

CURRENCY BASKETS AND HOW TO FIND STABILITY IN MOTION

R. R. TROELLER

THE PRICE at which most international transactions take place is calculated from a posted price in terms of a single currency whose price, in turn, is quoted in terms of other currencies. Discussions on export income, therefore, have both a posted price and an exchange rate aspect. Oil is no exception. The price of most raw materials, including oil, is posted in U.S. dollars which have a great variety of relationships with other currencies.

A country's ability to import depends not only upon the dollar price of its raw materials but also upon the exchange rate and, in the case of oil, the rate of extraction. To a great extent a raw material exporter can eliminate the risk of a variation in its export revenue. The policies which will achieve this are concerned either with the posting of prices or with the rate of exchange. Some economists would prefer to price commodities in a currency, other than the dollar, whose value is not liable to fluctuate significantly. Others argue for the use of an exchange rate index instead of a series of binary exchange rates in order to determine the value of an exporter's currency. Still others, including the present author, recommend a combination of both policies.

All policies to eliminate exchange risks try to allow for the fact that export receipts and import payments may occur at different times and that the currency in which the export price is posted may be different from the currencies necessary for the purchase of imports. The need thus arises to invest export receipts as and when they are obtained in such a way as to minimize the damage that relative exchange rate changes may inflict on the country's future import potential. This is especially important for a developing country dependent on the export of a single commodity whose financial receipts might not in the short run be translated into imports of goods and services because of low capital absorption capacity. This would apply specifically to a number of OPEC countries with substantial export receipts and often considerable time lags in import consumption.

It follows that when a good is internationally traded and the price fixed in an international money, it is essential to separate the linkage of a posted price with the currency in which it is posted from the link that exists between the domestic currency of the exporting country with other currencies and particularly with the "key currency" in which the value of the currency is expressed.

An earlier version of this paper was prepared for the Central Bank of Venezuela. The author acknowledges with thanks the suggestions and contributions of John Lepper.

Evidently a country may well choose to use a different international money for each of the functions it was accustomed to expect from one international asset such as the dollar before 1971. Indeed it may invest its foreign reserves in a variety of currencies; use Special Drawing Rights as its unit of account (key currency); if it is a contracting party to the European "snake" it may employ the deutschemark as intervention currency and it is most likely that it will use eurodollars as its main transaction currency. The discussion of these various possibilities will be the nucleus of our study.

The duality of the exchange risk problem suggests a duality of treatment. In this paper we shall first be dealing with the relationship of the posted price of an export commodity with the posting currency, i.e., the relationship of an internationally quoted price with the international money in which this price is expressed. Subsequently we shall consider the criteria which determine the choice of a key index to safeguard the purchasing power of a country's currency against parity changes.

For this purpose, we shall investigate whether it is more advantageous for a developing country to be part of a currency area; to let its currency float freely according to the laws of supply and demand (or not so freely, using supply and demand as indicators only and in fact administering the rate at which the currency is to be quoted); to peg it to an existing index such as the SDR; or to create an individual "currency basket" as an index through which to express the value of the currency.

I. POSTED PRICE AND POSTING CURRENCY

No index describes reality: it simply represents part of it; nor does the price of oil or any price when taken as an index. It cannot be interpreted on its own terms. An index is always founded on a base which might well harbor an aspect of change. In constructing an index, therefore, the end which it will serve and the type of information and guidelines sought must be clearly set out.

One cannot use the international price of oil as an index of purchasing power. One has to add at least one other element and, since most commodity prices are expressed in dollars, this will clearly have to be the price of the dollar in terms of other currencies. One's domestic currency cannot be used either as an index for the posted price of an internationally traded commodity since any variations in the latter's exchange rate towards third countries alters the foreign revenue from the commodity in domestic terms as well as in terms of other foreign currencies.

Conscious of the steady depreciation of the U.S. dollar, the currency in which the oil price is posted, OPEC countries have made several attempts since 1971 at safeguarding the real value of their oil receipts without yet having found a satisfactory index.

Indeed even before the sudden drastic increase of the oil price in autumn 1973, the Gulf States felt that the dollar, while an internationally useful currency, was hardly a good store of value. In addition to a high domestic inflation rate, its rapidly declining exchange rate in terms of other major Western currencies

was felt to necessitate repeated upward adjustments of the oil price to offset the decline in the value of the dollar.

