rate basket. Appendix IV describes the short-term interest rates, instruments, and the money markets for the currencies in the SDR basket.

^{1/} Information was also obtained in connection with the 1994 revision of the six-month and five-year instruments used to calculate interest rates payable on existing loans to the ESAF Trust. In connection with the ESAF review, no changes were made regarding the U.S., Japanese, German, and U.K. instruments, but in the case of France, the six-month French Treasury bill rate was substituted for the six-month interbank loan rate, and the five-year French public sector bond was replaced by the French five-year government bond.

In light of the above discussion, the current instruments which comprise the SDR interest rate basket continue to be appropriate. In general they seem to meet the criteria originally developed by which to judge the suitability of the financial instruments to be included in the basket, i.e., the current instruments are regarded as fully representative of the underlying conditions of the markets from which they are drawn and they continue to be suitable instruments for short-term official investments. It is, therefore, proposed to retain the current instruments in the new SDR interest rate basket to take effect from January 1, 1996.

3. "Shift" effect on the SDR interest rate of
the revision of the SDR basket

As discussed earlier in this paper, the revision of the SDR valuation basket is made in a manner that realigns the actual shares of the currencies in the basket to an agreed set of initial weights while maintaining unchanged the value of the SDR at the time of the transition to the new SDR basket. The continuity in the valuation of the SDR is not accompanied by a comparable continuity in the SDR interest rate at the time of the transition, or in the SDR interest rates on Fund borrowing, which are computed in the same manner as the SDR interest rate. ^{1/} The break in continuity in the calculation of the combined market or SDR interest rate arises because of the existence of interest rate differentials and in view of the changes in the shares of currencies in the SDR valuation basket. For example, the effect on the SDR interest rate of an increase in the actual share of a relatively high-interest currency at the point of transition to a new SDR basket may not be offset by the effect of a corresponding decline in the share of low-interest rate currencies. It may, however, be noted that to the extent that interest rate differentials reflect expectations of exchange rate movements, the effective yield on the SDR may be expected to be broadly the same based on either the old or new valuation basket.

Consequently, it may be expected, as on previous occasions, that a small discrete change will occur in the calculation of the level of the SDR interest rate and of the interest rates on Fund borrowing when the SDR valuation basket is revised on January 1, 1996. It may also be noted that the SDR interest rate is calculated each Friday for the week beginning the

^{1/} Prior to the 1980 Decision, the interest rate basket comprised the same five currencies as in the present basket, but the weights in the interest rate basket were constant and independent of movements in exchange rates. Up to that time, changes in interest rates on the SDR reflected only the changes in the fixed weights of the SDR interest rate basket, but nevertheless, discrete changes in the absolute level of the combined market interest rate occurred at the time of revision of the SDR valuation basket. (See SM/85/163, p. 23, footnote 1).

following Monday, and the size of the shift in the combined market rate will depend on the exchange and interest rates close to but not exactly on the date the new SDR valuation basket comes into effect. 1/

As indicated in Table 15, if exchange rate and interest rate configurations at around mid-July 1995 were to prevail at end-1995, there would be a one-time upward shift in the combined market interest rate calculations in the range of 29 basis points to 33 basis points depending on the maturity of the instruments used in the calculations. There would be an upward shift of 30 basis points for the SDR interest rate while the basket interest rate on five-year instruments would rise by 33 basis points. The upward shift in the SDR basket interest rate reflects the sharp decline in the share of the low-yielding Japanese three-month certificate of deposit (the amount of Japanese yen is reduced by 25 percent) and the accompanying increases in the shares of the other higher-yielding instruments. The expected 30 basis-point increase in the SDR interest rate may be compared with the shifts in the trend of the SDR rates that occurred on January 1, 1991, when the SDR interest rate fell by 34 basis points as a result of the implementation of the then new valuation basket. 2/ At this time, it is not possible to exactly project the size of the shift of the SDR interest rate associated with the revision of the basket.

