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To: Members of the Executive Board  
From: The Secretary  
Subject: The SDR Interest Rate and Related Matters

The attached paper on SDR interest rate and related matters has been tentatively scheduled for discussion on Wednesday, July 13, 1983.

If Executive Directors have technical or factual questions relating to this paper prior to the Board discussion, they should contact Mr. Byrne (ext. 75651) or Mr. Coats (ext. 76508).

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INTERNATIONAL MONETARY FUND

The SDR Interest Rate and Related Matters

Prepared by the Treasurer's Department

(in consultation with the Legal Department)

Approved by W. O. Habermeler

June 20, 1983

I. Introduction

On June 7, 1982, the Executive Board discussed the paper "Possible Further Improvements in the Existing SDR" (SM/82/92, May 7, 1982). There was widespread support for the suggestion in that paper that the interest rate on the SDR be reviewed to establish whether it was in line with interest rates and yields on other reserve assets. This paper, therefore, examines several aspects of this question in greater detail. It deals with the frequency with which the rate of interest on the SDR is changed, the frequency with which interest is paid, and with a few related technical matters. The question of the level of the SDR interest rate is not taken up at this time, although the proposal in this paper for more frequent interest payments will augment somewhat the overall yield on the SDR. The question of the absolute level of the interest rate on the SDR will be discussed separately.

Section II describes the current method of determining the SDR interest rate and discusses the criteria used in establishing the instruments in the reference basket. Section III discusses the objectives to be taken into account in relating the SDR interest rate to the rates observed in the market for other reserve assets. Section IV proposes that both the SDR interest rate and the rate of remuneration on reserve tranche positions in the General Resources Account be revised weekly rather than quarterly, and Section V proposes that SDR interest and charges, and remuneration be paid quarterly. Section VI makes proposals of a technical nature concerning the exact timing of the payment of SDR interest, charges, and remuneration. The main conclusions are summarized in Section VII.

II. Current Method of Determining the SDR Interest Rate:  
Historical Evolution and Principles Involved

(a) Historical evolution.

Since 1974, the interest rate on the SDR has been set by reference to the rates on short-term instruments in the capital markets of the five countries whose currencies currently comprise the SDR valuation basket.

From July 1974 to June 1976 the SDR interest rate was set every six months by reference to the weighted average of market rates on the chosen short-term instruments (the "combined market rate") over the three month period ending on the fifteenth day of the last month before the six-month period to which the rate applied. The SDR rate was linked to the combined market rate by a formula which resulted in the SDR rate being 56 per cent of the combined market rate on average over those two years. The use of an average over a three-month period (the "reference period") and the infrequent adjustment of the rate meant that the SDR interest rate sometimes decreased when market rates were increasing and sometimes remained unchanged when market rates were declining. 1/

From July 1976 the SDR interest rate was adjusted quarterly instead of half-yearly and the reference period was shortened to six weeks. The SDR rate was progressively increased from 60 per cent of the combined market rate (for July 1976 to December 1978) to 80 per cent of that rate (from January 1979 to April 1981) and finally to 100 per cent of that rate (since May 1981). In addition, so that the interest rate would better reflect market conditions when it came into effect, from January 1981 the reference period was further shortened, as was the lag between the reference period and the quarterly period to which the SDR interest rate applied. Since that date, the combined market rate has been calculated using the weighted average rates of the fifteen business days preceding the last two business days of the last month before the calendar quarter to which the SDR rate applies.

(b) The component instruments of the interest rate basket

The combined market rate is calculated using market yields on short term (generally three-month) domestic instruments of the highest quality. 2/ The weight attached to each instrument reflects the relative importance of the corresponding currency in the valuation basket at the time of the calculation. Rates on assets with a maturity of about three months were chosen because markets for these instruments are generally the broadest and best established, with a ready availability of quotations. Moreover, such assets normally constitute a major proportion of countries' reserves, though, of course, members hold reserves with a wide range of maturities. However, the SDR differs from these instruments in several respects: as it stands, the SDR is an asset which has no specific maturity, but which can be sold at face value to a willing purchaser or, subject to the requirement of need, through the designation process. The SDR and, say, a three month Treasury Bill, both return a fixed and

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1/ SM/76/120, "Review of the Valuation of the SDR and the Determination of its Rate of Interest," June 4, 1976, p. 18.

2/ The instruments used are listed in Rule T-1(c). The use of short-term instruments in the SDR interest rate basket was discussed in SM/76/120, page 21 and SM/80/82, "Substitution Account--Choice of Instruments for the SDR Interest Rate Basket and Related Issues", April 2, 1980, pp 1-5.

known interest payment if the SDR is held for a calendar quarter and the Treasury Bill is held to maturity, but 'three month' SDRs can be acquired only on the first day of each quarter while other three-month instruments come on to the market fairly continuously. The Fund pays a short-term rate of interest on the SDR, in part in order to underline its liquid reserve characteristics. 1/

### III. Improving the Correlation Between the SDR Interest Rate and the Reference Rates

The general aim that the SDR is to be the principal reserve asset has lead to the conclusion that the SDR be given, to the extent practicable, financial characteristics similar to those of other major reserve assets. These include wide use as a means of payment and attractiveness as a store of value. 2/ For an asset to circulate as a means of payment its effective yield (taking into account both exchange rate movements and interest rate) must be such that holders are willing to hold it in their reserves, but not so attractive that it is hoarded and used only when absolutely necessary. An effective yield that met this criterion would enhance the attractiveness of the SDR and is likely to make it more comparable with other reserve assets.