Already in January 1972, an agreement was reached in Geneva, under the terms of the existing Teheran Agreement on Pricing, between the Gulf States and the oil companies in which it was agreed that adjustments in the dollar price of oil would take place according to movements in an exchange rate index. The formula was exceedingly crude in that it did not attempt to weight exchange rates according to their importance to oil-producing states. Indeed it is likely that even in the absence of the increase in the oil price in October 1973 the agreement would have broken down since it inevitably led to such a high degree of instability in foreign exchange receipts that the value of oil-producers' reserves would have decreased in real terms.

As it was the use of a badly constructed index impeded the internal adjustment of real import demand for oil, perpetuating in this way the imbalance by keeping the income of the deficit country higher than it would have been if the deficit currency had been allowed to devalue and reduce the disequilibrium.

In the euphoria of the increase of the oil price the habit of pricing oil in "unsecured" dollars crept in again. At a time when the oil price more than trebled, a 1 or 2 per cent decrease in the value of the dollar seemed to matter little. The desire to post the oil price in terms of a more stable money soon reappeared, however, and attention has focused on Special Drawing Rights as an index since June 1974, when the value of an SDR was calculated according to the movements of sixteen major trading currencies against each other. This, it is generally admitted, would give a greater measure of stability to the value of a barrel of oil than a dollar price. Not only are the currencies in the basket underlying SDRs weighted according to their country's share in world trade, but each movement by definition is compensated to a great extent by a "counter-movement" of the other currencies. Therefore, the actual value of the basket is unlikely to fluctuate significantly.

This reasoning of course applies to any commodity agreement in which the posted price is expressed in an international money and it is largely irrelevant whether the percentage weighting of the currencies in the SDR basket does in fact approximate the import pattern of any of the contracting parties. What is needed is a figure that expresses a value and which by virtue of its very composition will exhibit minimal fluctuations.

Indeed, in a world in which not all currencies float and in which international reserves are felt to be rather too plentiful, the SDR, now detached from gold, may fulfil a greater need as a posting currency for internationally traded commodities than as an actual reserve asset. Reference to the considerable shortcomings of SDRs as a transaction currency is legitimate but in no way affects the SDR as a unit of account and should thus be treated as irrelevant. What matters is that the International Monetary Fund calculates one figure or index every day. This figure undergoes insignificant fluctuations and is thus a good basis for international negotiations and commodity prices in general and oil prices in particular.

We conclude, therefore, that SDRs are the best alternative for expressing commodity prices such as oil. They evidently will not eliminate all exchange risks but will considerably limit the erosion in the value of export receipts. SDRs are superior to a national currency as international money since their value is determined objectively in such a way as not only to ensure an appreciable degree of stability, but to reduce the risk of domination by the agency issuing the national posting currency.

Since, however, SDRs will not safeguard the future import potential of export receipts, this question must be considered separately. It is considerably more complex. We shall analyze it in the next section.

II. EXCHANGE LINKS

A. *The Problem*

Every country and in particular every developing country is vulnerable to the effects of changing exchange rates upon its ability to develop its economy with the benefits of imports from other countries. For developing countries—including OPEC—the ability to import the technology they desire is crucial and variations in the currency of one industrialized country against another change the spectrum of opportunity costs developing countries face even if their own currencies are fixed.

Several indices can be constructed in order to preserve the purchasing power of export receipts depending upon what sort of guarantee is desired. It is imperative to sort out this problem because it is not possible to construct an index that provides insurance against all risks. Indeed the use of one index will in general mean that other risks are either not covered or are even intensified. It is up to policy makers to assess the risks and to employ the index which best serves their purpose. Each index can also be modified so that the purchasing power in respect of certain goods may be guaranteed and there appears no reason why other modifications should not be built into the index as and when required.

B. *Attempted Solutions*

The variety of solutions that can coexist in a relatively small geographical area can be observed in the methods that Middle Eastern oil-producing countries use to express and stabilize their currencies. Gold, the dollar, SDRs, freely floating rates, individual currency baskets—the composition of which in some cases is secret—have each been combined with varying degrees of convertibility; with straight exchanges against third currencies, with exchanges through the dollar with official parallel foreign exchange markets, with heterogeneous sets of margins within which the currency is allowed to float against the dollar, against gold, against SDRs, even against its own currency basket, add to the complexity.