VI. Conclusions

This paper has been prepared as the basis for the quinquennial review of the SDR valuation basket, as called for by Decision No. 6631-(80/145) G/S, which was adopted in September 1980, and of the SDR interest rate basket. The paper does not propose any fundamental change in the method or the principles of valuing the SDR. The main conclusion of the paper is that the method of valuation under the 1980 Decision has continued to work well and should continue to be applied, as in 1985 and 1990. In these circumstances, implementation of the 1980 Decision calls for a new calculation of the weights and amounts for the currencies to be included in the valuation basket, and to apply the appropriate rounding procedures, as agreed by the Executive Board. No changes are proposed in the financial instruments in the SDR interest rate basket, nor in the method of computation of the SDR interest rate basket. The new valuation and interest rate baskets will come into effect on January 1, 1996, unless the Executive Board decides otherwise.

1/ It may be noted that January 1, 1996 is a Monday, the start of a new (weekly) SDR interest period, and the SDR interest rate for that period would continue to be based on the (old) valuation basket in effect on December 29, 1995.

2/ The 0.34 percentage point downward shift in the SDR interest rate on January 1, 1991, occurred despite a slight increase in the combined interest rate because of the revision of the financial instruments included in the basket.

Table 15. Shifts in Combined Market Interest Rates on SDR-Denominated Assets
Based on Hypothetical Revision of the SDR Valuation Basket

(As of July 19, 1995)

	U.S. dollar (1)	Deutsche mark (2)	French franc (3)	Japanese yen (4)	Pound sterling (5)	Combined Market Interest Rates		
						Present basket (6)	Hypothetical revised basket (7)	Difference cols. (7)-(6) (8)
Currency amounts								
Present basket	0.572	0.453	0.800	31.8	0.0812			
Revised basket ^{1/}	0.625	0.457	0.843	23.8	0.098			
Interest rates on								
<u>Fund-related assets</u>								
Three-month maturity based on current set of instruments	5.58	4.50	6.54	0.88	6.70	4.46	4.76	0.30
Borrowing:								
Domestic instruments								
Six-month maturity	5.65	4.50	6.25	0.95	6.97	4.48	4.78	0.30
One-year maturity	5.60	4.47	6.18	1.02	6.66	4.42	4.71	0.29
Five-year maturity	6.15	6.30	7.14	1.17	8.00	5.28	5.61	0.33
Eurocurrency instruments:								
Three-month maturity	5.81	4.50	6.44	0.81	6.81	4.51	4.83	0.32
Six-month maturity	5.81	4.50	6.25	0.81	6.94	4.51	4.82	0.31

^{1/} The currency amounts are based on data as of July 14, 1995.

The main operational conclusions of the paper are as follows:

1. The currencies to be included in the revised valuation basket to take effect on January 1, 1996 will continue to be the U.S. dollar, the deutsche mark, the Japanese yen, the pound sterling, and the French franc.

2. The initial weights in the basket for these currencies have been calculated, rounded to the nearest percentage point (unrounded figures in parentheses), as follows: U.S. dollar, 39 percent (38.73 percent); deutsche mark, 21 percent (21.21 percent); Japanese yen, 18 percent (18.35 percent); French franc, 11 percent (11.46 percent); pound sterling, 10 percent (10.24 percent). However, it is proposed to round up the weight for the U.S. dollar to 40 percent, so that the weights sum to 100 percent. This rounding up of the weight for the dollar represents the smallest relative increase in the calculated weights. The Executive Board, by a 70 percent majority, could decide this or on an alternative method of rounding, which, as a legal matter, is regarded as constituting a change in the method of valuation of the SDR. In the view of the staff, there would not seem to be a compelling need to propose any alternative method of rounding the calculations.

3. In view of the relatively small weight of currency balances in the calculation of the weights, a review was made of supplementary financial indicators - foreign exchange market turnover, trade invoicing, international flows of equity capital, and the currency denomination of international bond issues, international bank lending, and eurocurrency deposits. Changes in the relative importance of currencies in terms of these supplementary data tend to confirm the direction of changes in the weights calculated on the basis of the criteria specified in the 1980 Decision. There would not, therefore, seem to be an operational need to qualify the results of the calculations of the new weights.

4. The weights agreed for the currencies included in the valuation basket will be applied to the average exchange rates prevailing over the period October 1-December 31, 1995 to determine the currency amounts in the SDR valuation basket. The new currency amounts will be calculated so as to ensure that they will yield the same transactions value for the SDR on the basis of the old and new valuation baskets on the last business day preceding January 1, 1996, i.e., Friday, December 29, 1995.