In order to maintain the attractiveness of the SDR vis-a-vis other reserve assets, the Fund has adopted since 1974 an approach that relates the effective yield (i.e., interest rate plus change in exchange value) on the SDR to the effective yield on currencies that members may hold in their reserves. The approach, as described in the previous section, has been to value the SDR by reference to a basket of major currencies and to set its interest rate by reference to interest rates that could be earned on three-month investments in these currencies. 3/ The valuation of the SDR is adjusted daily to reflect changes in exchange rates; by contrast, the SDR's interest rate is adjusted only once a quarter, being fixed at the beginning of each calendar quarter. As a result, the effective yield on the SDR has at times differed significantly from the current yield on the basket of instruments used to determine it.

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1/ A practical possibility for the issuance of 'SDRs' with diversified financial characteristics would be for the Fund to issue SDR-denominated financial liabilities of differing maturity for the partial financing of its loans in the General Resources Account.

2/ This point, and the related one of the importance of widespread use of the SDR unit by the private sector, was a major conclusion of the "IMF Conference on International Money, Credit and the SDR" March 24-25, 1983. See Chapter 9, 'Summary of Findings' in International Money, Credit and the SDR (forthcoming).

3/ This has been fully achieved only since 1981, when the valuation basket was reduced to five currencies and thereby unified with the currency denomination of the interest rate basket.

For a variety of reasons, however, the SDR cannot replicate fully the characteristics of a fixed interest, three-month financial instrument. For example, assets with fixed interest returns maintain an equilibrium between demand for and supply of these assets through variations in the prices at which the assets trade in the market. In this way the effective yields on previously issued instruments are continuously adjusted to changing market conditions, making them competitive with yields on new issues. A similar adjustment cannot, however, take place in the price of the SDR, since under the existing rules and decisions of the Fund holders are not allowed to transact in SDRs at a discount from or premium over its value in terms of currency as set daily by the Fund. However, while the SDR's price cannot vary in order to align its effective yield with prevailing market conditions, a similar result can be achieved by a more frequent setting of its interest rate. 1/

In general, the ability of yields to remain competitive is a necessary condition for the establishment of a market for a new financial instrument or the effective functioning of markets in established financial instruments. Although efforts can be made (and have been made) to bring the SDR's characteristics more closely in line with those of other reserve assets, by itself, a continuously competitive yield would not necessarily create a market for SDRs, but it would remove an impediment to the development of such a market.

The attractiveness of the SDR's effective yield depends on the level of its interest rate relative to the rates on other reserve assets at any point in time. Whatever relationship is set between the SDR interest rate and the yields on the instruments in the interest rate basket, that relationship can only be maintained by adjusting the SDR interest rate more or less continuously in line with the changes in market yields on those instruments. The issue here is the maintenance of a better correlation at all times with the yields on the assets used as reference points. The

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1/ This adjustment might conceivably be made in a market-like process so as to equate supply and demand for any given volume of SDRs and taking into account its other characteristics. As yet, however, there is no active market in SDRs, although some changes in that direction have occurred. Under the Second Amendment, participants may enter freely into transactions by agreement without any requirement of need. The Fund has used its powers under the amended Articles to prescribe additional uses of SDRs in swaps, forward operations, loans, settlement of financial obligations, security for the performance of financial obligations, and donations. The use of SDRs in loans and in settlement of financial obligations began in 1981 and has grown in 1982, although the amounts involved are still small. In an effort to provide some depth to this emerging 'market' the Fund has increased its activity in arranging transactions in SDRs. In a separate memorandum, the staff is proposing that the Executive Board simplify and further broaden the use of SDRs in operations. Other possibilities to enhance the liquidity and to adjust the interest rate have been discussed in SM/82/92, May 3, 1982, "Possible Further Improvements in the Existing SDR," pp 4-7, 12-19.

successive decisions by the Fund to shorten the reference period, to bring it closer to the period for which the SDR interest rate is to be set, and to raise the SDR interest rate to the combined market rate, constitute a recognition of the importance of maintaining a close correlation between the SDR interest rate and interest rates on alternative reserve assets. The proposals set out in this paper are intended as further steps in that direction.

#### IV. A More Frequent Setting of the SDR Interest Rate and the Rate of Remuneration

##### (a) Daily setting of the SDR interest rate

Because the SDR interest rate is set only quarterly, it frequently diverges substantially from prevailing market rates on other investments, including those in the reference basket. The difference between the the interest rate on the SDR and the current value of the weighted average interest rate on the instruments that comprise the interest rate basket (the "daily combined market rate") <sup>1/</sup> has ranged from a positive value of 3.37 percentage points to a negative value of 2.43 percentage points since May 1981. <sup>2/</sup> Monthly averages are shown in Table 1. These departures are large both relatively and in absolute amounts, although it should be noted that the last few years have seen unprecedentedly high and rapidly fluctuating interest rates.

