**FOR AGENDA**



SM/00/180

July 24, 2000

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 quinquennial review of the method of valuation of the SDR, which will be brought to the agenda for discussion on a date to be announced. Draft decisions appear on pages 41-44.

It is proposed to hold an informal technical question and answer session, on a date to be determined following the informal Board recess, to respond to questions that Executive Directors may want to raise.

Mr. Wattleworth (ext. 38765), Mr. Tavlas (ext. 35662), and Mr. Westphal (ext. 37389) are available to answer technical or factual questions relating to this paper prior to the Board discussion.

Att: (1)

Other Distribution:
Department Heads

INTERNATIONAL MONETARY FUND

# REVIEW OF THE METHOD OF VALUATION OF THE SDR

Prepared by the Treasurer's Department

(In consultation with the Legal and other departments)

Approved by Eduard Brau

July 21, 2000

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## EXECUTIVE SUMMARY

**This paper provides the basis for the quinquennial review by the Executive Board of the method of determining the valuation of the SDR and the SDR interest rate, in accordance with the currently effective 1980 Decision. The new valuation and interest rate baskets will come into effect on January 1, 2001, unless the Executive Board decides otherwise.**

**The main points and conclusions are as follows.**

- In September 1998, the Executive Board agreed on an interim approach involving the automatic substitution of the euro for the deutsche mark and French franc in the SDR basket. **The present paper proposes that the euro be fully incorporated into the basket by changing the method of SDR valuation from the current member-based approach to a currency-based approach.** The valuation basket would include the same four currencies as at present—the U.S. dollar, euro, Japanese yen, and pound sterling.

- **Underlying this recommendation are a number of conceptual and operational difficulties inherent in the current member-based approach in the presence of a common currency for several major Fund members.** In particular, the current method of SDR valuation does not take into account that the demand for euro as a reserve asset reflects the internal and external positions of the entire euro area rather than the economic positions of individual euro area countries. Furthermore, from an operational point of view, the criteria of the 1980 Decision for determining currency weights cannot be strictly applied in the presence of a common currency.

- **The proposed currency-based approach is fully compatible with the "standard basket" form of valuation and with the generally accepted principles of SDR valuation**, which stipulate that the SDR's value should be stable in terms of the major currencies, while the weights of the currencies included in the basket should reflect their relative importance in the world's trading and financial system.

- **In addition, it is proposed to expand the criteria for currency selection to include an Executive Board determination that currencies selected for inclusion in the SDR basket have to be "freely usable" as provided in Article XXX(f) and to modify the economic variables currently used for currency selection and the determination of currency weights to reflect the implications of the currency-based approach.** In particular, exports of goods and services are those of Fund members or monetary unions, defined as areas with a single currency and common central bank. In the case of monetary unions, exports are defined to exclude intra-trade within the monetary union.

- **The paper also considers the issue of incorporating supplementary financial sector variables into the method of SDR valuation.** The large increase in private international financial flows in recent years is not reflected in the relative importance assigned to financial vis-à-vis trade flows in the current method of SDR valuation. However, the availability, at present, of only limited data on the international use of the euro suggests

that the incorporation of supplementary financial variables into the valuation of the SDR should be postponed until more complete data are available.

- **Consistent with the currency-based approach, the paper proposes to incorporate the three-month Euribor in the SDR interest rate basket** to replace the current French and German national instruments. This modification would reintroduce symmetry between the valuation and interest rate baskets. **It is also proposed to substitute the market rate on Japanese government thirteen-week financing bills for the private market three-month rate on certificates of deposits** currently included in the SDR interest basket. The market rates on three-month Treasury bills of the United Kingdom and the United States would remain in the interest rate basket.

- Finally, **the paper proposes that the next review take place in 2005,** with any changes to take effect January 1, 2006, unless developments in the international monetary system affecting SDR valuation warrant an earlier review.

- The **decisions proposed for Executive Board consideration in Section VI** would implement the suggested approach.

- **The decision by the Executive Board will become effective January 1, 2001. However, traditionally the Executive Board has taken its decision sometime prior to the effective date in order to inform interested parties and to complete any consultations that might be required.**

## I. INTRODUCTION

1. **This paper provides the basis for the quinquennial review by the Executive Board of the method of valuing the SDR and determining the SDR interest rate, in accordance with the currently effective 1980 Decision on the method of valuation of the SDR.**[1] The most recent Board discussion on SDR valuation (September 1998) addressed the issue of incorporating the euro in the SDR basket.[2] Directors agreed at that time on an interim solution involving the automatic substitution of the euro for the deutsche mark and French franc, arguing that such automatic substitution:[3]

- was in line with the main principles governing SDR valuation;
- ensured the continuity and consistency of the existing approach; and
- resulted in a broadly appropriate initial weight of the euro in the SDR basket.

2. **The September 1998 Executive Board Decision also maintained the existing five-yearly schedule for the review of SDR valuation, unless unexpected developments in the world economy warranted an earlier review.** This Decision called for the next review to take place during 2000, while recognizing that limited data would be available on transactions and stocks of financial instruments denominated in euro. During the Board discussion, Directors generally agreed that the introduction of the euro would represent a major change in the international financial system, raising fundamental issues regarding the valuation of the SDR and called for an early review of the method of SDR valuation.

3. **The paper is organized as follows**: Section II provides background on the principles and current methodology of SDR valuation and discusses the implications of the introduction of the euro for SDR valuation; it also discusses why a move to a currency-based approach would be appropriate in the present circumstances. Section III presents the essential elements of the proposed currency-based approach to SDR valuation. Section IV discusses the SDR interest rate basket and the rationale for incorporating the Euribor and changing the interest rate instrument for Japan. Section V deals with the timing of the next review of SDR valuation. Section VI contains the proposed decisions for the consideration of the Executive Board. Annex I contains the key decisions on SDR valuation and the SDR interest rate. Annex II discusses the possible incorporation of supplementary financial variables in the valuation of the SDR. Annex III presents the formulas for the calculation and rounding of the currency components in the SDR valuation basket.

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[1] Executive Board Decision No. 6631-(80/145) G/S, adopted September 17, 1980, *Selected Decisions of the International Monetary Fund, Twenty Second Issue*, Washington, D.C., June 30, 1997, pp. 481–82, reproduced in Annex I.

[2] EBM/98/101 (9/21/98).

[3] Decision No. 11803-(98/101) G/S, adopted September 21, 1998. See "EMU and the Fund—Valuation of the SDR and the SDR Interest Rate," SM/98/221 (9/1/98).

## II. BACKGROUND

### A. Principles and Methodology of SDR Valuation

4. **The SDR currently derives its value from a basket composed of the currencies of five *members*: France, Germany, Japan, the United Kingdom, and the United States**. The currencies are the euro, the Japanese yen, the pound sterling, and the U.S. dollar. The basket contains fixed amounts of the currency units which are valued at prevailing market exchange rates and summed to obtain the SDR's value. This "standard basket" form of valuation was adopted by the Fund in 1974[4] after extensive discussions in the Executive Board of various alternative techniques of valuation. The standard basket was deemed as the method that would best assure the stability of the SDR in terms of the major currencies under the then-new conditions of floating exchange rates (see Box 1).[5]

5. **The operational determination of the component currencies and weights in the SDR basket** under the 1980 Decision is a member-based approach to SDR valuation with the following elements:

- **Selection:** The *currencies* to be included in the valuation basket shall be the currencies of the five members 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;[6]

- **Weighting:** The percentage *weights* of the five currencies that are included in the valuation basket shall reflect the sum of the values of exports of goods and services and 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 previous five-year period; and

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[4] Decision No. 4233-(74/67) S, adopted on June 13, 1974, and took effect on July 1, 1974. See "Interim Valuation of the SDR," SM/74/59 (3/8/74).

[5] An overview of the issues related to the choice of a basket is included in "The Future of the SDR as a Reserve Asset," EBS/93/89 (6/15/93). Alternatives were presented in "Valuation and Yield of the SDR," SM/73/253, Rev. 3 (12/20/73), and the decision process was reviewed in J. J. Polak, "Valuation and Interest Rate of the SDR," Pamphlet Series No. 18, International Monetary Fund (1974). The method of SDR valuation was also discussed in a seminar in March 1996. The seminar proceedings were published in *The Future of the SDR in Light of Changes in the International Financial System*, (IMF, Washington, D.C., 1996).

[6] The Decision also specifies that 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.

**Box 1. Alternative SDR Valuation Baskets**

Among the alternative SDR baskets which have been considered, but rejected, are: (i) the *commodity basket*, whereby the SDR would be indexed to selected commodities; (ii) the *adjustable basket*, whereby currencies are adjusted for exchange rate movements vis-à-vis a numeraire; and (iii) the *asymmetrical basket*, whereby adjustments are made only for depreciating currencies to maintain the value of that currency in the basket.

These baskets posed the following difficulties:

- The commodity basket and the asymmetrical basket have the advantage of "hardening" the value of the SDR over time, as the SDR would either tend to strengthen over time relative to other currencies or its value would be maintained in a "real" sense. However, these techniques could also encourage speculative transactions in SDR-denominated assets and liabilities because of the discrete revaluations that would occur.

- Under the "hard" basket, the value of the SDR would always be increasing as there will always be one currency in the basket that is depreciating against the others. In the limiting case of instantaneous readjustment, the SDR would have the bizarre property that its value against other currencies would become infinite.

- Any "hard" SDR would have a lower nominal interest rate than under the standard basket technique in order to keep the effective yield on the SDR comparable to that on other reserve assets. This could pose operational difficulties for the distribution of payments to the Fund and the sharing of the cost of overdue obligations; at lower SDR interest rates, the scope for creditor country contributions to the Fund would be reduced as the rate of remuneration is subject to a floor of 80 percent of the SDR interest rate (Article V, Section 9(a)).

- The asymmetrical and adjustable baskets would require a numeraire or a base year from which appreciations and deprecations could be measured. Likewise, the commodity basket would also require a base year from which to measure changes in the value of the selected commodities. The choice of base year would inject a degree of arbitrariness into the value of the SDR. To the extent that revisions of the SDR would need to be made on a frequent basis, the alternative baskets would also lead to greater uncertainty about the future value of the SDR and lower the overall stability of the value of the SDR.

By contrast, the *standard basket* technique does not have these drawbacks, is easily understood and defined under the prevailing system of generalized floating, and can be easily replicated in private markets.

- **Review:** The list of currencies and their percentage weights in the valuation basket shall be reviewed every *five years* in order to keep the composition of the basket stable for at least that period of time, unless the Executive Board decided otherwise.

6. **The core decisions on SDR valuation reflect the key principles and criteria established in the 1970s to enhance the attractiveness of the SDR as a reserve asset.** Important among these were the principles that the SDR's value should be stable in terms of the major currencies, and that the currencies included in the basket should be representative of those used in international transactions. Other *desiderata* for SDR valuation established by the Board include the following:

- the relative weights of the currencies included in the basket should reflect their *relative importance* in the world's trading and financial system;
- the SDR basket should be *stable* in the sense that its composition should not change easily from one review to the next, while making needed changes without delay and on the basis of an agreed methodology; and
- there should be *continuity*, such that revisions to the method of SDR valuation occur only as a result of major changes in the roles of currencies in the world economy.

7. **The five-yearly Executive Board Decisions specify the initial weights of the currencies in the basket.** Specific currency amounts consistent with these weights are fixed on the date on which the decision becomes effective (Box 2). Subsequent daily valuations of the SDR are based on these fixed currency amounts. Movements in exchange rates, therefore, alter the relative weights of the component currencies, with appreciating currencies gaining a larger share in the value of the basket.[7]

8. **Since January 1, 1996, the date of effectiveness of the last SDR revision, the U.S. dollar—and to a lesser extent, the pound sterling, and the Japanese yen—have increased their shares in the basket, with corresponding declining shares for the deutsche mark and the French franc (and the share of euro after January 1, 1999) (Figure 1).** The weight of the U.S. dollar has risen from 39 percent to about 44 percent at present, while the combined weight of the deutsche mark and the French franc, or euro, has fallen from 32 percent to about 25 percent. Most of this decline occurred after the introduction of the euro, reflecting its depreciation against the other currencies in the basket.

9. **Reflecting the working of the standard basket method of valuation, the movements in the SDR in terms of the major currencies have been generally less pronounced than those of the bilateral rates of exchange for these same currencies against each other.**[8] Further, the day-to-day volatility of the SDR/U.S. dollar exchange rate

[7] This is one of the distinctive and desirable features of the "standard" basket (containing fixed currency amounts).

[8] This would not necessarily hold if SDR basket currencies belong to the same pegged exchange-rate system as was the case, for example, with the ERM currencies, or if one SDR basket currency served as a nominal anchor of another currency included in the basket.

**Box 2. SDR Valuation: Determination of Currency Amounts and Actual Daily Weights**

- **Currency amounts** are calculated on the last business day preceding the date the new basket becomes effective. On that day, currency amounts are derived from the weights decided by the Executive Board using the average exchange rate for each currency over the preceding three months. Currency amounts are adjusted proportionally to ensure that the value of the SDR is the same before and after the revision.

- The currency amounts remain fixed for the subsequent five-year period. As a result, the **actual weight** of each currency in the value of the SDR changes on a daily basis as a result of changes in exchange rates. As an example, the calculation of the SDR in terms of the U.S. dollar on May 31, 2000, and the corresponding weights, are shown below.