5. After consultation with the authorities concerned, it is proposed that the present financial instruments in the SDR interest rate basket be maintained unchanged. These instruments are three-month Treasury bills for the United States, the United Kingdom, and France, the three-month interbank deposit rate for Germany, and the three-month CD rate for Japan.

6. It is expected that a small discrete shift in the SDR interest rate will occur at the time when the new SDR valuation basket comes into effect because the amounts of currency in the SDR interest rate basket will be realigned to maintain their identity with the amounts of currency in the

SDR valuation basket. Based on the configuration of exchange rates and interest rates in mid-July 1995, there would be an upward adjustment in the combined market rate of the order of 0.30 percentage point.

7. In view of the operational importance of a change in the valuation basket for the prescribed holders of SDRs and other institutions that have adopted the SDR as a unit of account, it is proposed to inform them of the revision of the weights well ahead of the date of a new SDR basket coming into effect. It is also proposed that this paper be made available to them together with the summing up of the Executive Board's review of the SDR valuation and interest rate baskets.

The 1980 Decision and Rule T-1

This Appendix reproduces (i) the 1980 Decision on the method of valuation of the SDR and (ii) Rule T-1 governing the determination of the SDR interest rate.

Article XV. Section 2

Valuation of the Special Drawing Right

1. Effective January 1, 1981, the value of one special drawing right shall be the sum of the values of specified amounts of the currencies listed in 2 below, the amounts of these currencies to be determined on December 31, 1980, in a manner that will ensure that, at the average exchange rates for the three-month period ending on that date, the shares of the currencies in the value of the special drawing right correspond to the weights specified for each currency in 2 below.

2. On the basis of changes in members' exports of goods and services and in official balances of members' currencies held by other members since the previous review of the method of valuation of the SDR conducted in March 1978, that the currencies and weights referred to in 1 above shall be as follows:

<u>Currency</u>	<u>Weight (In percent)</u>
U.S. dollar	42
Deutsche mark	19
French franc	13
Japanese yen	13
Pound sterling	13

3. The list of the currencies that determine the value of the special drawing right, and the amounts of these currencies, shall be revised with effect on January 1, 1986, and on the first day of each subsequent period of five years in accordance with the following principles, unless the Fund decides otherwise in connection with a revision:

a. The currencies determining the value of the special drawing right shall be the currencies of the five members whose exports of goods and services during the five-year period ending 12 months before the effective date of the revision had the largest value, provided that a currency shall not replace another currency included in the list at the time of the determination unless the value of the exports of goods and services of the issuer of the former currency during the relevant period exceeds that of the issuer of the latter currency by at least one percent.

b. The amounts of the five currencies referred to in (a) above shall be determined on the last working day preceding the effective date of the relevant revision in a manner that will ensure that, at the average exchange rates for the three-month period ending on that date, the shares of these

currencies in the value of the special drawing right correspond to percentage weights for these currencies, which shall be established for each currency in accordance with (c) below.

c. The percentage weights shall reflect the value of the balances of that currency held at the end of each year by the monetary authorities of other members and the value of the exports of goods and services of the issuer of the currency over the relevant five-year period referred to in (a) above, in a manner that would maintain broadly the relative significance of the factors that underlie the percentage weights in paragraph 2 above. The percentage weights shall be rounded to the nearest 1 percent or as may be convenient.

4. The determination of the amounts of the currencies in accordance with 1 and 3 above shall be made in a manner that will ensure that the value of the special drawing right in terms of currencies on the last working day preceding the five-year period for which the determination is made will be the same under the valuation in effect before and after revision.