Since most of the instruments in which countries hold their reserves are repriced daily in the money markets of the world, an analogous daily adjustment of the SDR interest rate could be considered. A daily adjustment of the interest rate would also be consistent with the daily adjustment of the SDR valuation to reflect changes in exchange rates; in this way the interdependence of changes in interest rates and exchange rates would also be better reflected. Of course, even in well-developed markets covered interest arbitrage does not equalize fully yields on investments in different currencies. Nevertheless, the daily adjustment of the SDR interest rate would seem to be the correct standard against which to measure the performance of less frequent adjustments in that rate.

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<sup>1/</sup> The combined market interest rate is the weighted average rate, itself averaged over a particular period, currently the fifteen business days ending two days before the beginning of each calendar quarter. Hence the need for a different expression to connote the daily weighted average of the basket interest rates.

<sup>2/</sup> On September 12, 1982 the SDR interest rate was 12.01 per cent and the combined reference rate 8.64 per cent, while on May 22, 1981 the SDR interest rate was 12.58 per cent and the combined reference rate 15.01 per cent. This variation is equivalent to a swing in the face value of an SDR investment, compared with other assets, from 84 per cent of par in May 1981 to 139 per cent of par in September 1982.

Table 1

Monthly Averages of SDR Interest Rate,  
the Daily Combined Market Rate and the  
Difference Between the two Series  
May 1981 - April 1983

|             | SDR Interest Rate<br>(Per cent) | Daily Combined<br>Market Rate<br>(Per cent) | Difference<br>(In per-<br>centage<br>points) | Capital Value<br>of an<br>Investment<br>with a face<br>value of<br>100 SDRS <u>1/</u> |
|-------------|---------------------------------|---|--|---|
| <u>1981</u> |                                 |   |  |   |
| May         | 12.58                           | 14.45                                       | -1.87  | 87.06   |
| June        | 12.58                           | 14.05                                       | -1.47  | 89.54   |
| July        | 14.03                           | 14.08                                       | -0.05  | 99.64   |
| August      | 14.03                           | 14.57                                       | -0.55  | 96.29   |
| September   | 14.03                           | 14.12                                       | -0.09  | 99.36   |
| October     | 13.99                           | 13.45                                       | 0.54   | 104.01  |
| November    | 13.99                           | 11.74                                       | 2.25   | 119.17  |
| December    | 13.99                           | 11.51                                       | 2.48   | 121.55  |
| <u>1982</u> |                                 |   |  |   |
| January     | 11.63                           | 12.18                                       | -0.54  | 95.48   |
| February    | 11.63                           | 12.60                                       | -0.97  | 92.30   |
| March       | 11.63                           | 12.03                                       | -0.40  | 96.67   |
| April       | 12.15                           | 12.23                                       | -0.08  | 99.35   |
| May         | 12.15                           | 11.87                                       | 0.28   | 102.36  |
| June        | 12.15                           | 12.02                                       | 0.13   | 101.08  |
| July        | 12.01                           | 11.16                                       | 0.85   | 107.62  |
| August      | 12.01                           | 9.62  | 2.39   | 124.84  |
| September   | 12.01                           | 8.95  | 3.06   | 134.19  |
| October     | 8.90                            | 8.56  | 0.34   | 103.97  |
| November    | 8.90                            | 8.58  | 0.32   | 103.73  |
| December    | 8.90                            | 8.49  | 0.41   | 104.83  |
| <u>1983</u> |                                 |   |  |   |
| January     | 8.47                            | 8.41  | 0.06   | 100.71  |
| February    | 8.47                            | 8.51  | -0.04  | 99.53   |
| March       | 8.47                            | 8.51  | -0.04  | 99.53   |
| April       | 8.52                            | 8.25  | 0.27   | 103.27  |
| Mean        | 11.35                           | 11.34                                       |  |   |

1/ This column shows what the hypothetical price of an SDR investment with a face value of 100 SDRs, yielding interest at the SDR interest rate, would be if the Fund did not fix its value and the yield on the SDR and on an investment in the five-currency basket were to be equalized by market arbitrage.

(b) Less frequent than daily adjustments

Moving to a daily fixing would be a significant change from current practice. Moreover, there are also certain problems with regard to daily fixings. For example, the reported yields on U.K. Treasury bills and the discount rate on two-month (private) bills in Japan change only weekly, while the rates on three-month interbank deposits in Germany and the three-month interbank money rate against private paper in France often remain unchanged for several business days. <sup>1/</sup> Consequently, as shown in Appendix I, the departure from current market rates that would result from adjusting the rate less frequently than daily would be fairly modest. Two obvious intermediate possibilities between the current quarterly setting and a daily setting would be a monthly fixing or a weekly fixing.

The performance of these alternatives has been compared with daily market rates for the period May 1981 to April 1983 in Appendix I. The current practice of using a rate calculated on the basis of interest rates observed prior to the date on which that rate would enter into effect is followed in this analysis so that, under either approach, the applicable rate would be known by the beginning of the period to which it applies. No evidence was found that the general level of rates differs systematically at the end of the week or month from the level of rates on other days of the week or other days of the month. Therefore, the most current rate, i.e., that of the last business day of the preceding period was used in the calculations. <sup>2/</sup> These comparisons indicate that a weekly adjustment is almost as accurate as a daily one in tracking the daily combined market rate. While the mean of the monthly series (11.34) is closer to the mean of the daily series (11.34) than is that of the weekly series (11.32), as positive deviations are approximately matched by negative deviations, the average absolute difference between the weekly rate and the daily combined market rate was 0.20 percentage points, with a maximum deviation of 1.26 percentage points, while the use of a monthly setting would have resulted in substantially wider absolute differences from the daily combined market rate (namely an average of 0.43 percentage points with a maximum deviation of 1.91 percentage points).

