The Mechanics of Alternative Valuations of the Special Drawing Right[*]

On June 13, 1974 the International Monetary Fund decided to introduce a new method of valuation of the Special Drawing Right (SDR) in transactions against currencies. This method consisted in setting one SDR equal to a "basket" of currencies that are playing a predominant role in the world's commerce and finance. The new method went into effect on July 1, 1974, when also the composition of the basket in terms of amounts of each currency was announced.

The current method of valuation of the SDR in transactions against currencies was introduced "without prejudice to the method of valuation to be adopted in a reformed system."[1] What are the features of the method of valuation of the SDR currently in force and what are the features of possible alternatives to be adopted in the future? The need to provide answers to these questions was recently stressed by the Economic Counsellor of the IMF, J. J. Polak: "If the SDR is to become... the principal reserve asset of the future system, the consideration of its main characteristics should be of concern not only to a small group of insiders in the Fund and member countries but also to all those economists who study the working of the international monetary system."[2] The purpose of

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1 IMF, *International Monetary Reform: Documents of the Committee of Twenty*, Washington, D.C., 1974, p. 21, Par. 38.

2 J. J. POLAK, *Valuation and the Rate of Interest of the SDR*, IMF, Pamphlet Series, No. 18, Washington, D.C., 1974, p. 3.

the present article is to give a systematic analytical exposition of various methods of valuation of a Special Drawing Right, exibit some attributes of various types of SDRs associated with a particular technique of valuation, and point out some of the consequences to which these attributes may lead.

1. The Setup

We shall set up an imaginary monetary system, and as we proceed we shall point out the correspondence (or its absence) between the characteristics of this system and the features of the current monetary order or of possible variants that may emerge in the future. In the system we shall be dealing with, gold has lost all of its monetary functions, especially as the *numéraire* or common denominator for the values of national currencies and as an international currency. Some unit of account is needed in which the values of national currencies could be expressed and compared. As one among many possibilities, the unit of account chosen can be a "basket" of a number of currencies. The currencies of which such a unit of account is composed will here be called *basket* currencies, and all other national currencies, which do not enter this unit, will be called *nonbasket* currencies.

If at the time of the introduction of the new unit of account there exists a set of mutually consistent cross rates of exchange between all pairs of national currencies, (a condition which was fulfilled on July 1, 1974), the values of all national currencies in terms of this unit can be *uniquely* determined for a given *composition* of the basket. (Different compositions of the baskets of currencies may, but do not have to, lead to different units of account, and hence, to different values of national currencies in terms of these units.) These values may become accounting prices of national currencies in the system. The " Currency Units per SDR " compiled daily by the IMF in fact are such accounting prices, but as we will see soon, the " Currency Units per SDR " are more than just that.

For the unit of account based on a basket of currencies to be a yardstick, it is of no economic importance which national currencies enter the basket, how many of them, or in what proportions. If the composition of this unit remains fixed forever while the parities or cross rates of national currencies are altered, the changes in value

of various currencies in terms of this unit can be viewed as changes in the index of exchange values of these currencies. In fact, since July 1974, the SDR as *a unit of account,* and likewise the recently adopted European Unit of Account (EUA), play the roles of indexes of currencies' exchange values.

It should be emphasized that the use of a unit of account based on a basket of currencies does not presuppose the existence of any specific kind of a medium of settlement. The claims among nations can be settled through the transfer of (1) one or more national currencies or (2) designated commodities or (3) a specially created international fiduciary asset.

Let us introduce such an asset which (1) is held only by the monetary authorities and (2) by virtue of its assumed general acceptability by these monetary authorities, is freely exchangeable for national currencies in transactions among them.[3] Depending upon the choice of the basic unit for this asset, it may have a different accounting price in terms of the unit of account of the system. Specifically, one can choose to define as one unit of this asset such an amount of it, as to make its accounting price equal one unit of account. If this fiduciary asset is also used as a medium of exchange in currency trading, values of national currencies in terms of this asset become par values (or " central exchange values "), i.e., money prices of the system, and the ratios of these values become parities (or cross rates), i.e., relative prices of the system.