Decision No. 6631-(80/145) G/S

September 17, 1980

T-Interest, Charges, and Assessments in
Respect of SDRs

- T-1.(a) Interest and charges in respect of SDRs shall accrue daily at the rate referred to in (b) below. The amount that has accrued during each quarter of the financial year of the Fund shall be paid promptly as of the beginning of the following quarter. The accounts of participants shall be credited with the excess of interest due over charges or debited with the excess of charges over the interest due. The accounts of holders that are not participants shall be credited with the interest due.
- (b) The rate of interest on holdings of SDRs for each weekly period commencing each Monday shall be equal to the combined market interest rate as determined by the Fund at the beginning of the period in the manner described in (c) below.
- (c) The combined market interest rate shall be the sum, rounded to the two nearest decimal places, of the products that result from multiplying each yield or rate listed below, expressed as an equivalent annual bond yield, for the preceding Friday by the value in terms of the SDR on that Friday of the amount of the corresponding currency specified in Rule 0-1, as determined pursuant to Rule 0-2(b). If a

yield or rate is not available for a particular Friday, the calculation shall be made on the basis of the latest available yield or rate.

U.S. dollar - Market yield for three-month U.S. Treasury bills
Deutsche mark - Three-month interbank deposit rate in Germany
French franc - Three-month rate for Treasury bills
Japanese yen - Three-month rate on certificates of deposit
Pound sterling - Market yield for three-month U.K. Treasury bills

- (d) The Fund will review the rate of interest on holdings of SDRs at the conclusion of each financial year.

Adopted September 18, 1969, amended June 13, 1974, June 30, 1976, April 1, 1978, June 15, 1978, effective July 1, 1978, September 17, 1980, effective January 1, 1981, and July 26, 1983, effective August 1, 1983; paragraph (b) amended October 25, 1978, effective January 1, 1979, and April 22, 1981, effective May 1, 1981; paragraph (c) amended April 22, 1981, effective May 1, 1981, and October 5, 1990, effective January 1, 1991.

The Effective Yield and Risk-Return Characteristics of the SDR

The effective yield of a financial asset is the rate of interest on the asset adjusted for any change in its capital value. In the case of the SDR, the effective yield is influenced by both the overall exchange rate performance of the SDR against the currencies in the basket and its interest rate. The effective yield of the SDR, when measured in terms of different "base" currencies, provides an indication of the performance of the SDR as a store of value relative to an alternative investment in the base currency. The relative stability of the exchange rate for the SDR as well as its fully market-related interest rate tend to result in a generally superior performance of the SDR as a reserve asset if measured in terms of effective yield per unit of risk (or the yield divided by its standard deviation). Indeed, the basket method of SDR valuation and interest rate provides for an average of yields that could be obtained if investments were made in the component currencies, and this average effective yield tends to be less volatile than yields on individual currencies.

An empirical measure of the relative performance of the SDR as a reserve asset has been carried out by calculating the ex-post risk-adjusted return on SDR-denominated assets compared with that on alternative assets denominated in the component currencies of the SDR basket. The comparative calculations are based on the current instruments of the SDR interest rate basket. Historical time series of daily effective yields are assembled by simulating an investment in each of the reserve assets reviewed and then rolling over this investment on a daily basis from January 1991 through June 1995. The average effective yield measures the total return that would have been obtained if the investment had been maintained for the entire period. This yield does not, however, provide, a measure of the risk involved in the investment. Such risks can be measured in terms of the standard deviation of the effective yield, i.e., its volatility around the average over the sample period. The average and standard deviation of the effective yields are computed for the entire period under review.

Appendix Table 16 shows the average effective yield divided by its standard deviation to yield an index of return per unit of risk for alternative investments in different assets, where the effective yield is measured alternatively in terms of the major currencies included in the basket. For example, for a U.S. dollar-based investor, the return-per-risk ratio for alternative investments is given in col. (1), which indicates the profitability of each investment (measured in U.S. dollar terms) relative to the risk sustained, i.e., the higher this ratio, the higher the return for a given level of risk (or conversely, the higher the ratio, the lower the risk for a given level of return). As might be expected, the return per unit of risk is uniformly higher for investments in the same currency as the base currency (the currency in which the total return is measured, as listed in the table by column), reflecting the fact that the risk involved does not include an exchange rate component.

