

The Problem of Recycling OPEC Surplus Funds: a Proposal *

I. Introduction

In the aftermath of the oil crisis the greater part of OPEC surplus funds have been recycled through the American banking system and the Eurodollar market. Contrary to the conclusions of an earlier study (Hewson), the banks in the Eurodollar market have been adding net liquidity to the international system by transforming their short-term liabilities into less liquid longer term assets (Villani). Thus the mismatching of maturities in the international banking system has increased in the years following the oil crisis.

The ghost of the German financial crisis of 1929 and of the outflow in 1930-31 of highly liquid capital, which the German banks had transformed into less liquid longer term assets, have repeatedly been evoked since 1973 in the absence of a lender of last resort.

Today, in the presence of a new overall surplus in the Western countries' balance of payments, the threat of further substantial

* This article is an updated summary of a paper prepared in the second half of 1977 as part of a research project undertaken by the authors independently of the institutions with which they are respectively connected and published in *Politica ed Economia*, Cespe, no. 4, 1978. The marked switch of current account surpluses in 1978 from the OPEC countries to the industrialized countries undoubtedly makes the problem of recycling petrodollars less serious than it was up until two years ago. Nonetheless, the recent increases in the price of oil and, above all, the uncertainty surrounding possible future increases appear to justify discussion of the problem, if only so as to learn from past experience. It is worth noting, however, that, even though our proposal is formulated with specific reference to the problem of recycling petrodollars, its content and basic features are such that it could well serve in connexion with the more general problem of devising new tools for the compensatory financing of non-oil balance-of-payments disequilibria.

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increases in the price of oil has reappeared, and all the evidence suggests that we shall have to learn to cope with such recurrent and possibly substantial increases. Faced with this prospect, what can we learn from the experience of the last few years and, in particular, can we envisage new recycling mechanisms which would complement those already in existence? The purpose of this paper is to propose a recycling mechanism which would be complementary with regard to those already in existence — from the Eurodollar market to Carter bonds — and those foreseeable for the future, such as SDR (and ECU?) substitution accounts.

Such complementary recycling is, in our view, consistent with the present portfolio composition of the oil-exporting countries and would also promote faster growth, both in the economies of deficit countries and in world trade. The mechanism we propose consists of bonds issued directly by debtor countries in favour of surplus countries. These bonds would be in the currency of the debtor country and indexed to its nominal rate of economic growth (the real rate of growth plus that of prices). Section II compares the recycling mechanisms in force before and after the 1973 crisis. In section III an extension of the life-cycle theory of saving is used to provide a theoretical framework for the proposed recycling mechanism. This is followed by a formalization of the basic proposal, a discussion of its main implications and our conclusions.

II. Before and after the 1973 crisis: a comparison of two different recycling mechanisms

The question we propose to answer is: what changed in the international recycling mechanism after the 1973 crisis?

One issue concerns the amount of recycling necessary between surplus and deficit countries before and after the 1973 crisis. In Table 1 the average annual current account balances for the period 1967-1972 have been scaled up to the prices and levels of real output recorded for the various groups of countries in 1977. These data are then compared with those actually recorded in 1977, the last year since the oil crisis in which the oil-exporting countries had a large surplus.

The first difference which one notices is that the group of countries with a high structural surplus on current account changed

from that of the industrial countries to that of the oil-exporting countries. In simplified terms, before 1973 the industrial countries were surplus countries and the non-oil developing countries deficit countries. Since 1973, the surplus countries have been a number of major oil-exporting countries while the deficit countries have been the non-oil-exporting (more and less developed) countries and some countries within the group of industrial countries.

It should be noted, on the other hand, that once the surpluses have been scaled up to make the pre- and post-1973 data comparable, the surplus of the major oil-exporting countries in 1977 is much less different from that of the industrial countries in the period before 1973 than one might have been led to expect (barely \$29.1 as against \$30 billion). Even if we take into account the further corrections necessary to make the data homogeneous,¹ the difference between the periods before and after the 1973 crisis, with regard to the absolute amount of recycling needed to transfer the current account surpluses from the surplus countries back to the deficit countries, is minimal.