It is worth pointing out that an international fiduciary asset of the sort we are considering may be tied to no currency, to one currency, or to several currencies. It should be stressed again, however, that even if the fiduciary asset is tied to the same currencies on which the unit of account of the system is based, for the *accounting price* of this asset to be 1, the currency compositions of the unit of account and of the asset do not have to be identical. As a matter of fact, there is an infinite number of combinations of currencies tied to the fiduciary asset that, at a given set of cross exchange rates, yield the same accounting price of the asset and also the same value

3 It can be recognized that assumption (1) fully conforms to present reality since only monetary authorities can be holders of SDRs; and assumption (2) conforms only partially to current practice, since the participants in the SDR scheme are subject to certain contraints in exchanging their SDRs for currencies, but are contractually obligated to accept SDRs (up to prescribed limits) in the settlement of their claims.

of this asset in terms of any currency. For example, at the set of cross rates

$1 = £0.40 = DM2.50 = FF4$, i.e.,
$£1 = DM6.25 = FF10$, and
$DM1 = FF1.6$,

the unit of account, among other possibilities, can be defined as

$40 + £5 + DM50 + FF40$, (which is equal to
$40 + $5/0.40 + $50/2.50 + $40/4 = 82.50, and to
$£40 × 0.40 + £5 + £50/6.25 + £40/10 = £33$, and to
$DM40 × 2.50 + DM5 × 6.25 + DM50 + DM40/1.6 = DM206.25$, and to
$FF40 × 4 + FF5 × 10 + FF50 × 1.6 + FF40 = FF330$),

while the fiduciary asset might be tied to a basket of four currencies consisting of

$20 + £7 + DM75 + FF60$
or to a basket consisting of
$25 + £10 + DM60 + FF34$.

In both cases the accounting price of one unit of the fiduciary asset is equal 1.[4]

Tying the fiduciary asset to the same combination of currencies on which the unit of account is based is only one of the possible alternatives. At the moment of introduction of the new unit of account *and* the new asset, adoption of this particular alternative makes it possible to graft onto the new asset some of the characteristics of money in a national economy framework. This alternative was in fact implicitly chosen by the IMF on June 13 last year, when it was decided not to distinguish, as far as currency composition is concerned, between the SDR *qua* unit of account and the SDR *qua*

4 The value of the first basket in terms of currencies is

$20 + $7/0.40 + $75/2.50 + $60/4 = 82.50, or
$£20 × 0.40 + £7 + £75/6.25 + £60/10 = £33$, or
$DM20 × 2.50 + DM7 × 6.25 + DM75 + DM60/1.6 = DM206.25$, or
$FF20 × 4 + FF7 × 10 + FF75 × 1.6 + FF60 = 330$.

The value of the second basket in terms of currencies is exactly the same:

$25 + $10/0.40 + $60/2.50 + $34/4 = 82.50, and
$£25 × 0.40 + £10 + £60/6.25 + £34/10 = £33$, and
$DM25 × 2.50 + DM10 × 6.25 + DM60 + DM34/1.6 = DM206.25$, and
$FF25 × 4 + FF10 × 10 + FF60 × 1.6 + FF34 = FF330$.

international medium of exchange and/or settlement and reserve asset.

It can be noticed briefly that the choice of an appropriate mix of currencies for the SDR *qua* asset, in contradistinction to the selection of a currency mix for the SDR *qua* unit of account, is not a trivial matter. The choice of currencies for the SDR *qua* asset will affect the stability of its value in terms of currencies and hence the willingness or reluctance of potential holders to accept it and to keep it as a reserve asset. In order to distinguish between the function of the SDR as a unit and its function as an asset, we shall accordingly refer to it as " SDR-Unit " and " SDR-Asset ".

2. Par Values and "Transaction Values" of National Currencies

The numerical identity between accounting prices of currencies expressed in SDR-Units and their values expressed in SDR-Assets, which prevailed at the moment of the introduction of the unit of account and the asset based on the same combination of currencies, can be preserved only as long as cross rates of exchange among currencies remain unchanged. If no par values (announced accounting prices) are observed, either *de jure* or *de facto*, the distinction between the SDR-Unit and the SDR-Asset becomes blurred: one unit of the asset becomes, in fact, the common denominator for the values of currencies. However, in order to explore the relationship between the SDR-Unit and the SDR-Asset, let us assume that changes in the exchange rates between currencies occur within a framework of "adjustable fixed parities". In order to simplify the exposition, we may assume that the width of the "band of permissible fluctuations of exchange rates around parity" is zero, so that no divergence between a currency's market exchange rate and its parity is allowed to occur.

If a nonbasket currency is revalued [5] no difficulty arises: the accounting price of the currency in terms of the SDR-Unit changes by the same percentage as its "transaction value" in terms of the SDR-Asset.

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5 Throughout this article any change in the parity or par value of a currency will be referred to as *re*valuation. The terms " *de*valuation " and " *up*valuation " will be reserved to specify the direction of the *re*valuation of a currency.