Table 16. Effective Yield per Unit Risk $\frac{1}{2}$ for Alternative Investments
Measured in Terms of Alternative Base Currencies

(January 1991 through June 1995)

	Base Currency					
	U.S. dollar (1)	Pound sterling (2)	French franc (3)	Deutsche mark (4)	Japanese yen (5)	SDR (6)
Investment in:						
U.S. dollar	3.71	0.34	0.15	0.12	-0.32	0.16
Pound sterling	0.17	2.87	0.16	0.10	-0.28	0.08
French franc	0.45	0.85	4.15	1.28	-0.03	0.61
Deutsche mark	0.43	0.80	1.60	4.24	-0.02	0.57
Japanese yen	0.79	0.76	0.71	0.68	0.74	0.99
SDR	0.67	0.67	0.52	0.43	-0.21	4.11

$\frac{1}{2}$ Ratio of effective yield to its standard deviation.

The last row of Appendix Table 16 indicates the risk-adjusted investment performance of the SDR relative to the currencies in the basket. In particular, the SDR has clearly outperformed the U.S. dollar on this basis as an investment measured in terms of the alternative currencies. Similarly, an SDR-denominated investment has been associated with a higher effective yield-per-risk ratio as compared with the pound sterling. The below-average returns per unit of risk, independent of the choice of base currency, obtained from investments in the pound sterling and in the U.S. dollar reflect the depreciation of these currencies during the sample period. Moreover, for the U.S. dollar-based investor, the yield per unit risk ratio for the SDR is higher than in any other currency instrument, 1/ except for the Japanese yen.

For European currency-based investors, and especially for the participants in the ERM of the EMS, the risk-adjusted return on investment measured in terms of another ERM currency rises sharply, reflecting the working of the intra-ERM parities. Appendix Table 16 also clearly illustrates the negative effect of the appreciation of the Japanese yen on investments measured in the yen; between 1991 and mid-1995, investments in the composite SDR currencies, except for the yen, as well as in the SDR itself produced negative returns when measured in yen. Except for the correlation among the returns for European currencies, the data in Appendix Table 16 confirm that the SDR is a competitive reserve asset in that it performs almost as well as the single currency (the Japanese yen) with the strongest appreciation over the sample period.

1/ This result may be attributed to the large weight of the U.S. dollar in the SDR basket and the consequently lower dollar-denominated risk attached to the SDR.

This Appendix reproduces the guidelines for the valuation of the currency amounts of the SDR valuation basket (Decision No. 8160-(85/186)G/S) and presents the technical formulas for the calculation of the currency amounts of the basket.

SDR Valuation Basket - Guidelines for the
Calculation of Currency Amounts

(1) Under all circumstances, the currency units will be determined in a manner which would ensure that the value of the SDR calculated on December 31 on the basis of the new basket will be the same as that actually prevailing on that day.

(2) The currency amounts calculated for the new basket will be expressed in two significant digits provided that the deviation of the percentage share of each currency in the value of the SDR, resulting from the application of the average exchange rates for October-December, from the percentage weight as determined under paragraph 3(c) of Executive Board Decision No. 6631-(80/145) adopted September 17, 1980, is the minimum on average and will not exceed one half percentage point for any currency.

(3) If a solution cannot be obtained by the application of the principles set forth in (2) above, the calculation shall be made applying the same principles but expressing the amount of each currency in three significant digits, and if no solution is found with three significant digits, then the calculation shall be made applying the same principles but expressing the amount of each currency in four significant digits.

(4) If more than one solution is found in the calculation at the level of two, three, or four significant digits, the solution that has the smallest average deviation will be employed.

*Decision No. 8160-(85/186)G/S
December 23, 1985*

Formulas for the Calculation and Rounding of the Currency
Components in the SDR Valuation Basket 1/

The calculation of the amounts of each currency in the SDR valuation basket is presented algebraically below.

Let W_i be the weight of currency i , expressed as
a proportion;

^{1/} See "SDR Valuation Basket - Calculation of the Currency Amount," SM/80/206, Supplement 3 (12/15/80) and Supplement 5 (12/22/80). See also Decision No. 8160-(85/186)G/S, adopted December 23, 1985 (reproduced in this Appendix).

- BEX_i be the base period average exchange rate for currency i, expressed as U.S. dollars per unit of currency i;
- TEX_i be the exchange rate for currency i on the transition date, the last business day of the base period, expressed as U.S. dollars per unit of currency i; and
- $\$/SDR$ be the value of the SDR in U.S. dollars on the transition date, calculated under the then Rule O-1.