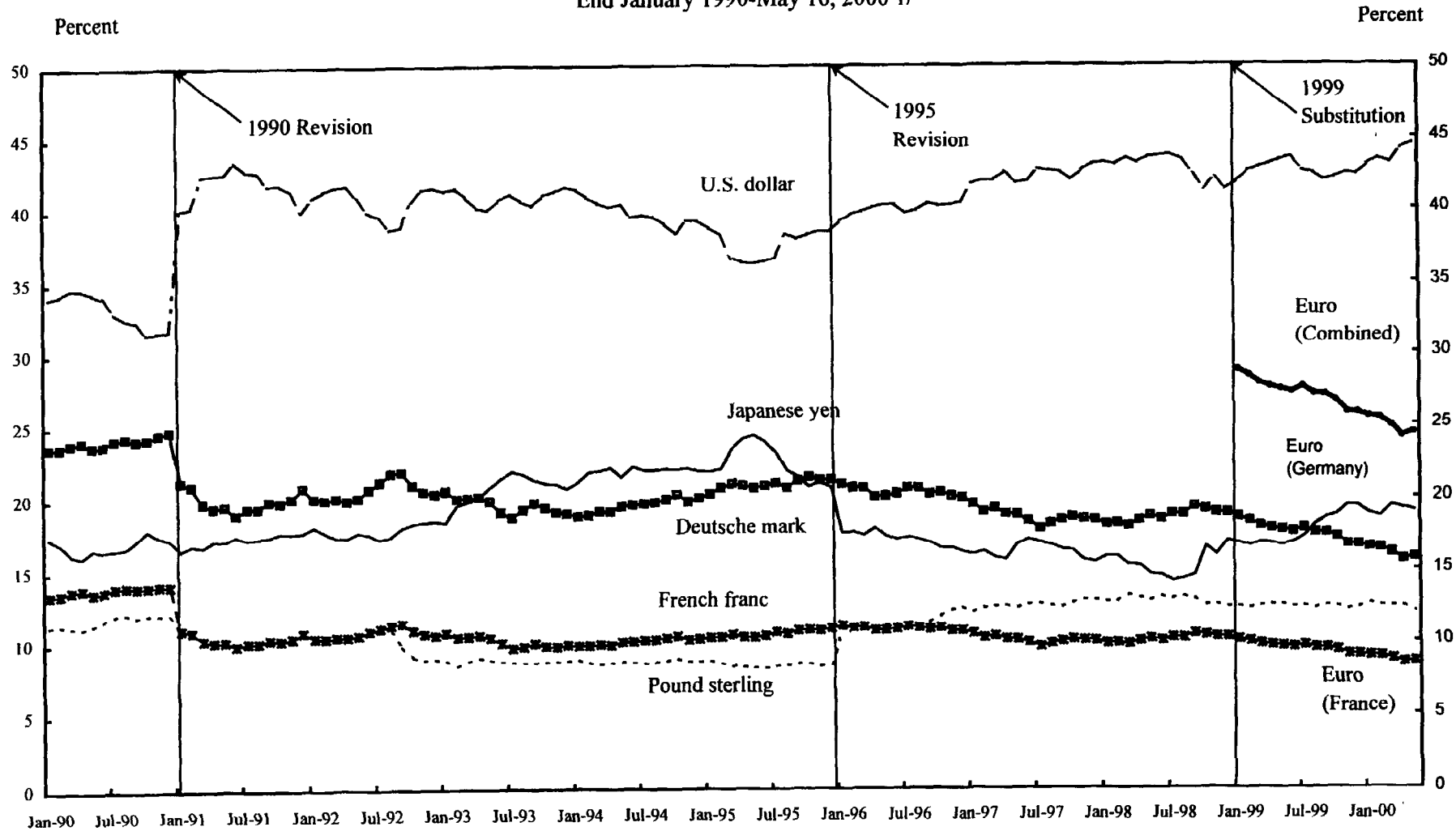
***SDR Valuation on May 31, 2000***

| Currency | Initial weight decided in 1995 | Currency amount under Rule 0-1 | Exchange rate 1/ 5/31/00 | U.S. dollar equivalent | Actual weight 5/31/00 |
|---|---|---|---|---|---|
| Euro (Germany) | 21 } 32 | 0.2280 | 0.9305 | 0.212154 | 16 } 25 |
| Euro (France) | 11 | 0.1239 | 0.9305 | 0.115289 | 9 |
| Japanese yen | 18 | 27.2000 | 107.29 | 0.253519 | 19 |
| Pounds sterling | 11 | 0.1050 | 1.4948 | 0.156954 | 12 |
| U. S. dollars | 39 | 0.5821 | 1.0000 | 0.582100 | 44 |
| SDR1 = US$ | | | | 1.32002 | 100 |

1/ Exchange rates in terms of currency units per U.S. dollar except for the euro and the pound sterling which are expressed as U.S. dollars per currency unit.

## Figure 1. Actual Currency Weights in SDR Basket

End January 1990-May 16, 2000 1/




1/ Except for January 1, 1991, 1996 and 1999.

has been significantly less than the volatility of its component currencies measured in terms of the dollar (Table 1).

### B. The Euro and SDR Valuation: A Conceptual and Operational Perspective

10. **The existence of the euro, a common currency for 11 major Fund members, calls into question the continued relevance of the member-based criteria for currency selection and weights implied in the 1980 Decision.**[9] The substitution of the euro for the deutsche mark and French franc in the 1998 Board Decision maintained the member-based methodology of SDR valuation, with the euro representing the domestic currency of both France and Germany. This interim solution, however, did not account for the euro as the domestic currency for nine other EU member states which adopted the single European currency.[10] In particular, the substitution does not take into account that the demand for euro as a reserve asset reflects the external and internal positions of the entire euro area, and not necessarily those of individual euro area countries. The demand for financial assets denominated in euro is determined by expectations of economic agents (including central banks outside the euro area) about the prospective development of exchange rates as well as inflation and interest rate differentials (and other fundamental variables) between the euro area and other key currency countries. In this context, the more relevant variables determining the demand for euro-denominated financial instruments are aggregates for the euro area as a whole (including the balance of payments position of the entire euro area), while country-specific developments (including in France and Germany) enter portfolio decisions to the degree that they contribute to the development of euro area aggregates.

11. **Also, from an operational point of view, the criteria of the 1980 Decision for determining currency weights would be difficult to apply in the presence of a common currency**. The 1980 Decision assumes that each of the major Fund members has a single national currency, i.e., that there is a one-to-one relationship between members and currencies. This assumed one-to-one relationship between members and currencies does not hold in the presence of a common currency:

- **The 1980 Decision does not specify how official reserves denominated in euro and held outside the euro area would be allocated to euro area members** (including to France and Germany) for the purposes of aggregating the balance of official reserves held by other members with the exports of members (paragraph 3(c) of the 1980 Decision). In

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[9] On June 19, 2000, the Council of the European Union in the composition of the Heads of State and Government approved the entry of Greece to Stage 3 of EMU effective January 1, 2001. According to ECB staff, data on exports of goods and services of the enlarged euro area (including Greece, but net of EU-12 intra-trade) are not expected to be available prior to Board consideration of the valuation of the SDR.

[10] During the transitional period between the substitution of the euro for the currencies of the participating members and the introduction of euro banknotes and coins, the national currency units are defined as sub-divisions of the euro. The definition establishes legal equivalence between the euro unit and the national currency units (EC Council Regulation on Certain Provisions Relating to the Introduction of the Euro, No. 974/98 of May 3, 1998, paragraph 8).

Table 1. Exchange Rate Volatility 1/

| | 1995 | 1996 | 1997 | 1998 | 1999 |
|---|---|---|---|---|---|
| SDR | 0.31 | 0.16 | 0.22 | 0.25 | 0.21 |
| Deutsche Mark | 0.55 | 0.33 | 0.47 | 0.42 | -- |
| Japanese Yen | 0.61 | 0.36 | 0.55 | 0.86 | 0.63 |
| French Franc | 0.47 | 0.30 | 0.46 | 0.42 | -- |
| Pound Sterling | 0.35 | 0.26 | 0.41 | 0.35 | 0.32 |
| Euro | -- | -- | -- | -- | 0.45 |

1/ Measured as the mean of absolute daily percentage change in spot exchange rates against the U.S. dollar, based on noon exchange rates in the London market.

principle, it would be possible to allow for an interpretation of the 1980 Decision to allocate 1999 euro reserves to France and Germany using, for example, the shares of the Bank of France and the Bundesbank in ECB capital.[11] Any method to apportion euro reserves held by monetary authorities outside the euro area to euro area countries, however, contains an arbitrary element, and may not accurately reflect the economic fundamentals of the individual euro area country.

- **Nor does the 1980 Decision deal with the issue of the relevant measure of exports of goods and services when two or more members share a single currency and a common central bank**. In the context of monetary unions with multiple member states, the relevant concept of the balance of payments is the flow between areas which have domestic currencies that are used as media of exchange, units of account, and stores of value. Therefore, in using exports of goods and services as a criterion for determining the selection of currencies and their weights, the relevant concept for the euro area should be that of the area as a whole, with intra-trade among member states netted out.

## III. Proposed Approach

### A. SDR Valuation Under a Currency-Based Approach

12. **In light of the conceptual and operational difficulties inherent in maintaining member-based criteria for currency selection and weights in the presence of the euro, it is proposed to shift to a currency-based approach to SDR valuation. Such a move to a currency-based approach to SDR valuation requires a review of the criteria for currency selection and the determination of currency weights.**

**Currency selection**

13. **The use of exports of goods and services as the sole criterion for currency selection dates back to the discussions prior to the Board decision in 1974 on the introduction of the first SDR basket.** At that time, the use of countries' shares in exports of goods and services was considered an appropriate and pragmatic way of striking the proper balance between two conflicting goals. On the one hand, there was a desire to have a sufficiently large number of currencies in the basket in order to avoid a situation in which any currency could exert an undue influence on the value of the SDR. On the other hand, there was a need to avoid operational difficulties resulting from the inclusion of currencies with very narrow and, therefore, potentially disruptive foreign exchange markets, which argued in favor of a smaller number of currencies in the basket. Accordingly, in 1974 it was agreed that the valuation of the SDR would be accomplished by setting its value equal to that

[11] An alternative would be to use the shares of France and Germany in total euro area GDP.

of the weighted sum of the currencies of 16 countries whose share in world exports of goods and services in the five year period 1968–72 exceeded 1 percent of the world total.[12]

14. **In 1980, the Executive Board decided to reduce the number of currencies in the SDR valuation basket from 16 to 5, effective January 1, 1981**. This decision reflected several interrelated factors. First, the decision aimed at enhancing the use of the SDR, including in private transactions, by simplifying its valuation. Second, it was considered essential to make the SDR valuation basket consistent with the SDR interest rate basket, which consisted of five financial instruments. Third, the decision aimed at "including the currencies of those members with well-developed foreign exchange and money markets, a requirement that was not met by a number of the currencies in the then 16-currency basket."[13] However, the Executive Board continued to use exports of goods and services as the criterion for selecting the five countries to be included in the basket, which included the issuers of the principal international currencies (U.S. dollar, Japanese yen, deutsche mark, French franc, and pound sterling).

15. **The staff's proposal to shift to a currency-based approach to SDR valuation, and the reduction in the number of currencies in the valuation basket from five to four resulting from the introduction of the euro, provide a natural juncture to reconsider the criteria used to select currencies**. A country's (or monetary union's) share of world exports is not necessarily a reliable indicator of the use of its currency in international transactions, nor an accurate gauge of the depth and breadth of its financial markets, especially in light of the rapid and widespread growth in capital markets over the past twenty years.[14] Also, the role of the SDR as a supplementary official reserve asset suggests that the selection according to exports of goods and services is a necessary, but not sufficient, condition to include a currency in the SDR basket. In these circumstances, the staff believe that it is

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[12] An additional argument for using countries' shares in world exports of goods and services raised during the discussions in 1973 and 1974 was that this approach would give the SDR stability in terms of its purchasing power as a reserve asset. The staff recognized, however, that this argument rested on a weak foundation "since no country could be expected to have an import composition that precisely matched the composition of the basket" (SM/73/253, revision 3, p. 5). Furthermore, the staff was also aware of the fact that this approach would protect a country "only from price changes in its imports owing to exchange rate changes, and not from price changes owing to inflation in the exporting countries." J. J. Polak also emphasized the following weakness of this approach: "The stability to be expected would imply that export prices in domestic currency would not respond to changes in exchange rates" (J. J. Polak (1979), *The SDR as a Basket of Currencies,* IMF Staff Papers, Vol. 26, No. 4, p. 635).

[13] See "Review of the Valuation of the SDR," SM/85/163 (6/7/85), p. 2. See also "Substitution Account—Choice of Number of Currencies in SDR Valuation and Interest Rate Baskets and Timing of Change," SM/80/60 (3/13/80), and EBM/80/54 (3/26/80).

[14] As an example, consider that the share of the United States in world exports of goods and services in 1998 was 14 percent while the share of the U.S. dollar in global daily foreign exchange market turnover was 87 percent (see Bank for International Settlements (1999), Central Bank Survey of Foreign Exchange and Derivatives Market Activity, Basle).

desirable to consider supplementary criteria for currency selection. The following two approaches are suggested for consideration.