Conceptual difficulties arise when one of the currencies in the basket is revalued. Suppose that a currency with a weight of 20% in the basket is depreciated by 10% *relative to all other currencies*. Since this currency does not depreciate relative to itself, it means that it depreciates by 10% relative to 80% only of the value of the SDR-Asset assignable to the presence of other currencies in the basket. Hence, the value of the depreciated currency *in terms of the SDR-Asset* would decrease by $0.1 \times 0.8 \times 100\% = 8\%$, so that if this currency is formally devalued by 8% relative to the SDR-Unit, no divergence between its new par value and its new transaction value would occur. However, because of the depreciation of this currency in terms of the SDR-Asset, the transaction value of the SDR-Asset in terms of all other currencies would decline by 10% times the relative weight of the depreciated currency, i.e., by 2%, while the par values of all these currencies remain unchanged.

Changes in the transaction values of the SDR-Asset with respect to currencies, and divergences between these transaction values and par values of currencies in terms of the SDR-Unit, involve two distinct considerations:

(a) the advisability of corrective changes in par values in presence of changes in transaction values,

(b) the techniques of maintaining the value of the SDR-Asset unchanged (or even increasing it) in transactions against currencies.

As concerns the first consideration, (a), divergences between par values of currencies and their transaction values are no more consequential than giving up attempts to define the par values altogether. However, par values systematically diverging from transaction values serve no useful purpose and may thwart the professed desires of the IMF to promote public understanding of the new system.

Another possibility would be to bring the par values into line with the transaction values every time the latter change. In absence of provisions for the so-called value maintenance of the SDR-Asset in transactions against currencies, this can be accomplished through a uniform upvaluation of all currencies (by 0.2/1.02 per cent in our example) with respect to the SDR-Unit. If the transaction value of the SDR-Asset is maintained by means of changes in its composition designed to offset the effects of depreciation of the basket

currencies, then the alignment of the par values and the transaction values of all non-revaluing currencies would call for a change in the composition of the SDR-Unit every time the composition of the SDR-Asset is adjusted. It can be recognized that both procedures amount to the destruction of the immutability of the SDR-Unit as a yardstick by which par values are "measured".

A third solution is to measure the SDR-Asset in terms of SDR-Units. This means that if, after revaluations of some currencies in the basket have taken place, the value of the SDR-Asset declined, say, by 5%, the accounting price of one SDR-Asset will be 0.95 of the SDR-Unit. Also the transaction value of each non-revaluing currency in terms of the SDR-Asset will be 0.95 of its unchanged par value in terms of the SDR-Unit.

As a digression it may be noted that a version of the third solution was called, by the Committee of Twenty, "The 'Par Value' Technique"[6] for determining the value of the SDR-Asset in transactions against currencies. According to this technique, the SDR-Asset need *not* be composed of currencies, but the SDR-Unit will. The value of such an asset in terms of any currency would vary with revaluations of this currency with respect to other currencies. Thus the value of the SDR-Asset from the point of view of its holders would be determined by the balance between devaluations and upvaluations of currencies other than their own. The SDR-Unit would serve only to give a "quantitative expression" to this balance.

The second of the two considerations, (b), the problem of adjustment of the composition of the SDR-Asset in terms of basket currencies, and in particular, of value maintenance of the SDR-Asset in transactions against currencies, has a real economic significance insofar as countries use this asset to settle their debts and/or to claim real resources of other nations. At the heart of the perceived need to maintain the value of the SDR-Asset in transactions against currencies equal to an "average value" of the currencies in the basket is the problem of confidence in reserve media. As long as the values of different actual or potential reserve assets are not rigidly linked, expectations as to the appreciation of some assets with respect to others will recur. This will lead to switching among assets, which in turn will result in abrupt changes in the volume of international reserves, with ensuing instability.

6 IMF, *International Monetary Reform...*, Appendix 9, p. 45.

One way to avoid this danger is to persuade national governments to renounce the right of conversion of the SDR-Assets into other reserve assets. But even in a world with a single reserve asset it may be desirable to maintain the value of this asset in terms of either (a) the currency of its holders, or (b) a weighted average of major currencies, or (c) a representative basket of internationally traded goods.