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<sup>1/</sup> This lack of movement may indicate that the yields as currently reported, or the instruments, may not reflect short-run changes in interest rates as accurately as may be desired. The question of which instruments should be included in the interest rate basket was last reviewed in 1980, and it is not reviewed again in this paper. The staff, however, will keep the question under review, and, after consultation with the authorities of the countries concerned, may propose changes in the instruments at some future date.

<sup>2/</sup> It will be noted that the daily combined market rate of a particular day is used rather than the average of the daily combined market rate over a period. The question of averaging the reference rates over a reference period is discussed in Subsection(c).

(c) The duration of the reference period

The combined market interest rate that is currently used to establish the SDR interest rate is an average of the daily combined market rate over 15 business days. A reference period of 15 days or longer, with the corresponding averaging, has been used in the past with the aim of reducing the influence of any temporary factors that might be reflected in the rates of a particular day and of attempting to capture the trend of rates rather than immediately current conditions. <sup>1/</sup> However, using rates that go back to the middle of the previous month introduces a lag between the period from which interest rates are derived for the calculation of the SDR interest rate and the period to which that rate applies. The SDR interest rate, therefore, may not reflect market conditions even at the time that it comes into effect. It should also be noted that it is market practice for interest rates on floating-rate obligations, typically related to the London Interbank Offered Rate (LIBOR), to reflect the rates on one day rather than an average for a number of days. The Fund itself, in its borrowing from the Saudi Arabian Monetary Authority, also adopts this approach, calculating the interest rate from market yields on an 'interest computation date'. <sup>2/</sup> Similarly, interest on drawings under the BIS facility are calculated by reference to interest rates on the third business day preceding the value date of the drawing or renewal. <sup>3/</sup> Thus, a change to the use of a single day's rate would bring the Fund's practice closer to market practice and to the Fund's own technique in its more recent market related borrowing.

In itself, a more frequent setting of the SDR interest rate has an effect over time of averaging out fluctuations in the interest rate, and thus produces a somewhat similar result to that currently sought by defining the combined market interest rate as an average over a 15-day period. Setting the interest rate daily, on the basis of the reference rate of the previous day, would tend to produce the same average yield over a longer period per SDR held as would, for example, a weekly setting on the basis of a reference period of the preceding week, or a monthly setting on the basis of rates averaged over the preceding month.

(d) Conclusion

The present approach of fixing the SDR interest rate quarterly should be replaced by a system that keeps the interest rate on the SDR more closely aligned with the day-to-day changes in market interest rates. Since a weekly setting approximates fairly closely the result of a daily setting, while being a more moderate departure from current practice, it is proposed that the SDR interest rate be fixed weekly,

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<sup>1/</sup> See SM/80/206, p. 3.

<sup>2/</sup> See Decision No. 6843-(81/75), May 6, 1981 in Selected Decisions of the International Monetary Fund, p. 157.

<sup>3/</sup> See Decision No. 6863-(81/81), May 13, 1981 as amended by Decision No. 6870-(81/83), June 1, 1981.

using the daily combined market rate of the Friday of the preceding week. 1/

(e) More frequent setting of the rate of remuneration

The Articles of Agreement require that the rate of remuneration must be within the range of 80 per cent to 100 per cent of the SDR interest rate. The rate of remuneration is currently set quarterly at 85 per cent of the SDR interest rate for the corresponding quarter. Setting the interest rate on the SDR daily or weekly would not necessarily require that the rate of remuneration be changed daily or weekly; the latter could continue to be set quarterly as long as it remained within the range of 80 to 100 per cent of the SDR interest rate. A procedure would then need to be adopted for changes in the rate of remuneration whenever the SDR interest rate moved outside this range. However, it would be simpler, and maintain closer comparability between SDRs and reserve tranche positions, if the rate of remuneration were fixed with the same frequency that is adopted for the SDR interest rate.

The positive and negative impact on the Fund's income of the more frequent setting of the SDR interest rate and the rate of remuneration may be expected to average out as there is no reason to expect that over time the average rate would be higher or lower than it would be under current arrangements. Indeed, over the period May 1981 to April 1983 the mean of the quarterly SDR interest rate and the mean of the proposed weekly fixing were very close--11.35 per cent and 11.32 per cent, respectively.

(f) Interest rate under the General Arrangements to Borrow (GAB)

Under the revised GAB, and the associated agreement with Saudi Arabia, which are likely to go into effect at the same time as the quota increase, the Fund will pay interest quarterly on its indebtedness "at a rate equal to the combined market interest rate computed by the Fund from time to time for the purpose of determining the rate at which it pays interest on holdings of special drawing rights." 2/ At present, of course, the combined market rate and the SDR interest rate are identical, but they might differ in the future in either direction. If the proposal to change the frequency of calculation of the combined market rate is adopted, ipso facto the interest rate on borrowing under the revised GAB will change weekly with each calculation of the combined market rate.

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1/ If one of the reference markets is closed on the Friday, the yield or rate in that market of the Thursday would be used for purposes of the calculation.