When seen in this light, the fact that a different group of countries has been in surplus since the 1973 crisis and that there has, therefore, been a change in the way in which the surplus is recycled takes on far greater importance than the absolute amount of recycling necessary to balance *ex-ante* saving and *ex-post* investment. It should be underlined that in the period before the 1973 crisis the greater part of the recycling from industrial countries to non-oil developing countries was in the form of public transfers, most of which were bilateral. It can be calculated that close to five sixths of the \$30 billion scaled-up average surplus of the industrial countries in the period 1967-72 were recycled in this way. In other words, before 1973 nearly all the developing countries' deficit (\$27 billion, Table 1) was financed through mainly bilateral public transfers. Only a small proportion of their deficit was financed through the Eurodollar market.² In the period preceding 1973 these public

¹ In particular, it should be remembered that the \$0.7 billion deficit shown in Table 1 for the industrial countries in 1977 conceals large and systematic differences between the current account balances of individual countries.

² This market only took on a certain importance for Third World countries between 1970 and 1973 when their indebtedness on the Eurodollar market rose from less than half a billion to ten billion dollars. These amounts are, however, still quite small compared with those recorded since the 1973 crisis.

TABLE 1

SHIFTS IN THE GLOBAL STRUCTURE OF CURRENT ACCOUNT BALANCES¹
(billions of U.S. dollars)

	1967-72 Average		1977 current account balance	Difference between 1977 balance and scaled up 1967-72 average	1978 current account balance
	Actual current account balance ¹	Scaled up to 1977 prices and levels of real output ²			
Major oil-exporting countries	0.7	3	29.1	26.1	6
Industrial countries ..	10.2	30	- 0.7	-30.7	26
Other non-oil coun- tries:					
More developed	- 1.7	- 6	-13.5	- 7.5	- 7
Less developed	- 8.1	-27	-21.8	5.2	-31
Total ³	- 1.1	... ⁴	6.9	... ⁴	6

¹ On goods, services and private transfers.

² The scale factors for prices are based on a general index of world trade prices; those for growth on average rates of increase in real GNP (or GDP) in each of the groups of countries.

³ Reflects errors, omissions and asymmetries in balance-of-payments statistics and the balances of the countries considered with other countries not considered (mainly the U.S.S.R., other Eastern European countries and the People's Republic of China).

⁴ In the scaled up version of the 1967-72 average this residual figure primarily reflects asymmetries in the treatment of the groups considered and thus does not lend itself to meaningful interpretation.

Sources: I.M.F., February 1977 and February 1979, and OECD 1979.

transfers satisfied the dual need of providing aid to the developing countries and of creating foreign markets for the exports of the more developed industrial countries.³

Since 1973, the way in which the financial surplus is recycled has changed drastically. Recycling is no longer based on mainly bilateral direct public transfers, but passes indirectly through the American capital market and the Eurodollar market.

Of the developing countries' total financing requirement of \$15.5 billion in 1973, mainly bilateral public transfers provided \$14.5 billion. From 1973 on, however, one finds two new phenomena: the absolute increase in industrial countries' public transfers to less developed countries has been very small compared with the size of their new needs, and there has been an increase in the share of multilateral channels of financing. On the other hand, OPEC

³ In the 1950s, especially under the aegis of the United States, mainly in the form of "untied" loans; subsequently, in the form of increasingly "tied" loans under the aegis of the United States and the other industrial countries.

countries, which accumulated the greater part of the surplus from 1973 to 1977, have contributed relatively little to the increase in public transfers to deficit countries. In particular, of the \$29.1 billion surplus shown in Table 1 for the major oil-exporting countries in 1977 only \$8 billion were recycled in the form of public transfers.⁴ The rest went through the American capital market and the Eurodollar market. In other words, not only has the group of creditor countries changed but, as a consequence, the way in which the new surplus is recycled has also undergone a profound transformation.

The reasons at the root of this change in the behaviour of the new creditors have often been seen as the "investment risk" connected with the sharp change in the terms of trade in 1973 and the years that followed, and the higher "country risk" accompanied by the progressive increase in the indebtedness of some countries with structural balance-of-payments deficits. The fact that the Arab countries have less expertise in the concession of bilateral loans directly in favour of developing countries has also often been noted. This lower level of financial expertise and the lack of adequate domestic financial structures, together with the risk factors mentioned above, explain, in this view, the attractiveness of the international capital market for OPEC surplus funds.

These explanations, however, seem to us to be only half the truth. In our opinion, the other half must be sought in the prospects for utilizing current account surpluses before and after 1973.