From the point of view of a central bank holding SDR-Assets, their stable value in terms of domestic currency units *eliminates* the risk of accounting losses on the holdings of SDR-Assets as reflected in the balance sheet of the bank. Maintenance of the value of the SDR-Asset in terms of a weighted average of major currencies *reduces* the risk of a sudden decline in the purchasing power of the holder's reserves of SDR-Assets resulting from an upvaluation of a major basket currency. The stabilization of the value of the SDR-Asset relative to a basket of internationally traded goods *guarantees* the maintenance of the purchasing power of the holder's reserves of SDR-Assets to the extent that the composition of its imports corresponds to the composition of the basket of goods with respect to which the SDR-Asset is being stabilized.

Even if the value of the SDR-Asset is maintained in any or all respects enumerated above, their holders may be tempted to exchange their SDR-Assets for a major "strong" currency. The world would thus move from the originally designed SDR standard to a sort of a SDR-exchange standard, under which the bulk or a large part of the stock of reserves would consist of several major basket currencies. To forestall such a degeneration of the SDR standard, the incentive to convert SDR-Assets into "strong" currencies can be weakened by making the SDR-Asset itself more attractive as a reserve medium. The "attractiveness" of the SDR-Asset can be enhanced through deliberate changes in its value in terms of currencies.

3. Classification of SDRs According to the Method of Their Valuation

From the point of view of the holders of SDR-Assets, the value of this asset changes every time there is a change in either the par value or the quantity of any of the currencies entering the SDR basket. As long as the currency composition of the SDR-Asset

remains fixed, only basket currencies' par value can change autonomously, i.e., as a result of a change of one basket currency's parity relative to other basket currencies. But deliberate compensatory adjustments of the value of the SDR-Asset can be achieved by changing the number of units of the basket currencies in the mix, the par values of the basket currencies, the par values of both the basket and the nonbasket currencies, or by some combinations of the above methods.

The classification of SDR-Assets by the method of their valuation in the currency or their holders is given in the following tabulation.

1. STANDARD BASKET — no compensatory adjustments are made for autonomous changes in par values of the currencies in the basket.

2. ADJUSTABLE BASKET I — adjustments are made in order to *maintain* the value of the SDR in terms of the currency of the holder in spite of possible changes in par values of the currencies in the basket, by means of:

Quantity-adjustment techniques

Alpha. Proportional compensatory change in the number of units of the revalued currency in the basket. (The "Adjustable Basket" technique.[7])

Beta. Proportional compensatory change in the number of units of all currencies in the basket except the revalued one.

Par-value-adjustment technique

Gamma. Proportional compensatory change in the par values of all currencies except the revalued one.

3. ADJUSTABLE BASKET II — adjustments are made in order to *increase* the value of the SDR in terms of the currency of the holder irrespectively of possible changes in the par values of the currencies in the basket, by means of:

Alpha. Proportional compensatory change in the number of units of the devalued, but *not* the upvalued, currency in the basket. (The "Asymmetrical Basket" technique.[8])

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7 In the language of the Report of the Committee of Twenty to the Board of Governors of the IMF.

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TABLE I

CHARACTERISTICS OF DIFFERENT TYPES OF AN SDR-ASSET

Type of the SDR-Asset	Characteristics	Currency composition of the SDR-Asset	Weights of component currencies	Valuation of the SDR in terms of currencies which have not been revalued autonomously		Parities between nonbasket currencies and basket currencies which have not been revalued autonomously
				basket	nonbasket	
STANDARD BASKET		constant	variable	variable	variable	constant
ADJUSTABLE BASKET I	*Techniques* Alpha (quantity adjustment)	variable	constant	constant	constant	constant
	Beta	variable	variable	constant	constant	constant
	Gamma (par value adjustment)	constant	variable	variable	constant	variable *
ADJUSTABLE BASKET II	*Techniques* Alpha	variable	variable	variable	variable	constant
	Beta Gamma	Same as the corresponding techniques above				
	Delta (quantity adjustment)	variable	constant	increasing	increasing	constant
	Epsilon (par value adjustment)	constant	constant	constant	constant	constant
	Zeta	constant	constant	constant	increasing	variable **

* Entails an upvaluation of basket currencies relative to nonbasket currencies.
** Entails a devaluation of basket currencies relative to nonbasket currencies.

Beta and *Gamma*.   Same as the corresponding techniques listed above but with respect to devaluations only.

Quantity-adjustment technique

Delta. Periodic proportional increases in the number of units of currencies in the basket (the so-called crawling basket).

Par-value-adjustment techniques

Epsilon. Periodic proportional reductions in the par values of all (both basket and nonbasket) currencies.

Zeta. Periodic proportional reductions in the par values of the basket currencies only.