Indeed Iran, Saudi Arabia, and Qatar have each pegged the value of their currencies directly to the SDR index and indirectly to the dollar which they use as an intervention currency; Kuwait expresses the value of the dinar in terms of a weighted but undisclosed individual currency basket; the Bahraini dinar is

still pegged to the U.S. dollar; Abu Dhabi and the United Arab Emirates peg to gold; the Lebanese pound, apparently, floats freely.

The coexistence of these different systems does not seem to present a problem, even between countries as closely knit as those which form the nucleus of OPEC. Such diversity appears to be not only tolerated but also overtly promoted by the IMF.

C. *Alternative Solutions*

This article will not give much space to flexible exchange rates, though they are most widely adopted at the moment. Such a mechanism is wholly undesirable for small developing countries, especially for those with a significantly lopsided economy such as OPEC countries. In fact, since export price fluctuations of the principal export commodity would be followed *pari passu* by fluctuations of the exchange rate in the same direction, gains and losses would merely be amplified and no attempt at securing the value of future imports could possibly be successful. The country's fortunes would thus be utterly exposed to all the vagaries of the international demand for their product.

Another solution, the fixed but adjustable exchange rate system, the IMF regime—which officially lasted to January 1976 but in fact has been only partially adhered to since May 1971—is not under discussion here because, by itself, it does not give any indication to what kind of a link would be the most suitable for insuring the future import potential against exchange rate fluctuations. The declared purpose of this study is the search for a meaningful and relatively stable index in relation to which a country's parity can be fixed.

To belong partially, or even to be an integral part of a currency area, exempts a country from having to seek for an index other than the reserve country of that area—such as the dollar. All it need is the willingness to join a currency block and the readiness to float upwards and downwards against other currencies or currency blocks for reasons unconnected with and possibly even detrimental to its own economy.

Before the existence of eurocurrency markets, significant benefits could be reaped by a developing country from belonging to the dollar or the sterling area, i.e., pegging without margins to a Western reserve currency. At that time to belong partially to a currency was an optimal solution: foreign reserves could be held in one currency only, the domestic currency of the "reserve" country, and if that country was also the major trading partner, such an arrangement reduced exchange risks to some degree, though by no means perfectly. Some of these advantages still persist.

On the other hand, the penalties attached to such an agreement can be onerous. Manipulation by the reserve country's monetary authorities of the money supply to cure domestic unemployment, as well as the threat of sterilization measures for political rather than economic reasons, may have direct—and not necessarily desirable—effects on the developing economy, which the reserve country's authorities might find difficult to counteract. Even if it is possible to offset these detrimental effects, counteractive policies are wasteful and bring about a grossly

sub-optimal situation because the funds employed cannot now be used directly to further development.

A strong and expanding eurodollar market, the access to which does not require dollars, has considerably reduced the attraction of belonging, say, to the dollar area. Direct and relatively unhampered access to the world's goods and investment opportunities, which used to be the privilege of members of a currency area, can now be enjoyed simply by dealing in the framework of the euro-dollar market, without incurring the considerable costs of fixing one's currency to another without margins of fluctuation. The currency area link has ceased to be merely embarrassing and has become positively detrimental for a number of developing countries whose export receipts have risen suddenly and drastically.

At a first view, a depreciation of the reserve currency in terms of other currencies might appear to be unimportant since most inward foreign investments are likely to be made in that currency and most imports received from the reserve country, but a depreciation of the dollar in terms of the deutschemark will allow one deutschemark to acquire an increased number of dollars, which in turn will buy more raw materials from a developing country in the dollar area. Thus a depreciation of the dollar means a de facto reduction in the commodity price, to which must be added the presumption that imports from Germany have become dearer. Imports from Germany will thus be reduced on two accounts.

This suggests that a developing country with perennial surpluses belonging to a partial currency area suffers considerable opportunity costs and that the disadvantages significantly outweigh the benefits.