Before 1973, the industrial countries based their recycling policy on public transfers to developing countries. This was mainly because such transfers were the most direct way of supporting their exports, with tied loans representing the most explicit expression of this aim. Furthermore, it was obvious that a large proportion of the industrial countries' future imports would come from the developing countries, especially in the form of raw materials. There was, therefore, a close link between the credit granted to developing countries by industrial countries, their exports and their future imports of raw materials.

From 1973 onwards, none of these conditions have been re-

⁴ It should be noted, however, that the major oil-exporting countries recycled an equal amount directly to developing countries in 1978, despite the sharp decline in their current account surplus from 29 to 6 billion U.S. dollars (see Table 1).

levant. In the first place, the surplus OPEC countries do not need support for their exports since they consist almost entirely of oil. In the second place, during the "life cycle" of their foreign currency assets (with surpluses which were initially expected to continue at least until 1985), their imports will come mainly from the already developed industrial countries (technical know-how, industrial and agricultural plant, highways, dams, etc.) and only to a lesser extent from developing countries. For the surplus OPEC countries, which since 1973 have been the new international creditors, there is not, therefore, a close link between credit granted to developing countries and future imports of goods and services. The recycling mechanism must be indirect.

III. A theoretical framework for a new surplus recycling mechanism

As a result of the decision they took in the autumn of 1973, the oil producers have imposed a "tax" on the OECD countries equal to about 1.5 per cent of their GNP. Technically defined, the price increases the oil producers made in 1973 and the resulting international *ex-ante* excess saving can clearly be considered as the outcome of monopolistic behaviour. In part, this interpretation is based on the absence of adequate alternative sources of energy for the oil-importing countries in the short run. In the theory of exchange the monopolist must take the trade-off between price and quantity as a given. The rigidity of the importing countries' demand for oil has meant, however, that in the aftermath of the 1973 crisis there has been virtually no trade-off between the price set by the oil-exporting countries and the quantity demanded by the oil-importing countries.

Furthermore, given the low absorptive capacity of some of the major oil-exporting countries, their best guarantee against depreciation and the cheapest way of storing their assets would have been to invest in, i.e. to keep their resources in the form of, underground oil. In other words, at the new price the monopolistic countries would have greatly preferred a demand elasticity that would have reduced the volume of their exports to a level compatible with their absorptive capacity. The unilateral reduction of oil production has, however, been politically unacceptable to the industrialized importing countries.

This implies that, while the opportunity cost of exploiting alternative sources of energy was taken into account, the price set for oil in 1973 was established by the oil-exporting countries — though in a somewhat crude and fundamentally empirical way — on the basis of the ability of the oil-importing countries to pay for a given quantity of oil which, in any case, was essential to their growth.

A second implication is that, insofar as the financial surplus accumulated by the oil-exporting countries stems from a demand for oil which exceeds their absorptive capacity, it can technically be considered as forced saving imposed upon the oil-exporting countries by the oil-importing countries. The central problem in this context concerns the price appropriate to this supply of "forced" saving. The other main problem concerns the market best suited to the setting of this price. We shall examine these two related problems in that order.

The first concept which comes to mind in connexion with the price of financial saving is, naturally, a rate of interest in the Böhm-Bawerk (neo-classical) sense of a reward for abstinence from consumption. In our case, however, the saving accumulated by the oil-exporting countries has definitely not been the result of (voluntary) abstinence from consumption. Instead, it reflects these countries' technical inability to consume as a result of their low absorptive capacity. It is at this point that doubts arise as to whether interest rates, which to date have been the principal price of this new forced saving, are really the most appropriate one. It does not seem relevant to object that a money rate of interest is what governments normally pay private savers as the price for various forms of forced saving. In our case, in fact, the relationship is *inter pares* (i.e. between governments).

On the other hand, by far the greater part of the investments deriving from the oil surplus have so far earned a market rate of interest. Furthermore, as we noted at the beginning, the markets to which these investments have mainly flowed, especially in the form of liquid bank deposits, have been the U.S. capital market and the Eurodollar market.

In an attempt to reconcile our earlier considerations with these facts, it seems opportune to underline another aspect of the "forced" saving resulting from the oil surplus: i.e. that the final destination of this saving can easily be foreseen to be to pay for oil-exporting countries' future imports of goods and services. Imports, in other

words, which are postponed until the absorptive capacity of these countries has become sufficient. In this sense, the forced saving which is generated by the oil surplus of low absorption countries can be interpreted as being analogous to the role played by saving in the life-cycle theory of consumption. As in this theory, in fact, there is a period of accumulation and one of decumulation of saving. In our case, however, the "cycle" does not refer to younger and older age groups but to periods of lower and higher degrees of "industrial maturity" (absorptive capacity) in the creditor countries.