2/ See paragraph 9(a) of the revised GAB, which reads as follows: "The Fund shall pay interest on its indebtedness at a rate equal to the combined market interest rate computed by the Fund from time to time for the purpose of determining the rate at which it pays interest on holdings of special drawing rights. A change in the method of calculating the combined market interest rate shall apply only if the Fund and at least

The possibility of establishing the combined market rate more frequently, and applying the same frequency to changes in the GAB interest rate, was foreshadowed in SM/82/239 (12/28/82) General Arrangements to Borrow-- Proposals for Revision and Expansion. 1/ The fact that the interest rate on GAB borrowing would track the combined market rate more closely would tend to increase the attractiveness of GAB claims, in particular in relation to their transferability. 2/ In any event, no change in the average return over time is expected to result from the proposal to increase the frequency with which the rate is set. If, as proposed, the change is adopted before the revised GAB comes into effect, it will not be subject to the decision making process of paragraph 9(a) of the GAB, under which a change shall apply "only if the Fund and at least two thirds of the participants having three fifths of the total credit arrangements so agree." Nevertheless, the discussion of the Executive Board of the proposed change in the frequency of setting the combined market rate will provide an opportunity for the GAB participants to indicate their views on the application of the proposed change to the interest rate on borrowing under the GAB.

V. More frequent payment of SDR interest and remuneration

(a) SDR interest

Charges on SDR allocations and interest on SDR holdings are settled annually as of the end of each financial year of the Fund (i.e., April 30) by debiting or crediting the SDR accounts of each holder. By contrast interest income on the instruments in the interest-rate basket is received more frequently, typically every three months. As a result, because of the effect of compounding, the interest return on the SDR is actually lower than the return on successive investments in the instruments in the basket. Quarterly payment of interest at the rate as currently calculated would bring the effective return on the SDR much closer to the result of investing in the instruments in the basket. For this reason, quarterly payment of interest and charges was mentioned as a possible improvement in "Possible Further Improvements in the Existing SDR" (SM/82/92, May 6, 1982), and more recently in EBS/83/75, "Review of the Fund's Income Position for Financial Year 1983 and 1984," April 18, 1983.

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1/ (Cont'd from pg 9) two thirds of the participants having three fifths of the total amount of the credit arrangements so agree; provided that if a participant so requests at the time this agreement is reached, the change shall not apply to the Fund's indebtedness to that participant outstanding at the date of the change."

1/ See p. 4 "If, for example, the SDR interest rate were in the future to be changed monthly or weekly, the interest rate on outstanding borrowing under the GAB would change with the same frequency, to reflect 100 per cent of the latest combined rate."

2/ Transferability of claims under the GAB is governed by EBD No. 6068-(79/74), adopted March 21, 1979. This decision will be revised in connection with the adoption of the revised GAB.

At the SDR interest rate of 8.52 per cent per annum in effect from April through June 1983, the effect of quarterly payment would be to raise the effective annual interest return by about one-third of a percentage point to 8.80 per cent. 1/

Interest payments on holdings are financed by charges on allocations, i.e., net charges paid by net users of SDRs are equal to net interest paid on SDRs held in excess of allocations by participants and on all SDRs held by other holders (i.e., the General Resources Account and prescribed holders). Quarterly payment of interest would, therefore, entail quarterly payment of charges. Because of the effect of compounding, those participants with holdings below allocations would pay effectively a slightly higher charge on their net use of SDRs.

It is, however, expected that members will find it easier to plan and pay smaller quarterly payments and thus diminish the problems that have been encountered with annual settlement of net SDR charges. A number of members whose holdings are less than the amount of net charges due must acquire SDRs on each occasion net charges are payable. If this acquisition is late, the Fund, as required by Article XX, Section 1, pays the total amount of interest due to each holder, creating SDRs in order to do so, and levying a charge on the overdue member at the going rate on these temporarily created SDRs (Article XX, Section 2). When the member that is in arrears makes the overdue payment, these SDRs are cancelled under Article XX, Section 5. Of course, quarterly payments of net charges would increase to four the number of occasions on which late payments might occur each year, but the amount required to be paid each time would be smaller. Therefore, in the staff's judgement, the risk as regards the amount of SDRs that the Fund would be required to create would certainly be no more, and is likely to be less, than under the present system of annual payments.

(b) Remuneration

It seems desirable to maintain a certain comparability between SDRs and remunerated reserve tranche positions, to prevent either Fund-related asset being regarded as markedly superior to the other. While not identical, an SDR and a remunerated reserve tranche position are similar in a number of respects. 2/ In order to maintain comparability

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1/ The effect of quarterly compounding of interest is given by the following formula:  $i^* = (1+i/4)^4 - 1$  where  $i$  = simple interest rate and  $i^*$  = the quarterly compounded interest rate.

2/ See for example, SM/80/282 "Review of the Fund's Charges," December 24, 1980, pp. 22-23. Perhaps the main similarity is the following: If a member receives SDRs in a transaction, it obtains an unconditional reserve asset in exchange for currency, and there is either a change in the composition of the member's reserves or an increase in both its official assets and liabilities if its currency is held in reserves. If the Fund sells a currency, and thereby enlarges the remunerated reserve tranche position of the issuer of the currency, the result is the same.

between the two assets it is proposed that remuneration, like SDR interest, be payable quarterly.