16. **Under the first approach, the current selection criterion of exports of goods and services would be supplemented by the requirement that any currency included in the SDR basket also be determined by the Executive Board to be "freely usable" as provided in Article XXX(f)**. According to this Article, a currency can be determined as being "freely usable" if it (i) is, in fact, widely used to make payments for international transactions, and (ii) is widely traded in the principal exchange markets.[15]

17. **In 1977, the Executive Board considered a staff paper which proposed the following criteria for determining which currencies would be freely usable:**[16]

- the assessment of the use of a currency for international transactions should be based on the extent to which trade in goods and services is paid for in that currency, as well as on the relative volume of capital transactions denominated in that currency. Given the limited data availability, however, the staff suggested to use the shares in members' exports of goods and services and the currency denomination of official reserve holdings as the relevant indications of the degree to which a currency was widely used in international payments;

- the assessment of whether a currency is widely traded in the principal foreign exchange markets should be based on the volume of transactions, the existence of forward markets, and the spread between buying and selling quotations for transactions denominated in that currency. A sufficient depth and breadth of the respective foreign exchange market was considered as being necessary to ensure that a member country was able to sell or buy a sizable amount of the currency at any time without occurrence of an appreciable change in the exchange rate in the transaction.

Based on these criteria, the Executive Board determined in 1978 that the deutsche mark, French franc, Japanese yen, pound sterling, and the U.S. dollar were freely usable

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[15] In order to ensure that the Fund could use all currencies held in the General Resources Account, the concept of "freely usable currencies" was introduced under the Second Amendment of the Articles of Agreement in 1978 in order to clarify the key characteristics of currencies that were to be provided under members' obligation to exchange currencies in the context of Fund transactions. Fund members which issue a currency that has not been determined by the Fund to be freely usable are obligated under the Articles to exchange their currencies for currencies deemed by the Fund to be freely usable if requested by the purchasing member. Fund members that issue currencies determined by the Fund to be freely usable may either exchange their own currency for another freely usable currency required by a member for a Fund transaction in an official transaction, or they may request that the counterparty member directly effect the exchange on private markets. The Fund can add to or subtract from the specific list of currencies deemed to be freely usable should changing circumstances make these modifications necessary.

[16] See "Freely Usable Currencies," SM/77/273, Correction 1 (11/18/77), and EBM/77/172 (12/19/77).

currencies.[17] When the euro replaced the deutsche mark and the French franc in the SDR valuation basket on January 1, 1999, the number of freely usable currencies was effectively reduced from five to four.[18]

18. **The second approach would apply the same criteria for currency selection, exports of goods and services and reserves, as are used for the determination of currency weights in the SDR valuation basket.** A case could be made on the grounds that if both criteria reflect the relative importance of currencies in international transactions, it would be appropriate to use these same criteria for currency selection. Essentially, this approach would aim to include both the transactions motive and the asset motive in the demand for international currencies in the currency selection process.

19. **Both of the approaches to currency selection have desirable features**. While the concept of freely usable currencies was not explicitly mentioned in the Board Decisions on the valuation of the SDR, the considerations which underlie the concept of freely usable currencies have played an important role in the Board Decisions on the SDR valuation. As noted, the original Decisions on the composition of the basket sought to achieve a balance between representativeness and avoiding operational difficulties arising from inclusion of currencies with narrow, shallow markets. The 1980 Decision to reduce the number of currencies in the SDR valuation basket from 16 to 5 aimed at ensuring that the currencies included had broad and deep foreign exchange markets, which is a key element of the concept of a freely usable currency. The fact that the reduction in the number of currencies in the basket converged to those five which had previously been determined to be freely usable can be viewed as an implicit recognition by the Executive Board that the considerations relevant for determining whether a currency is freely usable are also relevant for determining which currencies should be selected for the valuation basket.

20. **The approach of supplementing exports of goods and services with holdings of foreign exchange reserves would ensure consistency between selection and weighting. By utilizing the same criteria for currency selection and currency weighting the approach provides transparency and is compatible with the role of the SDR as a reserve asset**. In current circumstances, this approach would result in the same composition of the SDR valuation basket as at present and under the proposed "freely usable" currency approach.

21. **In the view of the staff, however, using the concept of a freely usable currency as a criterion for currency selection is a preferable approach since, in addition to encompassing official reserves, it allows for the consideration of several other indicators of the breadth and depth of financial markets**. The reliance on a quantitative approach (with the sum of exports of goods and services and official reserves denominated in the respective currency being the sole basis for currency selection) would not necessarily assure

[17] Decision No. 5719-(78/46), adopted March 31, 1978.

[18] EBM/98/130, Decision No. 11857-(98/130), adopted December 17, 1998.

in the future that the currencies included in the valuation basket would be widely used.[19] A purely quantitative approach also would not guarantee the existence of a short-term interest rate instrument that is in conformance with the guidelines for the inclusion in the SDR interest rate basket, with possible implications for the rates of charge and remuneration which are based on the SDR interest rate.[20] Staff, therefore, believe it would be preferable to have the Executive Board exercise some discretion regarding the inclusion of currencies in the basket that could take account of available information on actual use in financial markets.

22. **In the view of the staff, the incorporation of freely usable currencies in the selection criteria would provide a logical extension of previous decisions by the Executive Board.** It would provide all of the advantages of the alternative approach based on exports of goods and services, supplemented with reserves, while avoiding the potential drawbacks embedded in the latter approach. **In light of the above considerations, the staff proposes that the Executive Board adopt a formal decision providing that the criteria for currency selection include, in addition to the requirement that the issuing country or monetary union must be among the largest exporters of goods and services, the requirement that the particular currency must be determined to be freely usable**.

**Determination of currency weights**

23. **With respect to the criteria for determining the currency weights in the SDR valuation basket, the Board deemed it necessary to deviate from a pure trade-based approach, even in 1974.** When determining the currency weights for the first SDR basket in 1974, the Board decided to increase the share of the U.S. dollar in order to reflect the fact that the share of the U.S. dollar in financial transactions was considerably larger than the U.S. share in world exports of goods and services.[21] The decision in 1978 to incorporate official reserves (in addition to exports of goods and services) into the determination of currency weights was intended to broaden the concept of representativeness of currencies in international transactions, by including financial transactions in the measure of representativeness.[22]

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[19] Consider the case where a country is a large exporter but has restrictions on the use of its currency. Such a situation pertained to several Fund members in the aftermath of World War II.

[20] In particular, the criterion that the selected financial instruments must reflect the actual reserve asset choice of reserve managers can be expected to be fulfilled only if the financial markets in the respective country are sufficiently broad and deep.

[21] On June 13, 1974 the Board decided to set the share of the U.S. dollar at 33 percent, about 50 percent higher than it would have been had the weights been determined exclusively on the basis of exports of goods and services.

[22] At the Executive Board meeting 78/46 of March 31, 1978 a decision was reached that, starting July 1, 1983, the share for each currency in the SDR would be based on two components, one reflecting exports of goods and services, and the other the amount of a member's currency held in the reserves of other members.

24. **Moving to a currency-based approach requires a redefinition of the economic variables used for currency selection (exports of goods and services) and the determination of currency weights (exports of goods and services and official reserves) so that the variables reflect the characteristics of currencies rather than members.**[23] In this context, exports of goods and services are those of Fund members or monetary unions, defined as areas with a single currency and common central bank.[24] In the case of monetary unions, exports would be defined to exclude intra-trade within the monetary union. Official reserves would be defined as those denominated in the selected currencies and held by monetary authorities outside the member country or the monetary union issuing the respective currency. The proposed approach would be implemented within the framework of the key principles of SDR valuation, thereby contributing to the continuity and stability of the SDR in terms of the major currencies.

25. **It could be considered whether the continued use of exports of goods and services as a criterion in currency selection and the determination of currency weights is appropriate since the value of exports is not necessarily an appropriate indicator of the international use of the particular currency in trade invoicing.** Therefore, an argument could be made that, within the currency-based approach, the relevant criterion for currency selection and the determination of currency weights should be the currency denomination of trade invoicing. This criterion would be analogous to the criterion of the currency denomination of official reserves. However, this approach would be difficult to implement in practice because data on the currency denomination of trade invoicing are not available for many member countries. In these circumstances, staff do not recommend at present to use the currency denomination of trade invoicing as a criterion for currency selection and the determination of currency weights.

26. **The inclusion of official reserves in determining currency weights remains appropriate as it reflects the evolved role of the SDR as a financial asset.** In practice, the SDR is mainly held by central banks to supplement reserve holdings. In this context, the most relevant comparator economic variable for the SDR is the composition of official reserves held by central banks and consideration could be given to basing currency weights solely on this variable. The exclusive use of official reserves in the determination of currency weights, however, would result in an SDR basket heavily dominated by the U.S. dollar. At the end of 1999, 64 percent of official reserves were held in U.S. dollars (Table 2). Sole

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[23] Consistent with past practice, the data include exports of goods and services as well as income credit (see SM/95/201, p. 10, footnote 1). Income credit includes interest receipts on international banking transactions on a gross basis, whereas international banking interest was included on a net basis in the 1990 and 1995 reviews of SDR valuation. The inclusion of international bank interest on a net basis is not feasible in the current review since the relevant data are not available for the euro area and it is necessary to treat the data for all currencies on a compatible and uniform basis.

[24] See G. Gandolfo, "Monetary Union," in P. Newman, M. Milgate, and J. Eatwell, eds., *The New Palgrave Dictionary of Money and Finance*, Vol. 2, MacMillan Press, London, 1992, pp. 765–70.

Table 2. Official Reserve Holdings of Currencies Included in the SDR Valuation Basket

| | Average 1980-84 | Average 1985-89 | Average 1990-94 | Average 1995-98 | End of Year 1995 | 1996 | 1997 | 1998 | 1999 |
|---|---|---|---|---|---|---|---|---|---|
| | | | | (In billions of SDRs) | | | | | |
| U.S. dollar | 185.0 | 232.4 | 326.3 | 633.8 | 494.8 | 616.0 | 703.0 | 721.2 | 800.1 |
| Deutsche mark | 34.5 | 58.7 | 91.1 | 131.0 | 117.3 | 131.4 | 143.0 | 132.4 | ... |
| Japanese yen | 12.6 | 28.4 | 48.6 | 59.7 | 58.8 | 61.8 | 59.8 | 58.3 | 61.1 |
| French franc | 3.5 | 3.7 | 15.0 | 16.3 | 19.2 | 17.7 | 14.5 | 13.9 | ... |
| Pound sterling | 7.1 | 10.0 | 18.7 | 36.1 | 27.3 | 34.7 | 40.5 | 42.0 | 48.0 |
| Euro | ... | ... | ... | ... | ... | ... | ... | ... | 150.9 |
| Total of SDR basket currencies | 242.7 | 333.2 | 499.7 | 876.9 | 717.4 | 861.5 | 960.8 | 967.9 | 1060.0 |
| | | | | (Percent shares of total foreign exchange holdings) | | | | | |
| U.S. dollar | 65.7 | 62.1 | 46.7 | 58.0 | 53.1 | 56.7 | 58.9 | 62.1 | 63.7 |
| Deutsche mark | 12.2 | 15.7 | 13.0 | 12.0 | 12.6 | 12.1 | 12.0 | 11.4 | ... |
| Japanese yen | 4.5 | 7.6 | 7.0 | 5.5 | 6.3 | 5.7 | 5.0 | 5.0 | 4.9 |
| French franc | 1.2 | 1.0 | 2.1 | 1.5 | 2.1 | 1.6 | 1.2 | 1.2 | ... |
| Pound sterling | 2.5 | 2.7 | 2.7 | 3.3 | 2.9 | 3.2 | 3.4 | 3.6 | 3.8 |
| Euro | ... | ... | ... | ... | ... | ... | ... | ... | 12.0 |
| All currencies (including unidentified currencies; in billions of U.S. dollars) | 281.7 | 374.1 | 698.3 | 1,093.0 | 931.6 | 1,085.6 | 1,193.4 | 1,161.4 | 1,255.8 |
| | | | | (Percent shares of total SDR basket currencies) | | | | | |
| U.S. dollar | 76.2 | 69.7 | 65.3 | 72.3 | 69.0 | 71.5 | 73.2 | 74.5 | 75.5 |
| Deutsche mark | 14.2 | 17.6 | 18.2 | 14.9 | 16.4 | 15.2 | 14.9 | 13.7 | ... |
| Japanese yen | 5.2 | 8.5 | 9.7 | 6.8 | 8.2 | 7.2 | 6.2 | 6.0 | 5.8 |
| French franc | 1.4 | 1.1 | 3.0 | 1.9 | 2.7 | 2.1 | 1.5 | 1.4 | ... |
| Pound sterling | 2.9 | 3.0 | 3.7 | 4.1 | 3.8 | 4.0 | 4.2 | 4.3 | 4.5 |
| Euro | ... | ... | ... | ... | ... | ... | ... | ... | 14.2 |

Source: IMF Annual Report, 1999, and Statistics Department.

reliance on official reserves would not only result in an undue influence of an individual currency on the value of the SDR, but would also lead to increased volatility of the SDR in terms of the other major currencies.[25] For this reason, it is proposed to maintain a combination of exports and reserves in determining the basket weights.

### B. Possible Inclusion of Supplementary Financial Sector Variables

27. The consideration of supplementary financial variables reflects the changing structure of the world economy, in particular the large increase in international capital flows vis-à-vis trade flows since the 1980s. Gross capital flows increased by over 1,200 percent between 1983–88 and 1989–94.[26] International capital flows have grown considerably faster than either the value of world trade or the domestic component of financial market activity.[27]

28. **This large increase in international financial flows is not reflected in the relative importance assigned to financial vis-à-vis trade flows in the current method of SDR valuation**. Under the current method, the annual exports of goods and services for the five members included in the basket is about three times the stock of other members' reserve holdings of their currencies, implying a weight of exports of goods and services in the calculation of the SDR value that is about three times that of official reserves. The relative magnitude of the two economic variables has tended to result in a small relative weight for the financial factor, as represented by the reserves variable. Moreover, the sharp rise in international financial flows in recent years in large part reflects private transactions, while the foreign reserve component of the SDR valuation basket reflects the decisions of official economic agents on reserve holdings.