Unlike the saving of the life-cycle theory of consumption, that of the period of low absorptive capacity in the surplus oil-exporting countries is forced. Another difference compared with traditional consumption theory is that the saver does not expect to "consume" his saving in the future in a multitude of "shops" but in a limited number of countries, which surplus oil-exporting countries can already identify with a fair degree of accuracy. What counts for these countries is, in fact, the expected quantity of goods and services which can be imported at a later date as the counterpart of the surplus which is accumulated today. This expected quantity implies choosing between investment in financial assets, which can be used at any time in the future to pay for imports of goods and services from any country whatsoever, and direct investment in individual countries through the granting of credit. Such direct investment involves making a choice today in conditions of uncertainty, especially with regard to the quantities of goods and services to be imported from each country and future terms of trade.

If, for example, an oil-exporting country with a surplus of 100 "units of account" expects to have to import at some future time, "t", from only two countries, and expects these imports to be in a ratio of 40 to 60 without knowing which country will supply 40 and which country 60, then it can act in either of two ways. The first possibility is to invest the entire surplus of 100 units of account in the international capital market at the rate of interest paid by that market. In this case, the surplus country is a price-taker. Having chosen the market in which to invest its surplus, the country has to accept the price (interest rate) paid by the market (as well as the risk). The second possibility is to invest 20 units of account in the international capital market and 40 units of account directly in each of the two countries since, by hypothesis, it will import goods and services for at least 40 units of account from both of them.

In this second case, the price variable of the saving accumulated by the surplus country is no longer necessarily the rate of interest as before. This price can, in fact, only be "imposed" on the 20 units of account for which the surplus country accepts the role of price-taker in the international capital market in order to maintain its desired freedom of choice with regard to the two countries from which it will import in the future.

On the other hand, the price of the loans of 40 units of account granted today directly to the two countries from which the surplus country expects to import in the future should take into account the forced nature of the saving with which they are financed. For this reason, it can be determined by the very factors which originally caused the price of oil to rise, rather than taking the form of a market interest rate. As a first approximation, these determinants can be considered, as was noted above, to be the oil-exporting countries' ability to "impose" a higher price for oil and the oil-importing countries' "ability to pay" that price.

For a given (political) ability on the part of the oil-exporting countries to impose a higher price, the oil-importing countries' ability to pay can thus become the fundamental determinant of the price to be set on this "new market" (for loans granted directly by surplus countries to deficit countries). Clearly, a country's ability to pay (like that of a firm) is not a concept which can easily be defined in an unequivocal manner. In our case, however, if one accepts as given the increase in the price of oil that the oil-exporting countries imposed in 1973 (on the basis of an admittedly crude empirical estimate of the oil-importing countries' ability to pay) and assumes that the oil-exporting countries have the political strength to maintain this price (or any post-1973 price profile) in real terms, then the oil-importing countries' ability to pay can be taken, as a first approximation, as proportional to their real rate of growth. For these reasons, this rate rather than a market interest rate appears to be the most suitable price for the second of the two markets mentioned above once the "forced" nature of the saving is taken into account.

The example given above could be made more realistic (perhaps even switching from a 20-40-40 scheme to a 60-20-20 scheme, which, understandably, would also have implications for the level of "market" interest rates and their international term structure) and also expressed in formal mathematical terms. For our purposes, however, it is enough to examine its main implications. The first

concerns an interpretation which we consider eclectic with regard to those which have so far been proposed in connexion with the problem of the recycling of petrodollars. The second concerns a concrete proposal for the future to which we shall return.

With reference to the first implication, the example given above enables us to explain the high proportion of OPEC investments in liquid assets denominated in the stronger currencies and in dollars as being due not only to "classical rentier" behaviour on the part of some of these countries and/or to the risk which, at least in the years immediately following the oil crisis, was inherent in other forms of investment, but, more recently, to the advisability of creating the "cash elasticity" necessary to allow freedom of choice with regard to the basket of their future imports and the countries from which to import.