Because of the effects of compounding, quarterly payment of SDR interest would increase the General Resources Account's interest earnings on its SDR holdings. On the other hand quarterly payments would increase the amount of remuneration to be paid. As remunerated reserve tranches have been, and are expected to be, larger than the Fund's SDR holdings in the foreseeable future, the Fund's net income would be lower. For FY 1983 the additional net expense would have been about SDR 13.7 million and could have been absorbed by the Fund's surplus in that year. For the next financial year the increase in net expenses resulting from quarterly compounding on the assumptions contained in the paper on the Fund's net income would be SDR 27.8 million, and thus could also be accommodated within the expected surplus. <sup>1/</sup> The implied cost, expressed as a percentage increase in charges during the two financial years would be 0.12 percentage points for FY 1983 and 0.14 percentage points for FY 1984.

#### VI. Accounting Procedures

Rule T-1(a) states that interest and charges in respect of SDRs shall be paid promptly as of the end of each financial year of the Fund. In order to do this, the accounts are held open to enable transfers of SDR interest and charges to be effected after the balances in each account resulting from other transfers are established and interest accrued thereon is calculated. Since in any event interest and charges do not begin to accrue on the newly credited and debited amounts until the first day of the following period, it is proposed that Rule T-1(a) be revised to provide that transfers representing interest on SDR holdings and charges in SDR allocations will be made promptly as of the first day of the new accounting period.

It is also proposed to apply the same accounting method to the payment of remuneration, so that remuneration will also be paid as of the beginning of the new quarter.

#### VII. Summary of Conclusions

In the light of the foregoing considerations, it is proposed that the following changes be introduced:

(i) The interest rate on SDR holdings and, therefore, the rate of charges on allocations, and the rate of remuneration, would be fixed weekly rather than quarterly as is the case at present. The rates would enter into effect each Monday and would apply until the end of the following Sunday. The rate of interest on the SDR would then more closely

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<sup>1/</sup> EBS/83/75, April 18, 1983 "Review of the Fund's Income Position for the Financial Years 1983 and 1984."

reflect short-run changes in market yields on the instruments that comprise the interest rate basket.

(ii) With a weekly fixing, the 15-day reference period would be replaced with a single reference day. The daily combined market rate would be calculated as of Friday and the rate so calculated would come into effect on the following Monday.

(iii) In order to bring the effective rate of return on the SDR more in line with the effective rate of return on the underlying instruments, which have maturities of about three months, SDR charges and SDR interest, as well as remuneration, would be payable quarterly instead of annually, as is the case at present.

(iv) Consistent with normal banking practice, it is proposed to introduce a minor change in accounting procedures under which SDR interest and charges, as well as remuneration, would be accounted for in the books of the Fund on the opening of the first day after the end of the period to which they relate rather than on the last day of that period.

If these proposals are agreed by Executive Directors, amendments will be required to the relevant Rules dealing with interest and charges in respect of SDRs, and with remuneration. These amendments will be circulated following the conclusion of the Executive Board's discussion. It would be proposed that the new Rules enter into effect on August 1, 1983, i.e., the beginning of the second quarter of the current financial year. On that date, the new frequency of fixing the SDR interest rate would begin with the rate for the week commencing August 1, 1983, having been fixed on the preceding Friday. As regards the new system for the settlement of SDR interest and charges and remuneration, the first settlement would be made as of the beginning of the third quarter-- i.e., November 1, 1983--and would cover accruals during the second quarter. The amounts accrued during the first quarter of the current financial year, would be settled under the presently existing Rules, namely, as of the end of the current financial year.

Alternative Approaches to Setting the SDR Interest Rate

This Appendix compares two alternative approaches to the determination of the SDR interest rate. They are compared with each other, and with the approach currently in use. The behavior of the rates set under the two alternative methods is compared with the daily combined market rate and with the actual SDR interest rate over the period from May 1 1981 (when the SDR interest rate was raised to 100% of the combined market interest rate) to April 30, 1983.

Each chart shows, on a daily basis, the difference between the series in question and the daily combined market rate. The daily combined market rate is defined as the weighted average interest rate on the instruments that currently comprise the interest rate basket. Daily maintenance of the SDR interest rate at 100 per cent of the daily combined market rate would produce a flat line coincident with the horizontal axis. Deviations from that axis measure the extent to which that standard has not been met. The series are based on:

- (a) the daily combined market rate for the Friday of the previous week (Chart 1);
- (b) the daily combined market rate for the final business day of the previous month (Chart 2).

Each chart shows also the divergence between the actual SDR rate and the daily combined market rate. Table 1 shows the correlation coefficients and the average absolute deviation between each series and the daily combined reference rate.

Series (a), shown in Chart 1, involves a weekly setting of the SDR interest rate using the combined reference rate of the Friday of the previous week. As shown by Table 1, the correlation coefficient of 0.9914 between the rate calculated on this basis and the daily combined market rate indicates that this weekly setting is almost as accurate as a daily setting in tracking the daily combined market rate. There is no evidence of any tendency for the combined market rate to be higher on Friday than on other days; in fact the mean of Friday observations was below the mean of the daily combined market rate. None of the differences in means between Friday and the other days was statistically significant.