29. **In previous reviews of SDR valuation under the current framework (1985, 1990, and 1995), the Executive Board considered introducing supplementary financial variables in determining the relative weights of component currencies in the SDR basket, but continued to endorse the calculation of relative weights based on shares of exports and international reserves holdings**.[28] The earlier reviews concluded that the supplementary financial variables tended to confirm the overall ranking of the relative importance of currencies based on trade and reserves alone. Illustrative calculations for the

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[25] Undue influence of a single currency would violate a long-standing principle of SDR valuation (see SM/76/120, p. 4).

[26] See Eichengreen, B., and Mussa, M. (1998), with G. Dell' Ariccia, E. Detragiache, G. M. Milesi-Ferretti, and A. Tweedie, *Capital Account Liberalization: Theoretical and Practical Aspects*, IMF Occasional Paper No. 172, International Monetary Fund, Washington, D.C.

[27] See Goldstein, M., and Mussa, M., *The Integration of World Capital Markets*, IMF WP/93/95, pp. 5–7.

[28] The indicators considered, included, *inter alia*, the turnover of currencies in the leading foreign exchange markets, the use of individual currencies in international capital markets, and the relative importance of currencies in the invoicing of international trade.

period 1995–99 (see Annex II) also tend to confirm that incorporating supplementary financial variables into the currency selection criteria would not change the composition of the SDR basket. The inclusion of supplementary financial variables would, however, have an impact on the currency weights. The degree to which the introduction of supplementary financial indicators would alter the currency shares in the SDR basket depends on the weight given to reserves and the supplementary financial variables, compared with that given to trade variables, as well as on the specific financial variables chosen.

30. **It is, however, questionable whether far-reaching changes in the method of SDR valuation—such as the introduction of supplementary financial variables—should be implemented before more comprehensive information on the international use of the euro is available**. The assessment of long-term trends, which is crucial for a review of SDR valuation, is complicated by the impact of one-off effects related to the introduction of the euro and several problems related to statistical coverage. For example, the compatibility of data on international bank lending and external bonds denominated in euros compared with the respective data for the euro's predecessor currencies is complicated by the need to cancel out intra-EU 11 financing flows. A similar arithmetic effect occurs with respect to holdings of euros in foreign exchange reserves, compared with holdings of its predecessor currencies. In addition, the availability of data on the international investment function of currencies is limited. For example, data provided by the Bank for International Settlements (BIS) do not differentiate between the international financing role of a currency and its use as an international investment currency. In this regard, the available evidence indicates that the development of the euro's external financing role proceeded considerably faster than the development of its role as an international investment currency, as a large part of euro-denominated debt securities issued by non-residents was absorbed by euro area residents.[29]

31. The intertemporal comparison of data for 1999 on debt securities denominated in euros with the corresponding data for the euro's predecessor currencies for 1998 is also complicated by the fact that some issuances appear to have been deliberately postponed in 1998 (in part, to take advantage of the expected lower interest rates on euro denominated instruments), making it considerably more difficult to determine to what degree the high volume of new issuances in 1999 reflected the emergence of a long-term trend. With respect to the role of the euro in foreign exchange markets, comprehensive evidence will not be available for some time as the next BIS tri-annual foreign exchange turnover survey is not due until 2001. **In sum, the availability of only limited data at present on the international use of the euro suggests that the incorporation of supplementary financial variables into the valuation of the SDR should be postponed until more complete data are available**.

32. **Moreover, the analytic case for incorporating supplementary financial sector variables in the criteria for determining currency weights in the SDR basket is not clear-cut**. A private market in SDR-denominated assets has not developed as originally

[29] See Detken, G. and Hartmann, P., (2000): *The Euro and International Capital Markets*, ECB Working Paper No. 19, April 2000.

envisaged. While in the early 1980s a small number of commercial banks were active in issuing and trading SDR-denominated assets, offering demand and term deposits denominated in SDRs and providing indicative interest-rate quotations for some short-term deposits, activity in this market has declined considerably since that time.[30] More fundamentally, the advantages of the SDR as a potential hedging instrument against exchange rate and interest rate risk became less important as the development of futures, options and swaps increasingly allowed investors to match asset and liability structures in the major currencies.[31] Furthermore, any determination of specific supplementary financial variables to include in the method of SDR valuation would arguably be arbitrary, given that the high speed of financial innovation makes it difficult to identify those variables which could be considered to appropriately reflect the international use of a currency on a long-term basis. In light of the above considerations, the staff does not propose the introduction of supplementary financial variables in determining currency weights at this time.

### C. Practical Implementation of the Currency-Based Approach for SDR Valuation

33. **The proposed shift to a currency-based method of SDR valuation would require a change in the criteria for currency selection and weights determination in the currently effective 1980 Decision on SDR valuation.** Other aspects of the 1980 Decision, including for rounding weights and currency amounts, would not be changed.

34. **The proposed change to the current methodology would result in an SDR valuation basket comprising the currencies of the four largest exporting Fund members or monetary unions, defined as areas with a single currency and common central bank, and which have been determined by the Fund to be freely usable currencies in accordance with Article XXX (f) of the Fund's Articles of Agreement.**[32] For the period 1995–99, the largest exports of goods and services of Fund members or monetary unions are those of the euro area, the United States, Japan, and the United Kingdom (Table 3), implying

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[30] See "The Future of the SDR as a Reserve Asset," EBS/93/89 (6/15/93).

[31] The apparent absence of markets for futures, options or swaps denominated in SDR implies that it is more difficult for investors in SDR-denominated assets to protect themselves against exchange rate risks than it is for investors in assets denominated in one of the major currencies. The absence of hedging instruments for the SDR is due to the virtual absence of a private spot market for the SDR. The existence of broad and liquid markets for futures, options or swaps denominated in one of the key currencies, however, indicates that the incentives for private economic agents to develop SDR-denominated instruments are limited.

[32] Consistent with the 1980 Decision, the period for determining the value of exports of goods and services (including income credit) is the five-year period ending 12 months before the effective date of a revision (i.e., 1995–99). For the euro area, data on exports of goods and services (including income credit) for the period 1997–99 are based on the ECB balance of payments statistics, while data for 1995–96 are ECB estimates.

Table 3. Exports of Goods and Services, 1995-99 [1/]
(Currency-Based Approach)

| | 1995 | 1996 | 1997 | 1998 | 1999 | Period Average 1995-99 |
|---|---|---|---|---|---|---|
| Largest Exporters | | | (In billions of SDRs) | | | |
| Euro area 2/ | 809.1 | 878.4 | 948.5 | 993.6 | 964.2 | 918.8 |
| United States | 663.0 | 740.1 | 870.0 | 878.9 | 902.5 | 810.9 |
| Japan | 452.5 | 477.4 | 509.2 | 476.3 | 477.6 | 478.6 |
| United Kingdom | 312.4 | 347.5 | 401.3 | 408.0 | 397.8 | 373.4 |
| China, P.R. 3/ | 170.9 | 196.5 | 237.9 | 225.4 | 234.7 | 213.1 |
| Canada | 157.1 | 174.9 | 197.4 | 199.8 | 218.6 | 189.6 |
| Singapore | 106.1 | 117.3 | 124.7 | 106.1 | 113.2 | 113.5 |
| Korea 5/ | 99.5 | 108.2 | 122.7 | 117.9 | 127.9 | 115.2 |
| Switzerland 4/ | 102.0 | 106.6 | 112.9 | 121.1 | 111.4 | 110.8 |
| Mexico | 61.3 | 76.4 | 91.8 | 99.1 | 112.3 | 88.2 |

Source: International Financial Statistics, IMF, and staff estimates.

1/ Including income credit.
2/ Source: European Central Bank Monthly Bulletin (July 2000); excluding transactions within the euro area; 1995-96 data are ECB estimates.
3/ China, including Hong Kong, SAR; excluding intra-trade. Intra-trade in goods as well as income credit and debit were netted out on the basis of regionally disaggregated data provided by the Hong Kong SAR authorities. Intra-trade in services was netted out by applying the ratio between the gross and net exports and imports of services during the period 1990-94 to the data on gross exports and imports during the period 1995-1999.
4/ Staff estimates for 1999.
5/ Data for 1999 from national authorities.

inclusion of the euro, U.S. dollar, Japanese yen, and pound sterling in the SDR basket.[33] The exports of goods and services of the fourth largest exporter during 1995–99 (United Kingdom) are substantially larger than those of the fifth largest exporter (China, including Hong Kong SAR). In the past, there has been a substantial gap between the exports of the countries included in the SDR basket and those of the next largest exporter. The gap reflects a natural break in the ranking of exporters, with the size of the gap implying that the list of currencies chosen as representative of those used in international transactions would tend to be stable over time.

35. **As for overall representativeness of global current account transactions, the four currencies in the SDR basket are those of Fund members or monetary unions with a combined share of about 42 percent of world exports during 1995–99**. Calculated on a comparable basis, the five countries in the SDR basket during the period 1990–94 had a combined shared of 43 percent of world exports.[34]

36. **The relative weights of component currencies would be determined by combining the value of exports (averaged over 1995–99) and official reserves held by monetary authorities outside the country or monetary union that issues the respective currency.** Data on foreign reserves denominated in euro pertain only to 1999. Accordingly, it is proposed to base the determination of the weights of all basket currencies in this review on one year of reserves data (for 1999) combined with the average value of exports over 1995–99 (since data on exports of the euro area to the rest of the world are available for 1995–99). On this basis, currency weights would be 44 percent for the U.S. dollar, with the euro holding a 29 percent share and the Japanese yen and pound sterling at 15 and 12 percent, respectively (Tables 4 and 5).[35] Relative to current actual weights, the share of euro would be higher, offset by a smaller share for the Japanese yen, while the shares of the U.S. dollar and the pound sterling would be little changed (Figure 2).

37. **Staff do not recommend combining the data on 1999 official euro reserves with reserves denominated in the currencies of EU-11 members and held outside of the euro area for 1995–98**. While it is unclear whether one-year of data on euro denominated reserves are indicative of longer-term trends, the euro cannot be considered as a simple replacement of its predecessor currencies, as the expected return on and the risk characteristics of reserves

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[33] Pursuant to Article XXX (f), and after consultation with the members concerned, the Fund determined that, effective January 1, 1999 and until further notice, the euro, Japanese yen, pound sterling, and U.S. dollar are freely usable currencies (EBM/98/130/2, Decision No. 11857-(98/130), adopted December 17, 1998).

[34] Shares in world exports of goods and services are calculated on the basis of WEO data, which exclude income credit.

[35] The share of euro would rise to 34 percent if the euro appreciated to $1.15 per euro, i.e., around its initial level in January 1999, assuming that the exchange rates of the Japanese yen and the pound sterling against the U.S. dollar remain unchanged. If the euro rose to $1.30 per euro, the euro's share in the SDR basket would be 37 percent.

Table 4. Basis for Determining the Weights of Currencies in the SDR Valuation Basket (Currency Based Approach)

| | Exports of Goods and Services 1/ (1995-99 average) | Official Holdings of Currency 2/ (End December 1999) | Total of Cols. (1) and (2) | Weights as Percentage of Totals in Col. (3) | Rounded Percentage Weight 3/ |
|---|---|---|---|---|---|
| | (1) | (2) | (3) | (4) | (5) |
| Currency | | (In billions of SDRs) | | | |
| U.S. dollar | 810.9 | 800.1 | 1,611.0 | 44.2 | 44 |
| Euro | 918.8 | 150.9 | 1,069.7 | 29.4 | 29 |
| Japanese yen | 478.6 | 61.1 | 539.6 | 14.8 | 15 |
| Pound sterling | 373.4 | 48.0 | 421.4 | 11.6 | 12 |
| Total | 2,581.6 | 1,060.0 | 3,641.7 | 100.0 | 100 |
| Relative weight, in percent | 70.9 | 29.1 | 100.0 | | |