The size of the surplus which has been accumulated to date suggests, moreover, that the transitional period necessary in order to establish the required freedom with regard to future imports should be about to give way to a period during which there will be more scope for direct forms of investment. This is also consistent with the surplus OPEC countries' recent tendency to broaden their portfolios, especially in the direction of medium and long-term investments. On the other hand, the strength of the mental habit which considers the rate of interest as the natural and unquestionable price of any saving should not be underrated. This mental habit will work against any change in the basic recycling mechanism used to date and could be reinforced by (badly understood) considerations of economic advantage on the part of deficit industrial countries, which, on a number of occasions, have already shown themselves alarmed at the prospect of any "indexation" of their financial debts.

In addition, no cost-benefit analysis has been made to date of the higher rate of growth in industrial (and developing) countries which would have derived from acceptance of bilateral agreements to recycle petrodollars through loans indexed to the nominal rate of growth (the rate of change of prices plus the real rate of growth) in the debtor country rather than to the market rate of interest.

By accepting, as we believe is desirable, a mechanism of indexation linked to the money rate of growth registered in each year for the duration of the loan, the debtor country would directly involve the creditor country in the maximization of its real rate of

growth.⁵ In recent years, real rates of growth have, instead, declined in most of the industrialized countries.⁶

The surplus country, on the other hand, would receive in exchange for the investment of its forced saving a rate of growth of GNP, which averaged 5 per cent in real terms in the OECD countries between 1960 and 1973. This rate has fallen to 4.0-4.5 per cent in more recent years, largely as a result of the inability of the international monetary system to solve the recycling problem adequately.

The rate of growth forecast for developing countries in the period 1975-1985 is 5.7 per cent. The rate of growth forecast for industrial countries in this period is 4.2 per cent. But even the present lower growth rates contrast sharply with the real rate of interest which OPEC funds earn on the international capital market, estimated by various sources to be no more than 1 per cent in the medium term. To date, in fact, the assumption underlying OECD estimates has been that the OPEC countries will not be able to safeguard their assets against depreciation. This presupposes not only an unfavourable relationship between money interest and depreciation, which is plausible, but also that only a small proportion of the surplus OPEC countries' present assets are inflation-proof.

The above considerations suggest a new conception of the price variable which surplus OPEC countries will be able to demand of debtor countries in return for their saving, once they have provided themselves with sufficient cash elasticity to cope with the foreseeable variations in their future imports — a process which has presumably been substantially completed in the period since the 1973 crisis. In our view, this new form of investment could account for an increasing and, in the end, considerable share of the financial flows deriving from the oil surplus.

⁵ In a review article devoted to the Italian version of this paper, Mariano D'Antonio suggests that a correct measure of the yield to offer might be some estimate of the sum of the debtor country's rate of inflation and the *difference* between the real rate of growth made possible by our new financing mechanism and the rate that would have obtained without it. This, in our view could represent a lower limit to the range of "negotiable" interest rates, whose upper limit would still be the real rate of growth.

⁶ As is well known, the slowdown in the growth rate of the industrial countries in the last five years has been accompanied by an even more serious slowdown in the rate of investment. Compared with the period 1965-70, the average annual rate of growth of GNP in the EEC countries, for example, fell in real terms from 4.6 to 2.5 per cent while the rate of increase in gross investment fell from 5.5 to 0.5 per cent.

At the theoretical level, our considerations focus on the switch from the present recycling mechanism which, is increasingly "banking school" oriented (what has been called an upside down paper pyramid), to one *à la* Thornton, which would be more akin to a "currency school" mechanism. Under this system, the quantity of bank liabilities does not vary with the needs of business as in the traditional real bills doctrine, but a new means of payment, founded upon an external rather than an internal money, accompanies the further expansion of the paper pyramid. Furthermore, this external money does not have a credit multiplier and, because it is issued against a real basket of goods (the future imports from the oil-importing country, which is the debtor country today), it should be easier to control.

What follows is a proposal for a direct recycling of financial surpluses as a counterpart of future imports of goods and services. Though this mechanism does not exclude the possibility of international guarantees (which some of the major surplus industrial countries have opposed in the last few years), it does not depend upon them and individual countries can, in fact, negotiate loans independently. We shall now turn to this proposal.