Series (b), shown in Chart 2, involves a monthly setting of the SDR interest rate using the combined reference rate of the last business day of the previous month. Because the rate is set only monthly, wider differences can arise between the combined reference rate and the SDR interest rate than with a weekly setting. Consequently, the average

CHART 1

SDR INTEREST RATE LESS THE DAILY COMBINED REFERENCE RATE AND  
THE COMBINED REFERENCE RATE OF THE FRIDAY OF THE PREVIOUS WEEK  
LESS THE DAILY COMBINED REFERENCE RATE

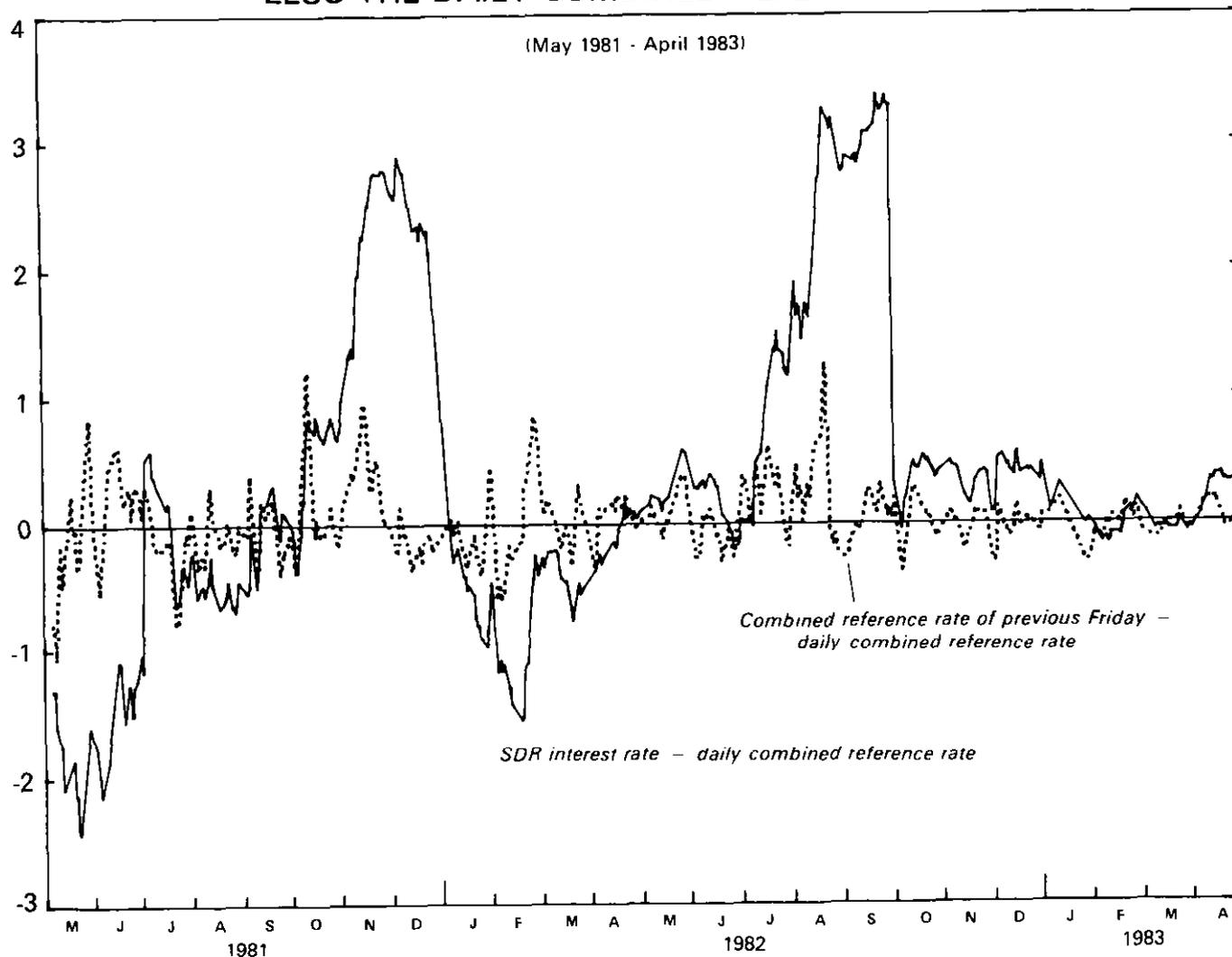
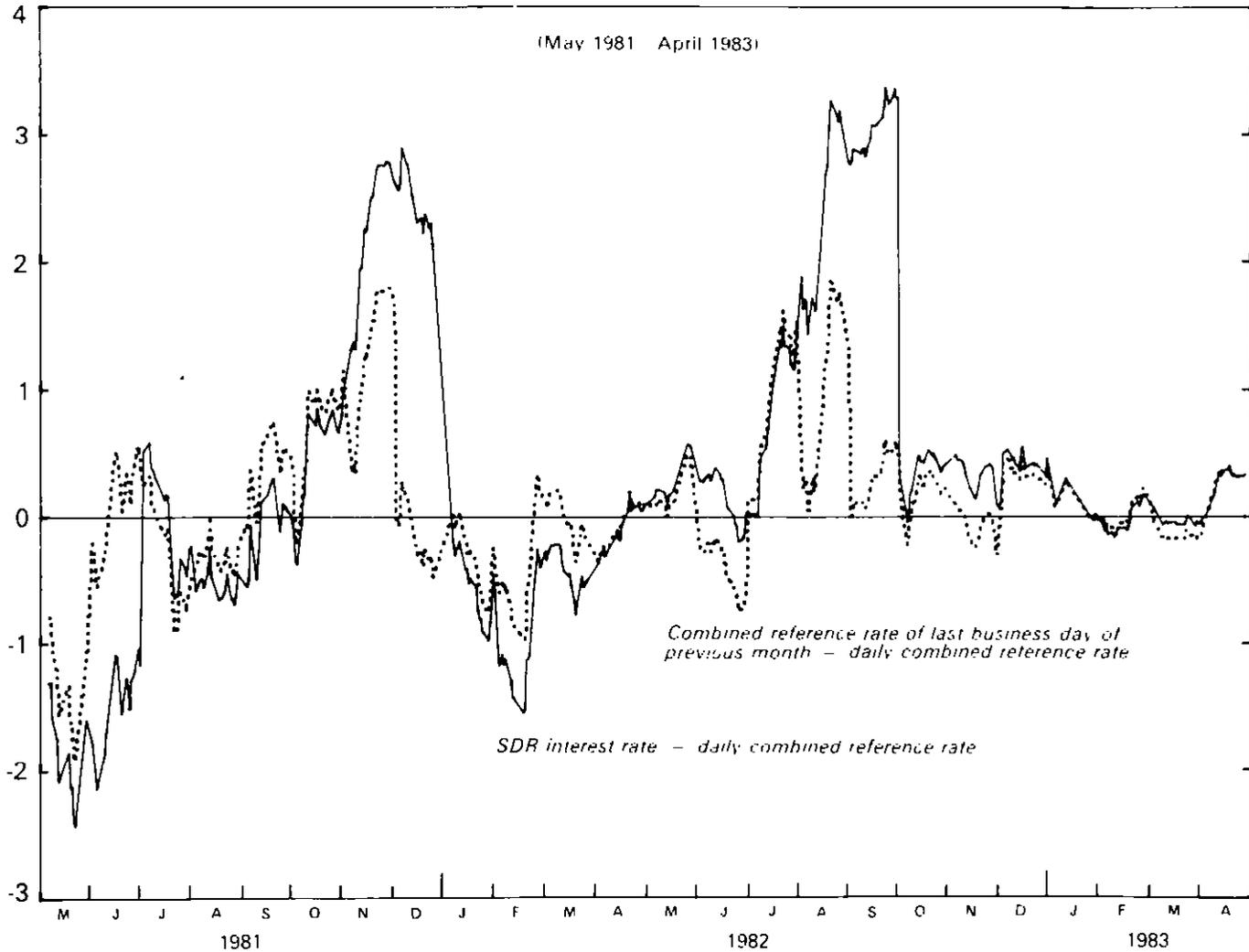