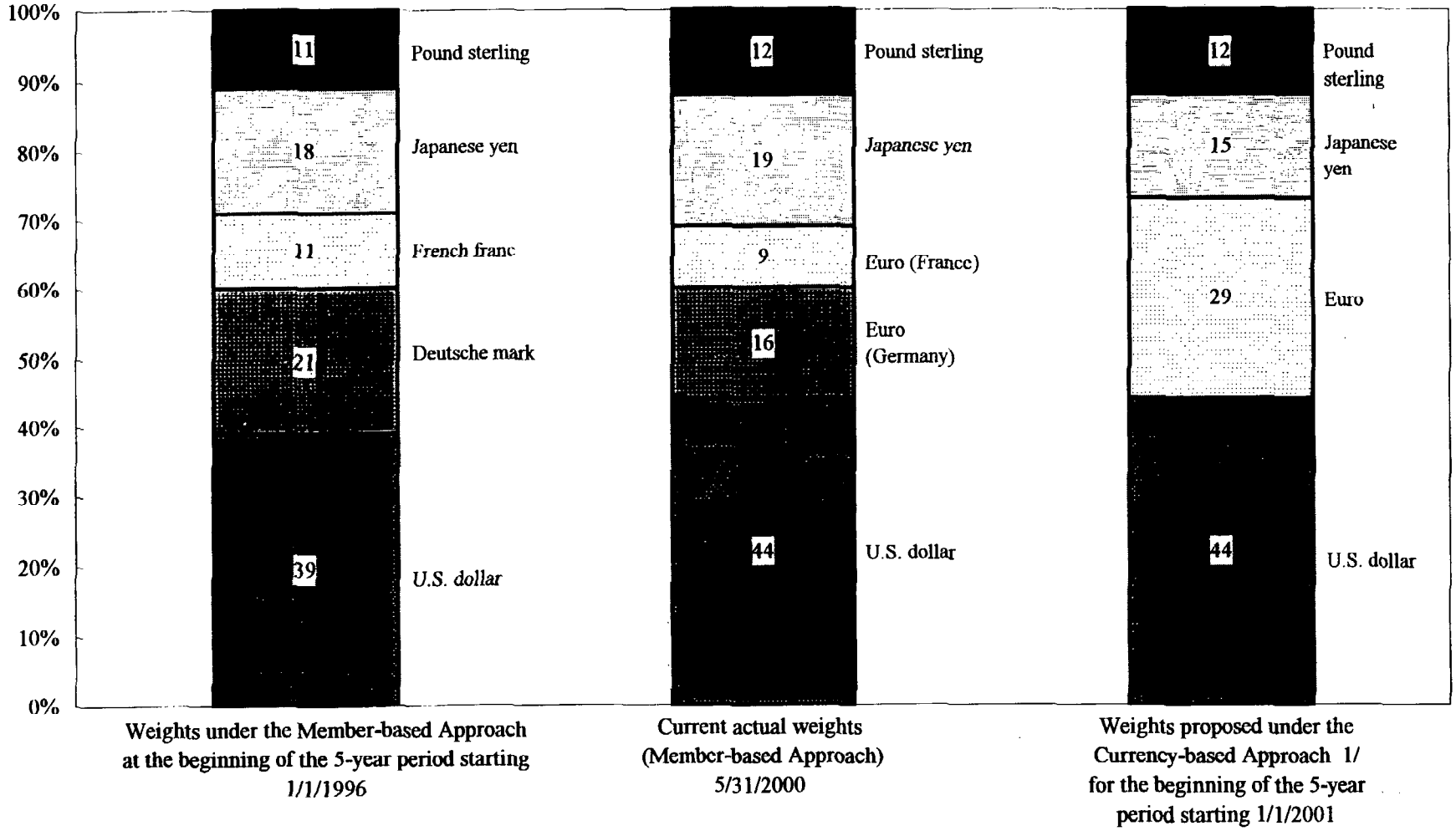
1/ Including income credits.
2/ Official reserves held by monetary authorities outside the country or monetary union that issues the respective currency. Official reserve data pertains only to 1999.
3/ To nearest percentage point.

Table 5. Historical SDR Weights

| | SDR Valuation Basket: Percentage Weights at Inception of Period | | | | | |
|---|---|---|---|---|---|---|
| | 1981-1985 | 1986-1990 | 1991-1995 | 1996-2000 | Current Actual (5/31/2000) | Proposed Currency-Based Approach 2001 - 2005 |
| U.S. dollar | 42 | 42 | 40 | 39 | 44 | 44 |
| Euro | ... | ... | ... | ... | 25 | 29 |
| Deutsche mark | 19 | 19 | 21 | 21 | 16 1/ | ... |
| French franc | 13 | 12 | 11 | 11 | 9 2/ | ... |
| Japanese yen | 13 | 15 | 17 | 18 | 19 | 15 |
| Pound sterling | 13 | 12 | 11 | 11 | 12 | 12 |

1/ Euro (Germany)
2/ Euro (France)

## Figure 2. SDR Basket: Currency Weights




Source: See Box 1 and Table 4.

1/ Based on data for exports of goods and services for 1995-99 and official reserves for 1999.

denominated in euro cannot be derived from the risk characteristics of reserves denominated in its predecessor currencies. The convergence of long-term interest rates in the euro area took place at a level which, instead of being a weighted average of EU-11 rates, was primarily determined by expectations about the future monetary policy of the ECB and the credibility of the new institutional framework of the euro area including, *inter alia*, the Stability and Growth Pact.[36]

38. **From an operational point of view, data on official reserves denominated in the euro's predecessor currencies held outside the euro area for 1995–98 are only available for three out of ten currencies (deutsche mark, French franc, and Netherlands guilder).**[37] Although these three currencies likely accounted for a very large share in total reserves denominated in the euro's predecessor currencies, any estimate of the exact share would involve some degree of arbitrariness and may not be an appropriate estimate to serve as a basis for calculating weights in the SDR valuation basket. In any case, calculating the weight of the euro based on reserves held in deutsche mark, French franc and Netherlands guilder held outside of the euro area for 1995–98 combined with euro reserves for 1999 would increase the weight of the euro in the SDR basket only slightly, to 30 percent, compared with 29 percent in the proposed currency-based approach.

39. **The main alternative to the proposed currency-based approach to SDR valuation would be to maintain the member-based system for an additional five years, while updating the weights of the four currencies currently included in the SDR valuation basket**. As pointed out in Section B, this alternative would necessitate an interpretation of the 1980 Decision to allocate 1999 reserves denominated in euros to France and Germany. The staff calculated the currency weights based on this interpretation, assuming that the capital shares of the Banque de France and the Bundesbank in the ECB capital would be used for the allocation of the 1999 reserves to France and Germany.[38] Updating the weights in this manner results in the same weights for both the U.S. dollar and pound sterling (44 percent and 12 percent, respectively) compared with the weights under the proposed currency-based approach. The weight of the euro would be 28 percent, only one percentage point lower than in the proposed approach. The lower share of the euro would be offset by an equivalent increase in the share for the Japanese yen (16 percent instead of 15 percent). Thus, updating the weights under the current member-based method of SDR

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[36] While the convergence of long-term interest rates started well ahead of the introduction of the euro, it closely followed market expectations about which countries would actually fulfill the convergence criteria of the Maastricht Treaty for entering stage 3 of EMU. At the same time, the convergence of short-term interest rates was complicated by the deviation of market exchange rates from the respective central parities in the ERM.

[37] In order to splice data on euro denominated reserves for 1999 with data on reserves denominated in the euro's predecessor currencies for the period 1995–98, reserves held by EU-11 monetary authorities have to be subtracted from the total of reserves denominated in these currencies.

[38] The resulting shares in euro denominated reserves were then added to official reserves denominated in deutsche mark and French franc, respectively, for the period 1995–98.

valuation results in nearly identical weights of component currencies as with the proposed currency-based approach. Against this background, staff believes that it would be preferable to adopt the currency-based valuation system which is more appropriate in the presence of common currency for a number of major Fund members.

## D. Proposed SDR Basket for 2001–05

### Rounding of relative weights of currency components

40. **The procedures in the 1980 Decision for rounding the relative weights of the currencies to be included in the SDR valuation basket, calculating the currency amounts, and moving from the present to the new basket, would remain unchanged**. Currency weights are to be rounded to the nearest one percent. New weights calculated on the basis of the specified criteria for 1995–99 are shown in Table 4 above in rounded and unrounded form. Thus, the weights would be: U.S. dollar, 44 percent; euro, 29 percent; Japanese yen, 15 percent; and pound sterling, 12 percent.

### Currency amounts

41. **At the time of the revision of the basket at the end of 2000, new currency amounts will be set consistent with the agreed percentage weights for component currencies, in line with current procedures (Annex III)**. Table 6 provides an illustrative calculation of the new currency amounts in the SDR basket that would come into effect on January 1, 2001, based on the rounded weights presented in Table 4 and using exchange rates during March–May 2000.

### Transition to a new SDR basket

42. **The transition from the present to the new basket will ensure that the new currency amounts will yield the same transactions value for the SDR in terms of the U.S. dollar on the basis of the old and new currency amounts in the basket on the last business day before January 1, 2001 (Box 3)**.

Table 6. Calculation of Illustrative Currency Amounts:
Revised SDR Valuation Basket

(Based on Rounded Percentage Weights and on March 1 to May 31, 2000 Average Exchange Rates)

| Current Basket | | | | Illustrative Basket Based on 1995-1999 Data | | | |
|---|---|---|---|---|---|---|---|
| Currency | Initial percentage weight | Actual percentage share, as of May 31, 2000 | Currency amount | Currency | Rounded percentage weight 1/ | Currency amounts 2/ | Percentage Change, in Currency Amount |
| U.S. dollar | 39 | 44 | 0.5821 | U.S. dollar | 44 | 0.581 | -0.2 |
| Euro (Germany) | 21 | 16 | 0.2280 | Euro | 29 | 0.415 | 17.9 |
| Japanese yen | 18 | 19 | 27.2000 | Japanese yen | 15 | 21.500 | -21.0 |
| Euro (France) | 11 | 9 | 0.1239 | Pound sterling | 12 | 0.102 | -2.9 |
| Pound sterling | 11 | 12 | 0.1050 | | | | |

1/ See Table 4, column (5).
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, 2000) to be used for revising the SDR basket's currency components, and (ii) the rounding procedures to be applied to the curreny amounts themselves. Annex III reproduces the procedure and formulas used for rounding the currency amounts when the new basket is determined.

**Box 3. Calculation of Currency Amounts**

The initial currency amounts in the new SDR valuation basket will be calculated using the new currency weights and the average exchange rates over the three-month period preceding January 1, 2001.[39] The currency amounts are to be expressed in two significant digits, 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 (see Annex III).

43. **For operational convenience it is appropriate to provide a sufficient period for 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 valuation and interest rate baskets that will take effect at the beginning of 2001**. Traditionally the Executive Board has taken its decision sometime prior to the date when the revised SDR valuation and interest baskets become effective on January 1, 2001.

## IV. SDR INTEREST RATE BASKET

44. **The determination of the SDR interest rate is also currently member-based, i.e., the instruments are those representative of markets in member countries**. Rule T-1(c) requires the specification of financial instruments issued in each of the five member countries whose currencies are included in the valuation basket, thus ensuring that the SDR interest rate basket is identical in composition to the valuation basket.[40]

45. **The Executive Board has also agreed on guidelines for selection of financial instruments in the SDR basket**:

- the financial instruments should 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; and

[39] See "SDR Valuation Basket—Calculation of the Currency Amount," SM/80/206, Sup. 3 (12/15/80) and Sup. 5 (12/22/80). See also Decision No. 8160-(85/186) G/S, adopted December 23, 1985.

[40] Rule T-1(c) is reproduced in Annex I.

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

46. **The 1998 Executive Board decision which substituted the euro for deutsche mark and French franc in the SDR basket also included the decision to maintain the existing five separate instruments in the SDR interest rate basket**; these are the market yield of the three-month treasury bills for France, the United Kingdom, and the United States, the three-month interbank deposit rate for Germany, and the three-month rate on certificates of deposit in Japan. The instruments for Germany and France are denominated in euro.

47. **Consistent with the shift to a currency-based approach to SDR valuation, it is proposed to include financial instruments in the SDR interest rate basket that are broadly representative of the range of financial instruments available to investors in a particular currency**.

48. **The choice of a financial instrument for the euro zone depends on the degree to which the rate is representative of rates in the relevant credit market as well as the suitability of the instrument for short-term official investments**. With regard to the former factor, the Euribor (Euro Interbank Offered Rate) has established itself as the benchmark reference rate in the unsecured money market in the euro area, replacing national interbank reference rates, including the former FIBOR (Frankfurt Interbank Offered Rate) and PIBOR (Paris Interbank Offered Rate).[41] The Euribor is based on quotes from a broad sample of some 57 banks from 15 countries, including several major banks with headquarters outside the euro zone.[42] Like the national rates which it replaced, Euribor serves as a benchmark for banks' lending operations, eurobonds, swaps, futures and other derivatives. Euribor rates of various maturities are collected, calculated and published by the European Banking Federation and the International Foreign Exchange Dealers Association (ACI) and are available on an immediate and simultaneous basis to all financial agencies.

49. **Regarding suitability for short-term official investments, Euribor is a reference rate, and not strictly a financial instrument, as specified in Rule T-1(c).** In this respect, the Euribor is not fully comparable with three of the instruments currently included in the SDR interest rate basket. The current SDR interest rate basket, however, already contains a reference rate, i.e., the German three-month interbank deposit rate. Both the Euribor and the

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[41]Euribor is the rate at which euro interbank term deposits are being offered within the EMU zone by one prime bank to another at 11:00 a.m. Brussels time ("the best price between the best banks"). It is quoted for spot value (two Target days) and on actual/360 day basis. In London, the Euribor is the dominant reference rate in many market segments, as indicated by the fact that the majority of future and swap contracts traded at Liffe are denominated in Euribor.

[42] Three U.S. banks, two Swiss banks, and one Japanese bank, each with branches in EMU countries, contribute to the Euribor.

German three-month interbank deposit rate are calculated as unweighted averages of rates reported by specified banks. The main difference in terms of calculation is that the German interbank deposit rate is the middle rate between bid and ask rates, while Euribor is an offer rate.

50. **As shown in Figure 3, the German instrument tracked the Euribor very closely during 1999** (the average positive differential in favor of the Euribor was only 2 basis points in 1999, reflecting the fact that Euribor is an offer rate while the German rate is a middle rate). At the same time, both the German rate and Euribor have been higher than the French instrument (see Figure 3), reflecting a lower risk premium incorporated in the interest rate on French three-month treasury bills, which are government paper.

51. **Interest rates on prime quality private instruments typically exhibit a risk premium over government paper of similar maturity, as evidenced in the United States, the United Kingdom, and France, where rates on government paper are used in the SDR interest rate basket (Figure 4)**. Toward the end of 1999, the premium of private over government paper of three-month maturity rose, reflecting a Y2K premium that disappeared after the beginning of the new millennium.