Different methods of valuation of the SDR-Asset lead to different characteristics of SDR-Assets associated with the use of these methods. The properties of various types of SDR-Assets are summarized in Table I.[9]

4. Issues connected with various methods of valuation of SDR-Assets

So far our categorization of valuation methods has been purely taxonomical, by classifying and describing the methods which are conceptually possible, without any regard to the exchange-rate regime under which the monetary system operates.

In the remainder of this article, we shall discuss consequences of valuation of an SDR-Asset within the framework of the actual monetary system, or the one likely to emerge in the future.

Par-Value-Adjustment Techniques

It should be said at the very outset that all par value adjustment techniques entail essentially a par value system of exchange-rate changes. Since there is no market for SDR-Assets — the only transacting parties being the central banks — a given par value of a currency must mean that its issuer stands ready to buy or sell this

9 Rigorous derivation of these properties is available from the author upon request.

currency for SDRs at a stated price (or within a price range indicated by the "band"). In other words a compensatory adjustment in par values imposes on some or all countries definite obligations. As can be seen from Table I, par value adjustment techniques Gamma and Zeta entail a compensatory change in parities between the basket currencies and nonbasket currencies, which may, but most likely may not, be justified on economic grounds. For this reason alone, techniques Gamma and Zeta cannot be considered viable alternative methods of valuation of the SDR-Asset. (In addition, if a scheme of reserve indicators were in use,[10] the compensatory changes in par values of basket currencies would almost certainly be inconsistent with the signals for adjustments in par values given by changes in countries' reserve levels.)

The remaining par-value-adjustment technique, Epsilon, does not suffer from this defect. (The compatibility of this technique with the system of indicators can be achieved by giving up uniformity in par value changes. That is to say, the percentage reduction in a currency's par value would depend on the magnitude of the change in the reserve position of the corresponding country within some pre-specified preceeding period.) Yet, technique Epsilon is not neutral with regard to international distribution effects: since the SDR-Asset is supposed to appreciate gradually in terms of currencies, the real burden of debtor countries — countries which spend their allocation of SDRs or borrow them from the IMF — would gradually increase. In fact, both technique Epsilon and technique Delta are equivalent to, at least partial, stabilization of the SDR-Asset in terms of its purchasing power, since in both cases the presumed decline in command of currencies over goods is offset by an increase in the amounts of currencies one SDR-Asset can be exchanged for. This implies a danger of speculative borrowing by national governments in the capital markets. Assume, for example, country that K has a balance-of-payments deficit with the United States of $\$1.2 = SDR1$. This country may have sufficient reserves of SDR-Assets to settle its position. But since its government knows that within a given period of time the dollar (and other currencies as well) will depreciate relative to the SDR-Asset, say, to $\$1.3 = SDR1$, it may choose to

10 Cf. *The Annual Report of the Council of Economic Advisers of the U.S. Government*, Chapter 5 and Appendix A, Washington, D.C., January 1973.

borrow $1.2, for instance, in the Eurodollar market in order to settle its position with the United States, and then, when $1.3 = SDR1, submit one SDR-Asset to the monetary authorities of the United States in exchange for dollars, repay its loan to private lenders and be left with a gain of $0.1. Whether such borrowing makes sense will depend, of course, on whether the incurred interest charge exceeds or falls short of $0.1. In order to prevent speculative borrowing of this sort, the pace of reductions in currencies par values or of increases in the amounts of currencies in the basket would have to be related to the level of interest rates in the world's main capital markets. It seems doubtful that such a solution has an advantage over the practice of attaching the interest payment on SDR-Assets to the weighted average of interest rates in major capital markets.

It can be added that "Asymmetrical Baskets", which also entail secular appreciation of the SDR-Asset relative to currencies, can lead to the same kind of speculative borrowing as described above. However, because of the fact that the timing of upvaluations (without compensatory offsets) is uncertain, the danger of such borrowing is greatly reduced.

Quantity-Adjustment Techniques

Quantity-adjustment techniques do not, in principle, require a system of par values. A depreciation of a currency relative to the SDR-Asset can be offset by increasing the number of units of the depreciated currency and/or of non-depreciated currencies. Even under a system of widespread floating, the quantity adjustments could be made daily, if it were so desired. Needless to say, if a par value system is in force, quantity adjustment techniques could be used as well.