Step A: The components in the basket are determined as:

$$C_i = \left(\frac{W_i}{BEX_i} \right) \cdot \frac{\$/SDR}{\sum_{i=1}^5 \left(\frac{W_i}{BEX_i} \right) \cdot TEX_i}$$

where C_i is the units of currency i.

Step B: In rounding the results under Step A, the rounded currency amounts RCC_i will be determined in a manner that would ensure that the value of the SDR on the transition date on the basis of the new basket will be the same as that actually prevailing on that day. For each of the baskets that meet the test, the root mean square of the deviations of the rounded currency components (RCC_i) from their previously calculated values, i.e.,

$$\sqrt{\frac{\sum_{i=1}^5 \left(\frac{RCC_i - C_i}{C_i} \right)^2}{5}}$$

is calculated.

Step C: The currency amounts of the new basket will be expressed to two significant digits, provided that the percentage deviation over the agreed weight for each currency in the value of the SDR resulting from the application of the average exchange rates for the relevant three-month period ending on the transition date is the minimum on average and does not exceed one-half percentage point for any currency.

Step D: If no solution is found under Step C, the significant digits to which all currency amounts will be expressed may progressively exceed two digits (up to four digits) provided that the shares of component currencies over the three-month averaging period, when appropriately rounded, are the same as the agreed percentage weights.

At any level of number of significant digits used to express the currency amounts, the basket that meets the test of equality with the transition value of the SDR in U.S. dollars, expressed to six significant figures, and with the smallest root mean squared deviation is selected.

Short-Term Interest Rates and Money Markets for the
Currencies in the SDR Basket

1. United States

In the case of the United States, the interest rate currently used for the calculation of the SDR interest rate is the market yield on a bond-equivalent basis on three-month U.S. Treasury bills, as calculated by the U.S. Treasury. U.S. government securities remain the most appropriate instrument for the calculation of the SDR interest rate as they continue to represent the highest quality paper for investment of official reserves. The secondary market yield on three-month Treasury bills continues to closely reflect underlying money market conditions.

2. Germany

The interest rate currently used for the calculation of the SDR interest rate is the three-month interbank deposit rate. The German money market is characterized by a relatively small number of short-term instruments and the interbank deposit rate generally reflects the underlying credit conditions of the broader money market. The overall outstanding volume of short-term government securities with maturities of 60 to 90 days (bills and discount notes) is also relatively small compared with other private money market instruments. These securities are issued by the federal government, the federal railways systems, the federal post office, and others on an irregular basis and in modest amounts, and there is virtually no secondary market for such government securities. While the Bundesbank can resort to issuing very short-term Treasury bills (usually of three days maturity) in order to absorb excess liquidity, longer maturities, such as three-month government securities, are rarely used in, e.g., open market operations. Instead, the Bundesbank normally buys and sells rediscount bills and so-called Debt Register claims to affect money market liquidity.

3. Japan

The interest rate currently used for the calculation of the SDR interest rate is the three-month certificate of deposit (CD) rate. The three-month CD was introduced in connection with the 1990 revision of the SDR interest rate basket when it replaced the two-month commercial bill in the basket. Because of a change in the Bank of Japan's money market intervention mechanism in November 1988, the outstanding volume of two-month commercial bills had declined sharply in relation to overall money market liquidity. Meanwhile, the three-month certificate of deposit rate has become the main reference rate for most transactions. This instrument most closely reflects underlying market conditions in the Japanese money market, has a credit rating of the highest quality, and is broadly representative of the range of financial instruments in the market. While Treasury bills with

maturities of less than one month are commonly used by the Bank of Japan to add liquidity to the money market, the three-month Treasury bill market is considered relatively small in terms of turnover and outstanding volume.

4. France

In the case of France, the interest rate currently used for the calculation of the SDR interest rate is the three-month rate for Treasury bills, also referred to as the BTF Actuariel by the Bank of France. This instrument was introduced in connection with the 1990 revision of the SDR interest rate basket when it replaced the three-month interbank deposit rate. In late 1985, the French authorities had implemented substantial changes in the domestic financial system aimed at developing a single consolidated financial market, and new financial instruments, including Treasury bills, were introduced. While the interbank deposit rate was considered to remain broadly representative of overall market conditions by the time of the 1990 review of the SDR valuation basket, the French authorities also regarded the rate on the three-month Treasury bill as fully reflecting underlying credit conditions, with the secondary market for Treasury bills having gained greater depth and liquidity in the preceding years. Since 1990, the Bank of France has published a reference yield curve for government paper which is determined from actual quotations in the secondary market. The Bank also uses Treasury bills to affect market liquidity through its open market operations.