52. **Reflecting the risk premium, prime quality private instruments do not fully meet the guidelines for selected instruments in the SDR interest rate basket**. While they are representative of the range of financial instruments available to investors and are responsive to changes in underlying credit conditions in the respective money market, they do not have risk characteristics similar to the official standing of the SDR, i.e., the risk profiles of the private instruments are not fully comparable to those of government paper available in the market.

53. **In the euro area, however, the market for government treasury bills is still highly segmented, suggesting that there is no single instrument that could be considered as being representative for the euro area as a whole.** Currently, eight euro area countries issue zero coupon treasury bills, while only France and Italy regularly issue straight three-month treasury bills, i.e., bills with a term to maturity of three months at the time of issuance.[43] Furthermore, yields on treasury bills issued by euro area governments vary considerably from country to country, reflecting heterogenous liquidity premiums due to differences in the size of issues, differences in credit risk, and different terms to maturity.

54. **It will be recalled that, at the time of the September 1998 Board Meeting, a number of Directors, including those of EU-11 members, supported the inclusion of Euribor in the SDR interest rate basket, on the grounds that the instruments of national governments could not be regarded as representative of the euro area as a whole.**[44] Such a decision would correspond to the condition that any private instruments incorporated into

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[43] The countries issuing zero coupon treasury bills are Austria, Belgium, Finland, France, Germany, Italy, the Netherlands, and Spain.

[44] The proposal, however, did not receive the required 70 percent support.

**Figure 3. Daily Interest Rates**

January 1, 1999 to May 12, 2000

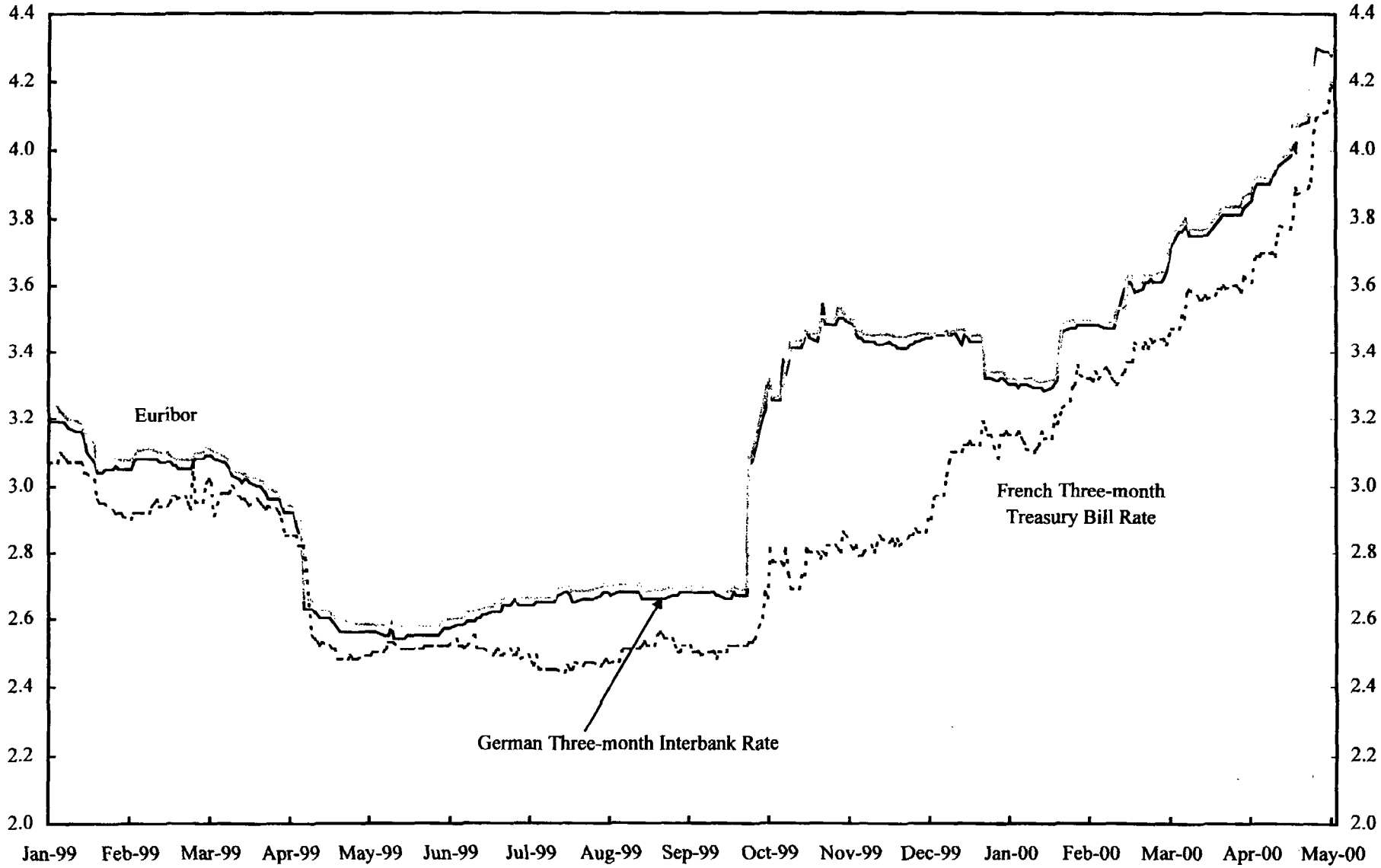
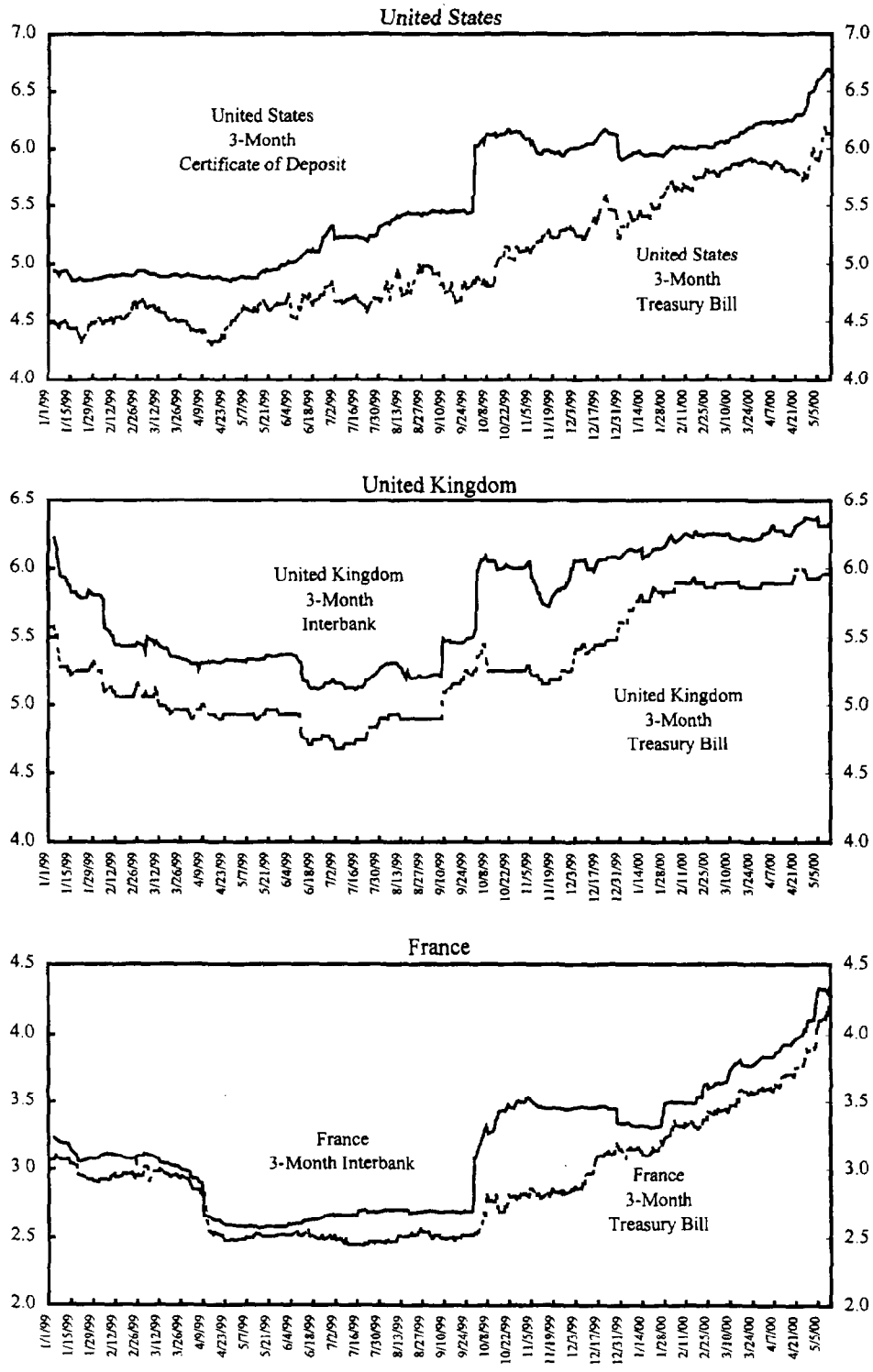


Figure 4. Interest Rates on Short-term Private and Government Paper in the United States, United Kingdom, and France
January 1, 1999 - May 12, 2000



the SDR interest rate basket must be comparable to the credit risk on prime financial instruments and reflect the actual asset choice of reserve managers.

55. With respect to the euro area, **the European Central Bank considers that the three-month Euribor is the most appropriate rate for inclusion in the SDR interest rate basket, and the staff concurs with this assessment, particularly in light of the absence of a homogenous government treasury bill market for the euro area as a whole.**[45] With regard to the other financial instruments in the SDR basket, the authorities in the United Kingdom and in the United States consider that the respective market rates for three-month treasury bills continue to be the most appropriate rate for inclusion in the SDR interest rate basket. The staff also concurs with these assessments.

56. **The Japanese authorities consider it appropriate to substitute the thirteen-week government financing bill for the three-month rate on certificates of deposits which is currently included in the SDR interest basket.** The historical reason for using the three-month rate on certificates of deposit was the absence of an appropriate sovereign bond that could be used for calculating the SDR interest rate. In 1990, for example, the market for the (public) thirteen-week financing bills was considerably less liquid than the market for (private) certificates of deposit with a maturity of three months.[46]

57. **Since April 1999, however, the market for thirteen-week financing bills in Japan has grown rapidly.**[47] *On the supply side*, the Japanese Ministry of Finance has expanded issuance substantially to help finance the fiscal deficit. Concurrently, the Ministry of Finance aimed at shortening the average maturity of government debt in order to take advantage of the low interest rates at the shorter end of the yield curve. *On the demand side*, prior to April 1999 the Bank of Japan purchased all financing bills issued by the Finance Ministry. Since April 1999, however, the Ministry has auctioned financing bills to a range of investors, and since April of this year the Bank of Japan has not bought any financing bills, leaving the

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[45] The French and the German authorities consider that the respective national interest rate instruments continue to be appropriate for inclusion in the SDR interest rate basket. A currency-based approach to the valuation of the SDR, however, is not consistent with the use of interest rate instruments that are only representative of the interbank market in a particular region within the monetary union (e.g., German three-month interbank deposit rate) or of one segment of the euro area Treasury bill market (e.g., French three-month Treasury bill rate). Moreover, the guidelines agreed by the Executive Board for the selection of financial instruments to be included in the SDR basket require that these instruments should be broadly representative of the range of financial instruments that are actually available to investors *in a particular currency,* not in a particular member country.

[46] At that time, the trading volume of thirteen-week financing bills reached ¥473 trillion (with an outstanding stock of ¥1 trillion), while the trading volume of certificates of deposit with a maturity of three months was ¥993 trillion (with an outstanding stock of ¥20 trillion).

[47] While the Japanese Ministry of Finance also issues three-month treasury bills, that market is illiquid in comparison with either the market for financing bills and certificates of deposit, since treasury bills are mostly held to maturity. All other short-term instruments are even less representative and responsive to market conditions than any of these three types of instruments.

entire amount issued for other investors. By contrast, issuance of three-month certificates of deposit has fallen sharply. With interest rates close to zero in the overnight market, borrowers can borrow as much as they need in that market. Not until borrowers see the real prospect of the near-zero rate policy being abandoned in the next few months will they have the incentive to issue longer term instruments. In addition, the demand for certificates of deposit has fallen as this market has become increasingly illiquid. As a result, issuance and trading volumes of financing bills have now surpassed those of certificates of deposit, and, since the beginning of this year, the yields on financing bills have become the new benchmark interest rates in the Japanese money market, replacing the rates on certificates of deposit.

58. **It is expected that the growth in the market for thirteen-week financing bills will continue.** The Japanese government is committed to the further development of this market, which is likely to continue to offer an attractive means to finance the fiscal deficit for some time to come. Moreover, the government is committed to increasing the share of short-term financing within the overall stock of public debt. Given the speed with which investors have embraced the market for financing bills, it can be expected that the demand for financing bills will continue to be strong across a range of investor classes. It should be noted, however, that the recent strong growth of issuance in the financing bill market partly reflects the Bank of Japan's near-zero interest rate policy. Given the low level of issuance of certificates of deposit, investors seeking thirteen-week instruments have had little choice but to invest in financing bills, even if they were willing to accept a less-than-sovereign risk profile. Once the near-zero interest rate policy has been abandoned, issuance of certificates of deposit are likely to rise, and some investors will be attracted back into that market by the higher yields on offer. Over the medium term, therefore, it cannot be ruled out that the market for thirteen-week financing bills will decrease slightly. While the staff will continue to monitor developments in the Japanese money market closely, if there is any decline in the size of the market for financing bills within the coming five years, it is likely to be moderate, implying that with respect to market liquidity there are no reasons to doubt the appropriateness of the inclusion of the thirteen-week financing bill in the SDR interest rate basket.