IV. Our Proposal

In contrast with the acceptance of debtor countries' slower growth in the last four years, the recycling mechanism we propose aims at maximizing their rate of growth insofar as this offers the best guarantee of the credit granted by the surplus country. In particular, once the surplus country has accumulated sufficient liquidity to satisfy its need for "cash elasticity" with regard to its choice of future imports of goods and services (for which it accepts the rate of interest determined by the capital market), the excess of its surplus (forced saving) can be invested in this other "market" in which the price is determined by the real rate of growth of the debtor country or, in other words, by its "ability to pay".

The oil price on this other market, insofar as it was originally determined on the basis of the debtor country's "ability to pay", has two basic features:

a) with the "contractual" power of the OPEC countries unchanged at the 1973 (or some post-1973) level, it remains constant

in relation to the terms of trade of the basket of goods imported (and to be imported in the future) by the oil surplus countries, and

b) for a given contractual power, the oil price invested without an immediate counterpart in the form of goods and services from the oil-importing country increases in line with the increase in the importing country's ability to pay. This corresponds to its real rate of growth, which, in turn, is made possible by this exchange without an immediate counterpart.

For given terms of trade at the moment oil is imported, P_o/P_i (where P_o is the oil price and P_i the price of the oil-importing country's basket of goods and services), and for a given quantity of oil imported without an immediate counterpart, $Q_{o,i}$, and assuming that the value of the latter increases in line with the money rate of growth of the importing country's GNP, π_i , at any time, t , the debt which has been contracted can be expressed as a constant share, b , of the importing country's internal product, Q_i , at the time of the oil import, evaluated in the (future) "period" when the exchange of goods and services — the counterpart of the original oil import — takes place ($P_i Q_i e^{\pi_i t}$). In other words, at any time, t , the "bond", which is the counterpart of the oil import and which is indexed to the nominal rate of growth of the debtor country (i.e. to its real rate of growth for given terms of trade), can be expressed:

$$[1] \quad bt = \frac{P_o e^{\pi_i t} Q_{o,i}}{P_i Q_i e^{\pi_i t}} = \frac{Q_{o,i,m,t}}{Q_{i,m,t}}$$

where an exponential rate of growth in nominal terms is assumed and where m on the right hand side indicates, for given terms of trade, the corresponding quantities expressed in nominal terms in the currency of the debtor country.

It should be noted, in passing, that this way of looking at the problem is entirely consistent with, and can be viewed as an extension of, the hypothesis that the oil price could be indexed to the real growth rate of Western economies.

This also implies that the "initial" terms of trade P_o/P_i in the above expression would no longer be constant (or even decrease in line with the inflation imported by the oil-producing countries and with the devaluation of the dollar), but would in fact increase in line with the (exponential) real rate of growth, g , of the industrial countries ($P_o e^{gt}/P_i$).

In this last case, for a given physical quantity of oil exchanged, our bond— expressed as a share of the internal product of the oil-importing country and in its national currency — becomes an increasing function of time, \hat{b}_t . In this sense, the “ability to pay” of the oil-importing country counts, as it were, twice. The first time in the (future) determination of the terms of trade, taking into account the real rate of growth of the oil-importing countries ($q = \pi - p$). The second time, which is at the centre of our proposal in [1], in the calculation of the indexation of the debt. This implies, as a very special case:

$$[1'] \quad \hat{b}_t = \frac{Q_{o, i, m, t} e^{qt}}{Q_{i, m, t}}$$

leaving on one side for present purposes the more technical problem that q_i may diverge to a greater or lesser extent from the “average” q of the industrial and/or developing countries (and similarly π_i from π).

There is no doubt but that the real rate of growth of the vast majority of the countries to which our proposal [1] could apply will in any case be higher than the real rate of interest that OPEC surplus countries have so far earned in the international capital market. Indeed, it could be argued that for some debtor countries this real rate of growth would be *too* high (and, hence, potentially too costly in terms of debt burden) compared with the current market interest rate. In some cases, the degree of indexation of our bond clearly might be with reference to the *per capita* rate of growth (and the coefficient of proportionality the object of bilateral negotiation).

Notwithstanding these difficulties, it seems to us that the advantages which more direct access to sources of finance would bring to deficit countries in terms of reduced financial rationing and a higher potential growth rate would more than compensate for the higher real cost of loans obtained in this way. If this cost differential were calculated as the difference between the growth rate and the shadow (non-rationing) interest rate (and not, incorrectly, as the difference between the growth rate and the market interest rate), it would be much smaller and could even be negative in some cases. This clearly also implies that the mechanism proposed cannot be extended to all countries. We shall return to this point shortly.