We should, however, be aware that such an argument is not valid where countries at comparable degrees of development join in a full monetary union. The EEC for instance, though in no way an optimum currency area, might find that the formation of a currency area might well be superior to most other alternative exchange rate systems open to it, especially as it need not even involve the creation of a common currency but could function adequately with irrevocable and irredeemably fixed exchange rates without margins of fluctuation. The problem of valuation of a European currency would, of course, persist, though it is likely that the common currency or the various currencies (united in the "snake" for instance) would be allowed to find their joint value by fluctuating in the foreign exchange market.

D. *Alternative Solution: SDRs*

In our search to find a procedure through which a hitherto dependent currency can achieve a maximum of stability in the face of ever-changing exchange rates, we have to examine a number of new standards.

The ideal solution would lie in a uniquely defined reference (with or without margins) to some artificial unit of account, the value of which would be determined by a currency bundle rigorously proportionate to and varying with changes in the developing country's import pattern. But such a man-made currency—unlike SDRs—would fulfil only the skeletal function of a buffer and hardly warrant the complications that would arise: namely, rigidity of the adjustment mechanism

and increased need for domestic financial policies; (in fact domestic policies not dissimilar to those needed during the full gold standard). We consequently hesitate to recommend it.

How far can SDRs be considered an adequate standard to preserve export income and to create a climate of confidence in which investment and import decisions could develop into purposeful and long-term patterns? To base a country's currency on the SDR would certainly be superior to basing it on the dollar or sterling. It could even operate with margins of, say, 2.5 per cent either side to make it more flexible. However, while SDRs were recommended as constituting the best posting currency for commodity agreements or international export cartels, they cannot be accepted without serious reservations as an index by which to value a developing country's currency.

We would argue that, while the value of SDRs as posting currency is readily acceptable as one figure which has the intrinsic quality of slight fluctuations, the precise composition and percentage weighting of the SDR currency-basket becomes of considerable importance once we take account of the significant difference between most developing countries' import patterns and the percentage distribution of the SDR basket. This makes the SDR basket an inappropriate instrument for reducing their foreign exchange risk.

Instead of viewing SDRs as a single figure, we will have to analyze the SDR as a particular currency basket and compare the exact proportions of world trade which are represented with the exact proportions of a developing country's trade as expressed by imports from its various trading partners. Advocates of simplicity might well object to this somewhat complex argument. However, any wisely managed exchange policy, especially in an era of extreme international monetary uncertainty, must clearly take these factors into consideration, however unconsciously. It must also be realized that all developing countries and most of the OPEC countries are confronted with a completely new situation which necessitates readjustments in traditional values, customs, and behavior patterns.

This is not to argue that there is no virtue in a SDR standard. Should a number of export cartels such as OPEC fix their commodity price in SDRs, some adjustment costs could be avoided on the international payments side if the developing country's currency was also linked to the SDR standard. But even those who take the view that a uniform standard should be adopted in spite of the defects it may entail must realize that the argument cannot be decided on theoretical grounds only, since a number of developing countries have spontaneously opted for currency baskets different from the SDR proportions and considerably nearer to their own trade patterns.

Thus it would appear that an SDR standard does not solve the most urgent problems of developing countries since only a part (and for a great number of them a minute part) of exchange risks are covered. It may be a considerable improvement on most existing exchange rate links, but we feel that the cost paid for this incomplete insurance is too great and we would certainly hesitate to advise countries whose import patterns are in flux to tailor their import plans in such a way as to make them conform to the proportions of the SDR basket.

Since it would be spurious for developing countries and particularly for OPEC countries to take yesterday's—or even today's—trade as a model for their future import pattern, a premature pegging of the exchange rate to any index which does not allow for continuous structural readjustment must be avoided. Indeed, unless the new standard adopted is flexible enough to allow all the effects of increased export receipts to work themselves out, it will turn into a straight-jacket.

In the next section, therefore, we shall lead the argument to its logical conclusion and propose the adoption of currency baskets designed for each country's particular needs and fully allowing adjustments at every future stage.

III. CURRENCY BASKETS

Our argument has led us to suggest that developing countries—and eventually all countries—might be better off by adopting a currency basket tailored to their particular trading and investment plans. This would involve the establishment of an indexing system which would see to it that the country's imports as well as its investments are weighted correctly and the currencies adjusted within the basket as and when the need arises, thus assuring that the actual proportions conform to the country's trading patterns. In addition, the index would take into account relative inflation rates.