59. **Against this background, the staff concurs with the Japanese authorities that the thirteen-week financing bill is now preferable to certificates of deposit for inclusion in the SDR interest rate basket for the following reasons:** First, financing bills are government obligations and, therefore, have risk characteristics that are similar to that of the SDR. Second, because of the reduced supply of and demand for certificates of deposit, financing bills are now more representative of the range of instruments available to investors than are certificates of deposit. Third, certificates of deposit are less directly responsive to changes in credit conditions due to lower liquidity.

60. **The new interest rate basket for the SDR would include one private sector rate (the Euribor) and three public sector rates (yields on three-month treasury bills in the United States and the United Kingdom and the thirteen-week financing bill in Japan).** The inclusion of the Euribor would have led to a slight upward shift of the SDR interest rate compared to the official SDR interest rate during 1999. This upward shift, however, would have been partially compensated by the substitution of the thirteen-week financing bill for

the three-month rate on certificates of deposits in Japan (Figure 5). The simulated SDR interest rate (including the Euribor and the Japanese thirteen-week financing bill) calculated for 1999 is about 2 basis points higher than the official SDR interest rate, on average (Figure 6).

## V. Timing of the Next Review of the Valuation of the SDR

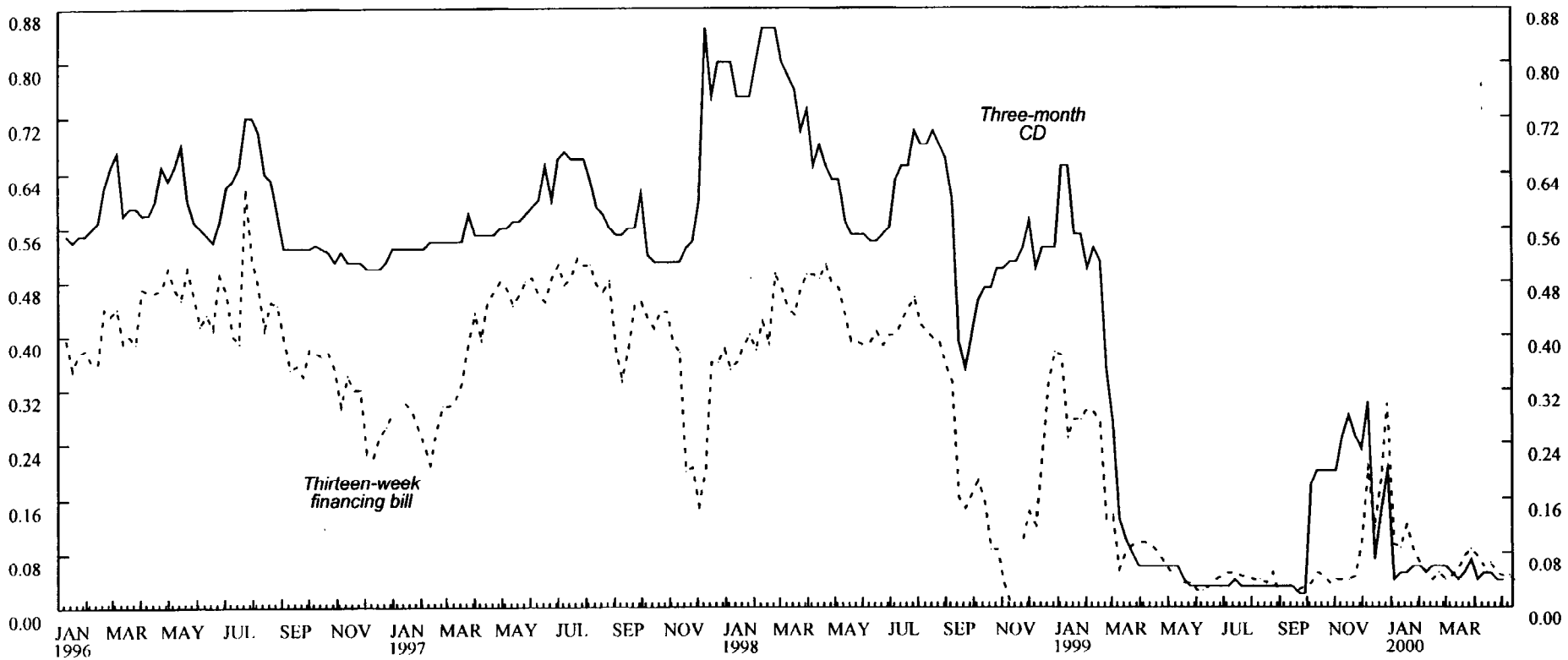
61. **It is proposed that the next revision of the SDR valuation basket take place in 2005, with any changes to become effective January 1, 2006.** Thus, there would be no change in the 1980 Decision with respect to the five-year frequency for reviewing the SDR valuation basket and adjusting weights as necessary. The regular frequency, with a significant period of stability between reviews, has provided certainty and predictability to the benefit of users of the SDR and SDR-denominated assets.

62. **It is proposed, however, to allow for an earlier review if warranted by developments in the international monetary system that affect SDR valuation, including, for example, the adoption by the United Kingdom of the euro.** With respect to the valuation of the SDR, participation of the United Kingdom in stage 3 of EMU cannot be treated by simple substitution, as was the case for France and Germany in 1998. In that context, replacement of the deutsche mark and the French franc by the euro in the SDR basket on the basis of Germany's and France's trade weights resulted in an initial weight for the euro that was considered closely reflective of the importance of the euro in international trade. At that time, the automatic replacement of the euro for French franc and deutsche mark was based in part on the fact that gross exports of France and Germany and net exports of the euro area as a whole (net of intra-EMU trade) yielded identical export-based weights for the euro, as the enlargement of the export base to 11 countries was exactly offset by the netting out of intra-EMU trade. The addition of U.K. exports to the rest of the world to EU-11 exports to the rest of the world would almost entirely be offset by the necessary netting-out of intra-trade between the United Kingdom and the EU-11. Given the high share of exports to and imports from the euro area in the United Kingdom's total trade, netting-out of intra-trade would increase the euro area's exports to the rest of the world by only 5 percent. This would imply that the share of the euro in the resulting three-currency basket would be 34 percent, compared with a weight of 41 percent in the case of automatic substitution.[48]

[48]This calculation is based on regionally disaggregated data on export of goods and services, including income credit, from the Office for National Statistics (ONS) in the United Kingdom, which are not yet available for 1999.

Figure 5. Japan: Three-Month CD versus Thirteen-Week Financing Bill

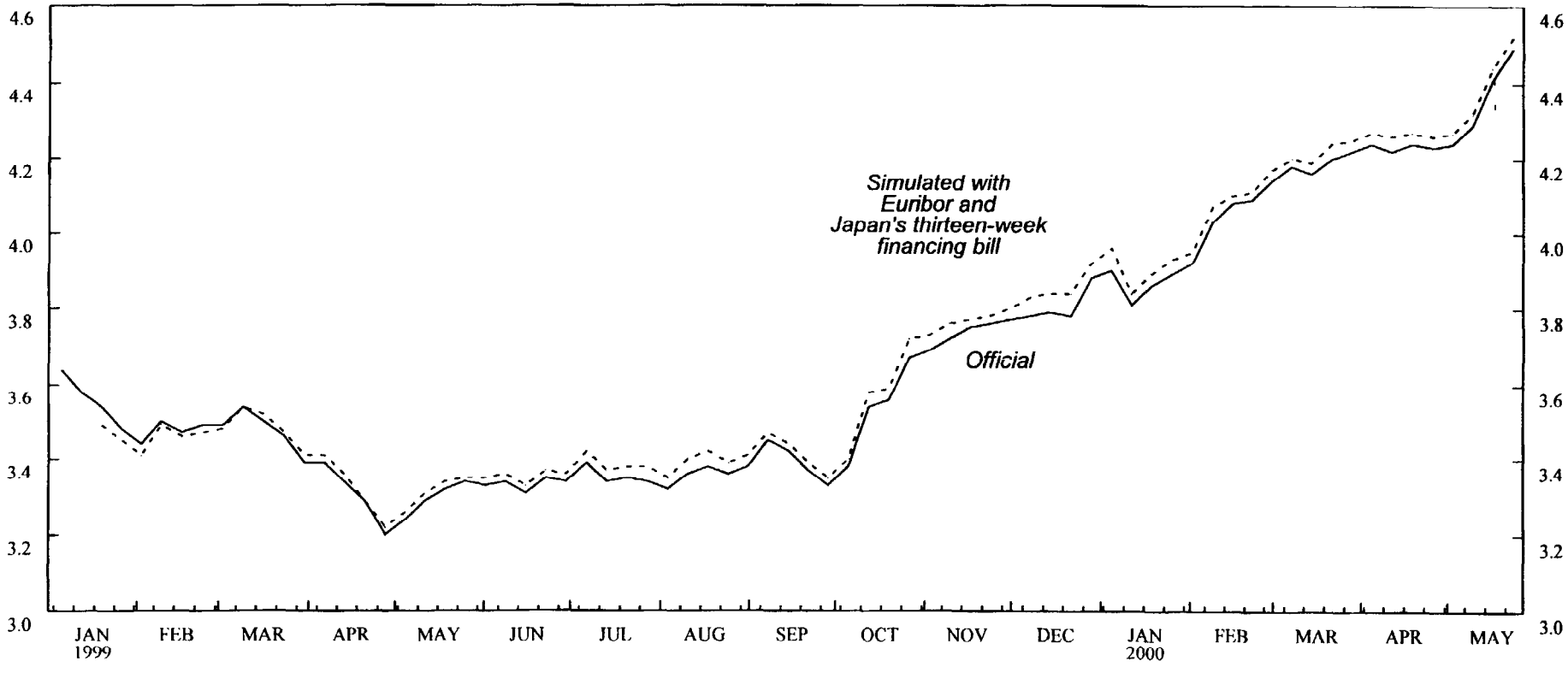
Weekly (Friday) Data: January 3, 1996 to May 12, 2000




Sources: IMF, Treasurer's Department RATES database and Bloomberg (code:GJFB3MO).

# Figure 6. SDR Interest Rates: Official versus Simulated Using Euribor and Japan's Thirteen-Week Financing Bill

Weekly (Friday) Data: January 8, 1999 to May 26, 2000




Sources: IMF, Treasurer's Department RATES database and Bloomberg (code:GJFB3MO).

## PROPOSED DECISIONS

**The following decisions are proposed for adoption by the Executive Board. Decision 1 and Decision 2 require a 70-percent majority of the total voting power, while Decision 3 requires a simple majority of the total voting power.**

### Decision 1

1. The value of the special drawing right shall be determined on the basis of the four currencies issued by Fund members, or by monetary unions that include Fund members ("monetary unions"), whose exports of goods and services during the five-year period ending 12 months before the effective date of this decision or any subsequent revision had the largest value, and which have been determined by the Fund to be freely usable currencies in accordance with Article XXX(f) of the Fund's Articles of Agreement. In the case of a monetary union, the determination of the values of exports of goods and services of the union shall exclude the trade of goods and services among members that are part of the union.

2. The percentage weights of each of the currencies selected in accordance with paragraph 1 above shall reflect (i) the value of the balances of that currency held at the end of 1999, and thereafter at the end of each year of the relevant five-year period referred to in paragraph 1 above, by the monetary authorities of other members or, in the case of the currency of a monetary union, by the monetary authorities of members other than those forming part of the monetary union, and (ii) the value of exports of goods and services, as defined in paragraph 1 above, of the members or monetary unions issuing the currencies over the relevant five-year period referred to in paragraph 1 above.

3. In accordance with the principles set forth in paragraphs 1 and 2 above, effective January 1, 2001, the value of one special drawing right shall be the sum of the values of specified amounts of the four currencies listed below. These amounts shall be determined on December 31, 2000 in a manner that will ensure that, at the average exchange rates for the three-month period ending on that date, the shares of each of the four currencies in the value of the special drawing right correspond to the weights specified below.

| **Currency** | **Weight** (*in percent*) |
|---|---|
| U.S. dollar | 44 |
| Euro | 29 |
| Japanese Yen | 15 |
| Pound Sterling | 12 |

4. 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, 2006 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 determined in accordance with paragraph 1 above, 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 member or of members of a monetary union, whose

currency is not included in the list, during the relevant period exceeds that of the member or the monetary union issuing the currency included in the list by at least 1 percent.

(b) The amount of the four 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 be established in accordance with the principles set forth in paragraph 2 above, in a manner that would maintain broadly the relative significance of the factors that underlie the percentage weights in paragraph 3 above. The percentage weights shall be rounded to the nearest 1 percent or as may be convenient.