A proposal such as that which has just been outlined could, in principle, be implemented not only directly by individual countries

with balance-of-payments deficits, but also on their behalf by a community of countries. This “community” could guarantee our bonds — indexed along the lines of equation [1] — and make a “community” contribution in special cases when the (potential) rate of growth of the debtor country was too low.

Of course, our proposal would initially be of special interest to developed industrial countries in deficit (those in surplus presumably do not need to issue indexed bonds) since they can be expected to supply a large part of the surplus oil-exporting countries’ future imports. But our proposal can equally well be of interest to a large number of developing countries with clear prospects of being able to export to surplus oil-exporting countries in the future (for example, a number of developing Asian countries whose product mixes are becoming increasingly “westernized”). This, of course, leaves unsolved the recycling problems of the OPEC countries in deficit and those of some developing countries. That is why our proposal needs to be seen as complementary to the recycling mechanisms already in existence (and to those foreseeable in the future).

The very special case of the United States as a deficit oil-importing country needs to be mentioned in this connexion. It could be argued that the United States would be right to oppose our indexed bonds, since it still hopes to reduce the burden of its oil debt through inflation and devaluation. On the other hand, it is questionable whether the political and economic evils which both inflation and devaluation have so far implied for the United States and for its financial “hegemony” would not justify a more rational and less uncertain (insofar as it involves sudden rises in oil prices), though manifestly less “smart”, approach to its oil debt, such as that put forward in this article. The introduction of Carter bonds seems to lend additional support to this view and also to our proposal.

Finally, there is a further possibility which has not been discussed in this work but which we propose to take up in the future. It is the possibility of a switch in the composition of the surplus invested to date by oil-exporting countries in favour of “physical capital” (shares, new investments, etc.) in deficit oil-importing countries. The difficulties inherent in such investments are, in our view, not limited to the political obstacles which some deficit countries have raised against the purchase of increasing shares of their “national wealth”. Nor are they only in connexion with the technical problem of exerting effective control over the capital purchased in

this way and the managerial risk it presents for the surplus oil-exporting countries. The problem which, in our view, has not received sufficient attention concerns the choice of the (industrial) sectors towards which such investment should be directed. For it can be reasonably argued that rational behaviour would require surplus OPEC countries to invest in sectors which can be seen as complementary to the domestic ones in which they expect to invest during the decumulation phase of the life cycle of their reserves. Investment in such sectors would allow the surplus oil-exporting countries to establish the know-how, the external economies and the economies of scale needed to achieve faster domestic industrialization and, more generally, modernization. It is likely that investment in physical assets which are complementary to planned sectoral growth in surplus OPEC countries will take on greater importance as the scenario of their industrial take-off begins to appear less far off.

V. Conclusions

As Table 1 shows, in 1978 the surplus of the oil-exporting countries fell sharply, while the industrial countries recorded a new substantial surplus. A recent work by Falchi, Michelangeli and Villani shows, however, that the industrial countries are finding it difficult to undertake the recycling which, in view of the shift in current account surpluses, would be necessary in order to achieve a more balanced international payments situation and which, as we pointed in Section II, was a feature of their behaviour before 1973, also in connexion with developing countries.

On the other hand, the surplus of the major oil-exporting countries is bound to grow again in 1979 as a result of the recent increases in the price of oil. These higher prices are expected to raise the oil bill of the EEC alone by between 8 and 9 billion dollars (the estimated increase for Italy is 1.2 billion dollars).

Our proposal for a direct recycling mechanism based on bonds issued in the national currency of the debtor country and indexed to its nominal rate of growth (the real rate of growth plus the rate of increase in prices) for the entire duration of the credit stems from an analysis of past experience and attempts to draw a lesson for the future insofar as it appears likely that the problem of recycling petrodollars discussed here will come to the fore again.

Our (presumably, but not necessarily, non-marketable) indexed bond, since it is issued in the national currency of the debtor country, makes the possibility of deficit countries raising credit less dependent on their obtaining international guarantees, which some surplus industrial countries have opposed on a number of occasions since the 1973 crisis. Last but not least, the returns paid on government bonds such as those envisaged in our basic proposal would be added to the (increasing) stock of the other types of bonds already in existence, which, considered across countries and different national currencies, are, as is well known, relatively uncorrelated, thus implying potential advantages for international portfolio diversification.

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