For the moment we intend to discuss the criteria upon which an individual currency basket should be based. Evidently the most decisive element to be considered for the construction of the basket is the country's trade pattern. The foreign investment spectrum, however, is only slightly less essential since the two may well show a marked interdependence. They may indeed be so closely linked that a decision about one can be made only after a decision about the other, leading to a chicken and egg problem, which can best be eliminated by constructing models in which decisions about the levels of all policy variables are made simultaneously and thus all problems of negative feedbacks are eliminated. (We shall return to this problem later.) For the moment, however, we shall proceed differently and discuss the solution in a more realist "step-by-step" fashion.

To calculate a particular currency basket is, in principle, a very simple matter. Provided the currencies in the bundle are correctly chosen and the percentage weighting given to each equals the proportion of payments made in that currency, the future ability to purchase goods from abroad is protected against changes in countries' exchange rate movements against each other.

In a mature Western trading country, a basket could easily be constructed by taking the propensity to import particular goods from particular countries as a guide. One would then perhaps adopt the procedure of averaging out, say, the last five years' imports or taking the year with the highest trade figures in order to find the appropriate weights for each exchange rate in that basket, or else—like in France—take as guideline the indicative plan and work from there. It should be apparent that this cannot be the right method for a developing country,

let alone an OPEC country. Past trade figures would necessarily lead to completely erroneous projections into the future and—as does the linkage with the dollar at the moment—prevent new import and investment patterns from emerging. It is thus inadvisable to rely on past trade even as an indicator.

Any program which regulates economic activity for some years ahead is of course welcome to those responsible for establishing the actual weights accorded to currencies in the basket. Thus, where five-year plans exist, it should be simple to predict import needs quite accurately. The difficulty, however, may appear with the choice of the supplying country, since the very existence of a currency basket that levels out much of the exchange rate instability might also iron out a number of previously unnoticed distortions of comparative—in certain cases even absolute—advantage.

The problem is simply shifted. Even where domestic policies are purposefully conducted towards determining the internal and external needs of the country, according to a preestablished plan, and therefore the quantities to be imported are given, it will not be easy to project beforehand the exact composition and currency weighting of the basket. Only gradual and perpetual readjustment will eventually result in yielding correct proportions, for even these will undergo continuous changes since the basket is built on the living economic reality of ever-evolving trade patterns of the country, and the currency of one import source would then automatically be compensated by the assets held in that currency and—in the worst case—their liquidation would pay without loss for the dearer imports.

We shall investigate only a few of the many objections to this view. First, such hedging completely ignores the yield or profit motive. Managers of large funds cannot ignore with impunity international interest parity considerations, especially where forward markets exist, and even more so where governments intervene occasionally in the forward market. Even though profit is unlikely to be the prime concern of government, there is a limit to the implicit loss a nation is prepared to take for the sake of merely hedging. Indeed, since such a hedge is in essence an artificial commercial policy, welfare costs may be high, though it is just possible that the ensuing bilateral trade expansion is great enough to eliminate them.

Second, the “merchant banker’s view” requires that investment decisions and import decisions should be closely coordinated. For if they are not, the hedging country may find itself more exposed to exchange risk than if no hedge were attempted. In practice, the two decisions are made by separate agencies for different reasons. Consequently, to require these agencies to coordinate their activities may lead them to fail to achieve the ends for which they were set up as well as not achieving the hedge desired.

In general, it is better to have a one-to-one correspondence between targets and instruments. Thus, it seems better to create a new instrument for the reduction of exchange risk.

Third, while such a policy if, and only if, faithfully implemented would do away to a considerable extent with exchange risk, albeit at a price, it is of course not designed to safeguard against inflation. Inflation is clearly a factor which poses a much larger threat to oil exporters than exchange risks. Even in the best case, however, the interaction remains dialectic and a further instrument is needed to achieve the target of reducing exchange risk; that instrument is a currency basket.

The use of the currency basket, however, is likely to intensify still further the affinities between countries since it will help to override comparative advantages. Therefore, however analytically satisfactory, theoretically respectable, and empirically correct, none of the methods considered until now is able to indicate how the weights of a given currency in a currency basket are to be calculated.