5. The determination of the amounts of the currencies in accordance with 3 and 4 above shall be made in a manner that will ensure that the value of the special drawing right in term 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 2**

Effective January 1, 2001, Rule T-1(c) shall be amended by deleting the list of yields and rates and replacing it with the following list:

| | |
|---|---|
| U.S. dollar | Market yield for the three-month U.S. Treasury bills |
| Euro | Three-month Euro Interbank Offered Rate (Euribor) |
| Japanese Yen | Thirteen-week Japanese Government financing bills |
| Pound Sterling | Market yield for three-month U.K. Treasury bills |

**Decision 3**

Effective January 1, 2001, paragraph 2 of Decision No. 8160-(85/186) G/S, adopted December 23, 1989, on the Guidelines for the Calculation of the Currency Amounts for purposes of the SDR Valuation Basket shall be amended by deleting the reference to "paragraph 3 (c) of Executive Board Decision No. 6631-(80/145) adopted September 17, 1980" and replacing it with the following: "paragraph 4 (c) of Executive Board No. ....-(2000/...) adopted ....."

## KEY DECISIONS ON SDR VALUATION AND THE SDR INTEREST RATE

### I. METHOD OF VALUATION

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:

| **Currency** | **Weight** *(in percent)* |
|---|---|
| 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 1 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*

5. The Executive Board, having reviewed the list of the currencies and the weights of these currencies that determine the value of the special drawing right, in accordance with Decision No. 6631-(80/145) G/S, adopted September 17, 1980, decides that, with effect from January 1, 1996, the list of the currencies in the SDR valuation basket shall remain the same, and the weight of each of these currencies to be used to calculate the amount of each of these currencies in the basket will be as follows:

| **Currency** | **Weight** *(in percent)* |
|---|---|
| U.S. dollar | 39 |
| Deutsche mark | 21 |
| Japanese yen | 18 |
| French franc | 11 |
| Pound sterling | 11 |

*Decision No. 11073-(95/92) G/S*
*September 25, 1995*

6. With effect on January 1, 1999, references in Decision No. 11073-(95/92) G/S, September 25, 1995 to the deutsche mark and the French franc shall be replaced by references to the euro as the currency of France and Germany, respectively.

*Decision No. 11801-(98/101) G/S*
*September 21, 1998*

## II. SDR VALUATION BASKET—GUIDELINES FOR THE CALCULATION OF CURRENCY AMOUNTS

7. 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.

8. 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.

9. 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.

10. 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*

## III. SDR VALUATION BASKET—GUIDELINES FOR THE CONVERSION INTO CURRENCY AMOUNTS OF EURO OF THE CURRENCY AMOUNTS OF DEUTSCHE MARK AND FRENCH FRANC

11. The Fund notes that with the introduction of the euro on January 1, 1999, the currency amounts of the deutsche mark and the French franc in the SDR valuation basket will be automatically replaced by the euro as the currency of Germany and France respectively, and decides that such conversion shall be made in accordance with the principles set out in the guidelines for the calculation of the currency amounts in the SDR valuation basket established by Decision No. 8160-(85/186) G/S, adopted December 23, 1985.

*Decision No. 11803-(98/101) G/S*
*September 21, 1998*

## IV. SDR INTEREST RATE BASKET

12. Rule T-1(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 O-1, as determined pursuant to Rule O-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 |

*By-Laws, Rules and Regulations*
*Fifty Second Issue, January 8, 1997.*
*Paragraph (c) amended April 22, 1981, effective May 1, 1981, and October 5, 1990, effective January 1, 1991.*

## INCORPORATING SUPPLEMENTARY FINANCIAL SECTOR VARIABLES IN THE VALUATION OF THE SDR

***Summary: While the inclusion of supplementary financial sector variables would not change the selection of currencies to be included in the SDR basket, it would change the currency weights. The impact would, however, depend on the method used for combining data on exports of goods and services with official reserves and the selected supplementary financial sector variables, and second, on the decision as to which specific supplementary financial variables to include.***

1. Under the current method of SDR valuation, the selection of currencies to be included in the SDR basket is exclusively based on exports of goods and services, and the determination of currency weights is based on the relative shares of the sum of exports of goods and services and official reserves. The relative magnitude of these two economic variables has tended to result in a small weight for the financial factor, represented by the reserves variable. In recent reviews of the SDR valuation basket, the current method of valuation has produced a weight of exports of goods and services that is about three times that of reserves. Therefore, the marked increase in international financial flows has not been accounted for in the SDR basket. The rise in these flows in large part reflect private transactions, while the foreign reserve component of the SDR valuation basket solely reflects the decisions of official economic agents on reserve holdings, raising the question as to whether the current method of SDR valuation continues to ensure that the currencies included in the SDR basket, as well as their relative weights, are adequately representative of international transactions.

2. The inclusion of supplementary financial sector variables would not change the selection of currencies to be included in the SDR basket, compared to the current method, since the four largest exporters of goods and services also issue the four currencies most widely used in international financial transactions.[49] Moreover, the outcome would not depend on the decision as to which specific financial variables should be used for currency selection, because all of the relevant variables confirm that the U.S. dollar, the euro, the Japanese yen, and the pound sterling are the four most widely used currencies in international financial transactions.

3. The impact of supplementary financial variables on currency weights in the SDR basket would depend, *first*, on the method used for combining data on exports of goods and services with official reserves and the selected supplementary financial sector variables, and *second*, on the decision as to which specific supplementary financial variables to include.

[49] Another issue is whether it might be appropriate to use the same combination of exports and financial variables for determining both currency selection and currency weights.

4. The data to be used as supplementary financial variables for determining currency weights would have to be reliable, consistent and impartial. For example, in spite of the changes which are currently taking place, the euro area's financial structure could still be considered as being bank-oriented, while the financial system in the United States could be characterized as having a security-based structure. The choice of financial variables for determining weights in the SDR currency basket would have to reflect such differences in financial structure in order to avoid distortions.

5. The selection of specific financial variables is limited by the range of available statistical information. For example, while it could be considered as being appropriate to include the share of the SDR basket currencies in foreign exchange market turnover, comprehensive information will be unavailable for some time as the next BIS tri-annual foreign exchange turnover survey is not due until 2001. Among the available measures of the importance of currencies for international financial transactions, the data provided by the Bank for International Settlements (BIS) are the most comprehensive.[50] For the purpose of providing illustrative calculations, external bonds and notes and outstanding stocks of external bank liabilities have been chosen (see Table 1).[51]

6. A decision to introduce supplementary financial variables would necessitate determining a method for combining these data with data on exports of goods and services and official reserves. Extending the current methodology of simply adding absolute values (exports of goods and services plus reserves) to financial sector variables would tend to decrease significantly the role of the former, given the considerably larger absolute size of the latter. A potential solution to this problem would be to fix the relative shares of trade and financial sector variables (reserves and supplementary financial variables). For the purpose of this annex, two scenarios are considered. *In the first scenario*, the weight of exports of goods and services is fixed at 50 percent and the weight of official reserves and that of the sum of the two supplementary financial variables is fixed at 25 percent, respectively. The illustrative calculations, however, do not fix the weights of the two supplementary financial variables relative to each other. *In the second scenario*, the weights of all three components (exports of goods and services, official reserves, and the sum of the two supplementary financial variables) are fixed at 33.3 percent, respectively.

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[50] Even the data set provided by the BIS, however, covers only reporting banks and does not include all Fund members.

[51] In order to allow for consistency with the data on official reserve holdings, which are only available for 1999, the illustrative calculations are based only on data for 1999. Data on external bonds and notes exclude "home currency issuers." Data on external bank liabilities comprise liabilities in domestic and foreign currency. With respect to the euro area, domestic currency liabilities exclude transactions within the euro area (see footnote 2 in Table 1, Annex II).

Annex II

## Table 1. External Bank Liabilities and Bonds and Notes

| | 1995 | 1996 | 1997 | 1998 | 1999 | 1995-99 Average |
|---|---|---|---|---|---|---|
| **External bank liabilities 1/ 2/** | | | | | | |
| | (In percent) | | | | | |
| U.S. dollar | 51.5 | 51.7 | 54.0 | 52.1 | 55.0 | 52.9 |
| Euro Area Currencies | 21.4 | 21.5 | 19.2 | 20.0 | 20.3 | 20.4 |
| Yen | 9.2 | 8.6 | 8.6 | 9.2 | 8.5 | 8.8 |
| Pound sterling | 5.0 | 5.6 | 6.5 | 7.2 | 7.4 | 6.4 |
| Swiss franc | 4.5 | 4.0 | 3.6 | 3.5 | 3.1 | 3.7 |
| Other | 8.4 | 8.6 | 8.1 | 8.0 | 5.6 | 7.7 |
| Total | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 |
| Total in billions of SDR | 3,908 | 4,246 | 5,048 | 5,387 | 5,442 | 4,788 |
| **External bonds and notes 3/** | | | | | | |
| | (In percent) | | | | | |
| U.S. dollar | 44.6 | 47.3 | 51.7 | 51.4 | 51.1 | 49 |
| Euro | 17.8 | 17.4 | 16.0 | 18.0 | 19.3 | 18 |
| Yen | 18.0 | 17.4 | 15.2 | 13.4 | 13.3 | 15 |
| Pound sterling | 4.3 | 5.1 | 5.9 | 6.9 | 7.4 | 6 |
| Swiss franc | 10.6 | 8.0 | 6.5 | 6.0 | 4.7 | 7 |
| Other | 4.8 | 4.9 | 4.7 | 4.3 | 4.2 | 5 |
| Total | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 | 100 |
| Total in billions of SDR | 1,094 | 1,267 | 1,481 | 1,682 | 1,886 | 1,482 |

Source: Bank for International Settlements

1/ Includes deposits and bank-issued securities.
2/ Domestic and foreign currency; domestic currency liabilities exclude transactions within the euro area denominated in deutsche mark, Dutch guilders, French franc, Italian lira, Belgian franc, ECUs, and the respective domestic currency. Since, however, Portugal does not report to the BIS, the netting out of intra-euro area transactions does not take into account liabilities of Portuguese banks vis-à-vis other euro area countries as well as liabilities of banks in other euro area countries vis-à-vis Portugal.
3/ Amount outstanding excluding "home currency issuers"

7. Illustrative calculations for the currency weights in the SDR valuation basket are presented in Table 2. In the first scenario, the inclusion of supplementary financial variables would result in an increase of the weight for the U.S. dollar from 44 percent to 49 percent, while the weight for the Japanese yen would fall from 15 percent to 13 percent. These changes reflect the larger role of the U.S. dollar in international financial, compared with trade transactions, and vice versa for the Japanese yen. The share of the U.S. dollar is even larger (55 percent), with the weight of the Japanese yen falling to 12 percent, in the second scenario, in which the weight of official reserves in the determination of the currency weights in the SDR basket is fixed at 33.3 percent, i.e., close to the weight of 29 percent under the suggested currency-based approach. The share of the euro in the SDR valuation basket decreases from 29 percent in the proposed currency-based approach to 27 percent in the first and to 24 percent in the second scenario. The decline in the share of the euro is due to the lower weight of exports, where the euro area ranks first, as well as to the higher weight of reserves where the euro lags significantly behind the U.S. dollar. Compared with the euro's share in reserve holdings, its share in the supplementary financial sector variables is higher, albeit still lagging the share of the U.S. dollar significantly. The share of the pound sterling falls to 10 percent in the first and to 9 percent in the second scenario, compared with 12 percent in the suggested currency-based approach. This decline results from the fact that the share of official reserves as well as that of international bank liabilities and external bonds denominated in pound sterling is considerably lower than the United Kingdom's share in exports.

Table 2. Incorporating Supplementary Financial Variables into the Determination of Currency Weights in the SDR Valuation Basket

| | | | | Scenario 1 | Scenario 2 | Memorandum Item |
|---|---|---|---|---|---|---|
| | | | | Currency Share Based on | | |
| | Relative Shares of Exports of Goods and Services 1/ | Relative Shares of Official Holdings of Currency 2/ | Relative Shares of External Bank Liabilities and External Bonds and Notes 2/ 3/ | 50% Exports 25% Reserves 25% Supplementary Financial Variables | 33.3% Exports 33.3% Reserves 33.3% Supplementary Financial Variables | Currency Share in Suggested Approach |
| Currency | (1) | (2) | (3) | (4) | (5) | (6) |
| | | | | (In percent) | | |
| U.S. dollar | 31.4 | 75.5 | 59.2 | 49 | 55 | 44 |
| Euro | 35.6 | 14.2 | 22.0 | 27 | 24 | 29 |
| Japanese yen | 18.5 | 5.8 | 10.7 | 13 | 12 | 15 |
| Pound sterling | 14.5 | 4.5 | 8.2 | 10 | 9 | 12 |
| Total | 100.0 | 100.0 | 100.0 | 100 | 100 | 100 |

1/ Average for 1995-99.
2/ Based on end 1999 data.
3/ Source: Bank for International Settlements. Relative shares of the sum of external bank liabilities (as defined in footnote 2 in Table 1, Annex II) and external bonds and notes excluding "home currency issuers".

## FORMULAS FOR THE CALCULATION AND ROUNDING OF THE CURRENCY COMPONENTS IN THE SDR VALUATION BASKET[52]

The calculation of the amounts of each currency in a four-currency SDR valuation basket is presented algebraically below:

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

$BEX_i$ 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 0-1.

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

$$C_1 = \left(\frac{W_i}{BEX_i}\right) \cdot \frac{\$/SDR}{\sum_{i=1}^{4}\left(\frac{W_i}{BEX_i}\right) \cdot TEX_i}$$

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.,

$$\sqrt{\frac{\sum_{i=1}^{4}\left(\frac{RCC_i - C_i}{C_i}\right)^2}{4}}$$

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

[52] See "SDR Valuation Basket—Calculation of the Currency Amount," SM/80/206, Sup. 3 (12/15/80) and Sup. 5 (12/22/80). See also Decision No. 8160-(85/186) G/S, adopted December 23, 1985.

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.