The main advantage of quantity adjustment over par value adjustment techniques is that the former can be made to eliminate the consequences of the dichotomy between the par values of currencies in terms of the SDR-Unit and their transaction values in terms of the SDR-Asset. This dichotomy stems from the fact that at present countries are (and probably will be for a long time to come) mostly concerned with the cross exchange rates of their currencies and pay practically no attention to what the par value of their currency may be.

The "Standard Basket" is a natural outgrowth of this state of affairs reflecting the principle of "passive" valuation of the SDR-Asset: the transaction values are computed from the prevailing cross rates of exchange among currencies. Thus there obtains a perfect consistency between the value of the "Standard Basket"-SDR in terms of any one currency and the prices of other currencies in terms of this currency. With floating rates the dichotomy mentioned above disappears because par values do not exist. But even if par values were re-introduced, they could be computed from the set of agreed upon parities, the only purpose of which would be to define the permitted margins. (J. Polak, *op. cit.*, p. 10, takes an opposite view: "[the] function [of the par value] is to determine parities, i.e., ratios of the par values of the two currencies".) What would count, however, would be the transaction value of the SDR-Asset computed from the cross rates of exchange on a given day, just as under a system of general floating. As mentioned above, quantity adjustment could be made daily without regard to changes in currencies par values or absence thereof.

There are some interesting features associated with different quantity-adjustment techniques. As can be ascertained from Table I, two of them imply constant, and the rest, variable, weights of currencies in the basket. Apart from technique Delta, which in a sense abstracts from changes in parities or cross-exchange rates, only technique Alpha applied for the purpose of value maintenance implies constant weights.

The issue of constancy of weights may become important insofar as currencies losing their relative weights, i.e., currencies depreciating relative to other currencies, play a major role in the world's finance. Just in eight months, from the moment of the introduction of the composite SDR through the end of February 1975, the weight of the U.S. dollar in the basket fell from 33% to 31.7%. If the same composite SDR had been introduced at the time when the SDR scheme was first agreed upon, the drop in the weight of the U.S. dollar would have been from 40% to 31.7%. Were the value of the SDR-Asset stabilized by means of technique Beta, the drop in the weight of the U.S. dollar would have been even more pronounced. In other words, in the long run, the least inflation-prone currencies assume an increasing weight in the basket, although their share in the word's payments need not be increasing. From this point of

view, technique Alpha (constant weights) is preferable to other quantity-adjustment techniques for the purpose of maintaining the value of the SDR-Asset in transactions against currencies.

It should be realized however, that technique Alpha will produce opposite results as far as the predominance of upvaluations or devaluations is concerned, depending on whether it is used to maintain or to increase the value of the SDR-Asset in transactions against currencies. Suppose that a payments imbalance develops between France and Germany, requiring for its elimination a depreciation of the French franc relative to the Deutsche mark. The well-known dilemma is whether Germany should appreciate its currency or France should depreciate its currency relative to the SDR-Asset.

Let us consider first technique Alpha used for the purpose of *maintaining* the value of the SDR-Asset (" Adjustable Basket " in the language of *International Monetary Reform, op. cit.*, Appendix 9). If the French franc depreciates, the offsetting adjustment will result in one SDR-Asset being worth *more* French francs than before and unchanged amounts of all other basket currencies. If the DM appreciates, however, again triggering the appropriate compensatory downward adjustment in the amount of Deutsche marks in the basket, the SDR-Asset will be worth *fewer* marks than before and unchanged amounts of all other basket currencies. In other words, the maintenance of its value in transactions against currencies by means of technique Alpha results in a devaluation (or depreciation) bias of the basket currencies relative to the SDR-Asset.

Now, if technique Alpha is systematically used in order to increase the value of the SDR-Asset in terms of currencies (" Asymmetrical Basket " in the language of *International Monetary Reform, ibid.*), and the French currency depreciates, the resulting change in the value of the SDR-Asset in terms of the component currencies will be the same as described in the preceeding paragraph. If the German currency appreciates, however, there will be no offsetting reduction in the amount of Deutsche marks in the basket. The SDR-Asset will be worth *more* in terms of all currencies except the Deutsche mark. Hence, increasing the value of the SDR in transactions against currencies by means of technique Alpha results in an upvaluation (or appreciation) bias of the basket currencies relative to the SDR-Asset.

The biases discussed may be insignificant as long as SDR-Assets constitute a small part of countries' reserves. But if and when the SDR becomes the predominant reserve asset, these biases may come to have a major impact on the distribution of responsibilities among countries for changes of par values or transaction values of their currencies. Clearly, these biases will also have an impact on the change in the volume of the world's real reserves, insofar as nominal reserves will consist largely of SDRs.

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