It is therefore possible that we might have to retrace our steps and be content with a basket calculated in a more intuitive though not less dialectic way. The general climate of future plans, past trade patterns, and the anticipated medium-range future of the world into which a rapidly growing developing country might wish to project itself could all influence the basket. In this way the currency basket would have to reflect the kind of foreign relations the country would desire and in turn help shape these relations. In addition, factors such as unequal rates of inflation in industrial countries could be included to give the currency basket more relevance in the real world.

Precision at any point in time is evidently desirable, but since one of the essential characteristics of such a basket—and this no doubt makes it superior to the basket underlying SDRs—is its inherent fluidity, the weights which will ultimately be employed will be arrived at by continuous adjustment. Indeed the basket needs to be flexible enough to conform to any domestic or international aspiration so that the operating country can choose without fear or favor the international relations, political or economic, it prefers to be set.

It is quite important to realize that, even when a currency basket has been introduced, a government will need to maintain exchange rate, monetary policy, and fiscal policy in unison with the basket. Indeed to maintain a given exchange rate, a given combination of monetary and fiscal measures must be employed. The same is true of a given interest rate where a fiscal policy alone or a combination of fiscal and exchange policy are to be used.

In addition, the manipulation of the currency basket can amount to a planning decision for the whole of the foreign sector of the economy. If the intended pattern of imports and exports is to be maintained, both monetary and fiscal policy must be tailored to fit these intentions. For if monetary policy is too lax or fiscal policy too expansionary, imports may be increased despite the changes wrought in the basket.

Apart from the trade position, it is possible to take account of other factors in our calculation of the weights in the currency bundle. Other factors such as the net uncovered position of the country in various currencies as well as unequal inflation rates could also be included.

The adoption of a currency basket also allows the net uncovered position of

a country to be taken into account. It may be that a country desires not just to guarantee its import capacity against exchange risk. Rather it may wish to take account of capital account items as well. If so it need only consider the amount by which its portfolio of investments in percentage terms is different from the distribution of its trade. Indeed, as we have seen earlier, investments could be seen as a hedge against past or all of the trade leaving a portion of either trade or investments uncovered.

Inflation in a foreign country will make the price of imports to exporters more expensive. If the same rate of inflation persisted in all countries, the fact would be irrelevant to the calculation of the weights of the currency basket. In reality, however, countries experience different inflation rates and so the relative prices of goods change and, since the rate of exchange rarely adjusts in full to offset the movement, the demand for that country's goods is likely to be affected and cause import patterns to change. Indeed, we should expect that the greater the difference between one country's inflation rate and its nearest competitor, the faster the decline in its share of the commodity exporter's market is likely to be.

This lowering of market share may lead eventually but not directly to changes in exchange rates either because of lack of confidence or for purely trade reasons. In calculating the currency basket weights therefore the cross effects between inflation and exchange rates must be taken into account. Moreover, factors such as confidence may not be adequately reflected in market prices and so give further reason for the employment of a flexible administration of the basket.

Flexibility therefore would appear to be the pivot around which the usefulness of the currency basket calculations would revolve.

CONCLUSION

It could be argued that a floating currency cannot possibly secure a country's future import potential as well as did gold before it was demonetized. Gold, however, was stable only as long as the U.S. Treasury was ready to buy or sell it at \$35 a fine ounce. The value of the dollar on the other hand was expressed by the single weight of the very gold the value of which it established.

This artificially closed-circuit system constituted the standard in relation to which the parities of the world's currencies were fixed. Such a situation could not last since it was inherently, though not obviously, unstable and the 1971 breakdown was inevitable. The myth of stability was exposed already in 1968 when the two-tier gold price was introduced and the value of the free-market gold climbed well above \$35 an ounce. This meant a de facto devaluation of the dollar but few chose to acknowledge it as such at the time.

Initially founded on gold, Special Drawing Rights since 1974 are based on a moving average of quoted exchange rates and actual international trade figures. Assumed immobility has been replaced by a quivering motion, both following and moderating international economic activity.

There is no straight line to be found in nature, nor is there or could there be complete immobility. This need not project us into a Heraclitian world of

incessant movement. Archimedes demanded one stable point to explain and recreate the world. He failed. But far from limiting the usefulness of the currency basket, the internal fluidity and external mobility constitute its essential attraction. As a buoy, neither fixed nor free, it will always keep you afloat.