CHART 2

SDR INTEREST RATE LESS THE DAILY COMBINED REFERENCE RATE AND  
THE COMBINED REFERENCE RATE OF THE LAST BUSINESS DAY OF  
THE PREVIOUS MONTH LESS THE DAILY COMBINED REFERENCE RATE



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APPENDIX 1



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Table 1

Measures of the Relationship Between the Daily  
Combined Market Rate and Alternative  
Methods of Setting the SDR Interest Rate,  
Including the Method Currently in Use

|   | Correlation<br>Coefficients<br>of the Daily<br>Combined<br>Market<br>Rate With | Average Absolute<br>Difference of<br>the Daily<br>Combined<br>Market<br>Rate From:<br>(percentage points) | Percentage reduction<br>in variation <sup>1/</sup> from<br>daily combined market<br>rate, compared with<br>quarterly interest<br>rate<br>100x $\frac{(1) - 0.8439}{1 - 0.8439}$ |
|---|--|---|---|
|   | (1)  | (2)   | (3)   |
| Quarterly SDR rate  | 0.8439   | 0.91  | 0   |
| (a) Weekly rate based on Friday<br>of previous week                 | 0.9914   | 0.20  | 92.7  |
| (b) Monthly rate based on last<br>business day of previous<br>month | 0.9627   | 0.43  | 74.7  |

<sup>1/</sup> Variation is defined as the difference between unity and the correlation coefficient shown in Column (1).

absolute deviation from the daily rate was more than double that of series (a). This tendency can be seen during the period of falling interest rates in August 1982. At end-July the combined reference rate was 10.58 per cent; by August 25 it was 8.83 per cent. Consequently a gap of 1.75 per cent had opened between the monthly rate (series (b)) and the daily combined market rate. The weekly rate (series (a)) was 8.74 per cent, i.e., the daily combined reference rate of August 20. The SDR interest rate at the time was 12.01 per cent. Consequently, this approach would have eliminated only 75 per cent of the variation <sup>1/</sup> which occurred between the actual SDR interest rate and the daily combined market rate between May 1981 and April 1983, compared with 93 per cent for weekly series (a). There is no tendency for rates to rise or fall at the end of the month; the mean of the last business day was not significantly different from the mean of the penultimate day nor from the mean of each of the preceding three business days, nor from the mean of the tenth business day before the end of the month.

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<sup>1/</sup> Variation is measured as the difference between unity and the correlation coefficient.