5. United Kingdom

The interest rate currently used for the calculation of the SDR interest rate is the market yield on three-month U.K. Treasury bills, also referred to as the "hot bill" rate by the Bank of England. By the time of the 1990 revision, an alternative interest rate, the three-month interbank deposit rate, was also discussed as this rate had been regarded by private market participants as a reference rate for their operations in the money market. The behavior and level of the interbank deposit rate were, however, not significantly different from those of the Treasury bill rate and did not warrant a change in the pound sterling component of the SDR interest rate basket. Three- and six-month Treasury bills are issued every week in order to facilitate the Bank of England's open market operations. Both the U.K. authorities and market participants presently consider the market yield on the three-month U.K. Treasury bill to be consistently representative of overall credit conditions in the United Kingdom, reflecting the long-established and well-functioning market for U.K. government securities.

Valuation of the ECU 1/

The ECU uses a standard currency basket form of valuation and is, therefore, defined as fixed amounts of the currencies of the 12 EU members listed in Appendix Table 17. 2/ In determining the fixed currency amounts for the ECU valuation basket, the initial weights of the 12 component currencies were based on criteria relating to the economic importance of the members and their currencies. 3/

In establishing the ECU, provision was made for periodic re-examination and revisions, if needed, of its composition to take account of changes in member countries' economic situations and exchange rates. Previously, these recompositions of the weights took place in five-year intervals; however, the present composition has now been frozen and is not subject to change until the establishment of a unified EU currency.

For use by the EU and the EMS, the value of the ECU in terms of the U.S. dollar and EU member currencies is calculated daily by the EC on the basis of market exchange rates of the component currencies against the dollar at 2:15 p.m. each day (Brussels time) as reported by member central banks. If an exchange market is closed, the central banks agree on a representative rate against the dollar.

Appendix Table 17 provides an example of the determination of the value of the ECU. The weights of each of the basket currencies are multiplied by the U.S. dollar exchange rate to calculate the dollar equivalent of the basket currencies. The value of the ECU against the dollar, therefore, is the summation of the dollar equivalence numbers. Using data for July 24, 1995, the ECU was valued at \$1.34995.

1/ The following discussion relates to the official ECU. The private ECU, although previously calculated in a fashion similar to the official ECU, has taken on a life of its own and can deviate from the official ECU.

2/ Prior to the Maastricht Treaty, each member of the EC had the right to have its currency included in the ECU. This right was revoked in 1992 in the Maastricht Treaty, freezing the ECU currencies until the EU develops a single currency unit. The Greek drachma was incorporated into the basket in 1984; the Portuguese escudo and the Spanish peseta were included in the 1989 recomposition.

3/ These criteria included the share of each country, whose currency is included in the basket, in EC gross national product, its share in intra-EEC trade and in the quotas of the Short-Term Monetary Support Credit Facility of the EC.

APPENDIX V

Table 17. Determination of the Value of the ECU

(For July 24, 1995)

Currency	Currency Amounts	U.S. Dollar-- Exchange Rate	U.S. Dollar Equivalent of Currency
Pound sterling	0.08784	0.62617	0.1402808
Danish krone	0.19760	5.39198	0.0366470
French franc	1.33200	4.80699	0.2770963
Greek drachma	1.44000	224.93944	0.0064017
Irish pound	0.00855	0.60798	0.0140664
Italian lira	151.80000	1595.80725	0.0951243
Netherlands guilders	0.21980	1.55180	0.1416421
Deutsche mark	0.62420	1.38470	0.4507850
Belgian franc	0.30100	28.47994	0.1159061
Luxembourg franc	0.13000	28.47994	0.0045646
Spanish peseta	6.88500	119.02959	0.0578428
Portuguese escudo	1.39300	145.20982	0.0095930
Total			1.3499500

