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No. 137, December 1979

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EXCHANGE RATES,  
PAYMENTS ADJUSTMENT, AND OPEC:  
WHY OIL DEFICITS PERSIST

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INTERNATIONAL FINANCE SECTION

DEPARTMENT OF ECONOMICS

PRINCETON UNIVERSITY

Princeton, New Jersey

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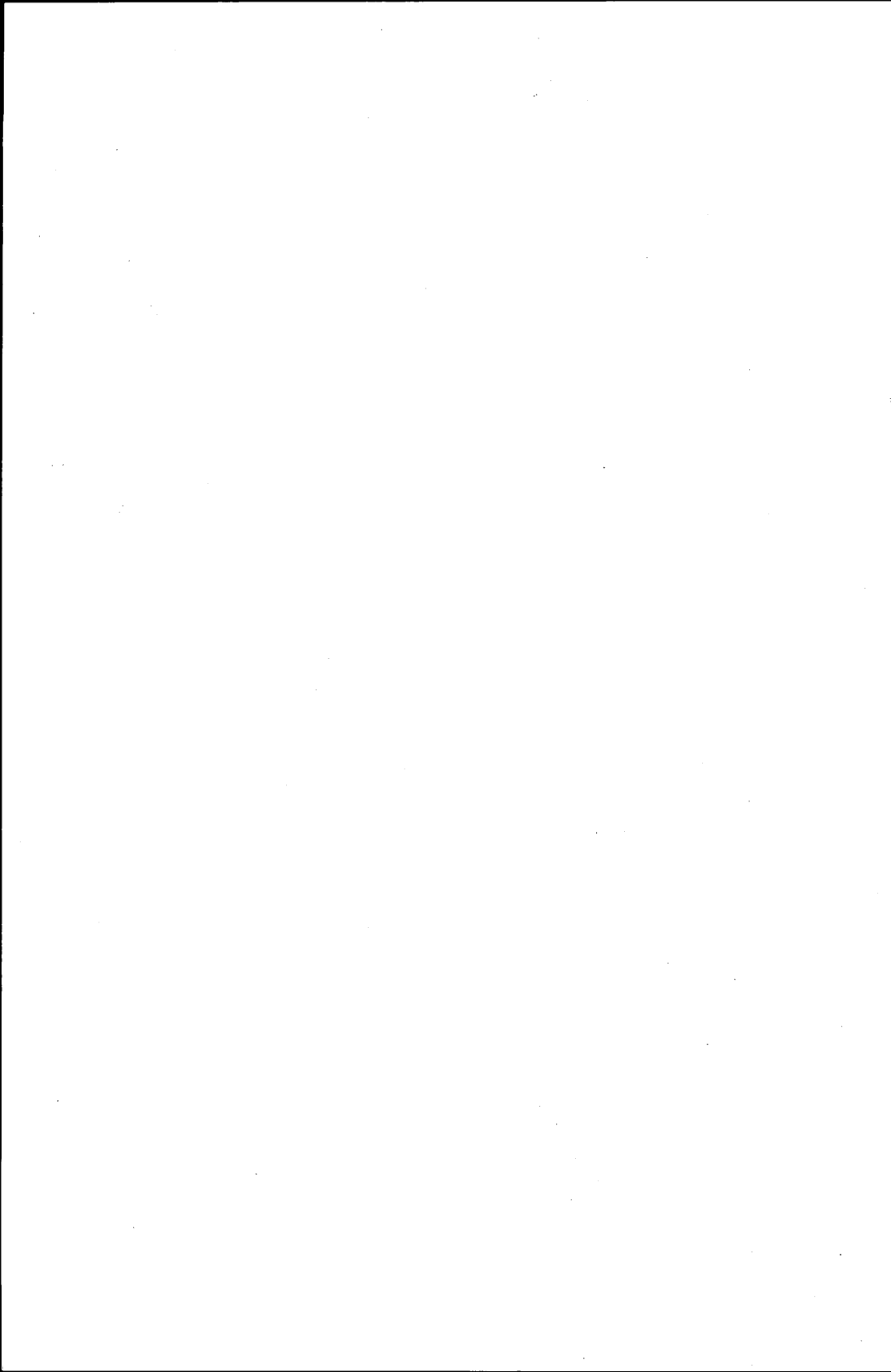
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## Introduction

The balance-of-payments experience of the United States and other major oil importers in the period since 1973 produces an embarrassing paradox for many supporters of flexible or floating exchange rates. For decades it was argued that balance-of-payments disequilibria were solely the result of misguided decisions to maintain fixed parities and that, if the world would only adopt a system of floating exchange rates, payments problems would disappear. In 1973 most of the industrial countries abandoned parities and floated their currencies, not because of a general acceptance of academic arguments for floating rates, but because the Smithsonian Agreement collapsed and it was impossible even to guess what equilibrium parities might be under the circumstances existing at that time. Although flexible exchange rates were adopted by default rather than intent, the arguments to the effect that payments problems should then disappear remained relevant.

Seldom have the expectations of economic theory been more disappointed. The sharp increase in the price of oil in January 1974 produced a massive shift in the international payments pattern. As can be seen in Table 1, the OPEC countries moved into a large and sustained surplus, most of which was concentrated in a minority of the member countries. The oil-importing countries as a group necessarily had a parallel payments deficit. This payments pattern has continued for five years. Although the size of the OPEC surplus declined in 1978, it is now expected to be much larger in 1979 and 1980. A flexible-exchange-rate system of sorts was maintained by most of the industrial countries throughout this period, but it has remained strangely ineffective or even irrelevant to the adjustment of this payments disequilibrium.

The purpose of this essay is to analyze three related questions raised by this unhappy experience: (1) Why hasn't the payments disequilibrium caused by OPEC price increases been much affected either by the flexible-exchange-rate system adopted by the industrial countries or by other traditional adjustment mechanisms? (2) How would the adjustment process have worked if the necessary changes had been made in the payments system to produce exchange rates that forced payments positions into equilibrium, as the standard theory of floating rates suggests? Although it would have been possible to make the changes necessary to produce this conclusion, it turns out that the results would not have been pleasant or even acceptable. And (3) what has been the effect of floating exchange rates on the distribution of the oil deficit among the

TABLE 1  
OPEC CURRENT-ACCOUNT BALANCES BY COUNTRY, 1973-80  
(in billions of U.S. dollars)

	1973	1974	1975	1976	1977	1978	1979 <sup>a</sup>	1980 <sup>a</sup>
Algeria	-0.9	1.0	-1.7	-0.9	-2.8	-3.4	-1.4	-1.6
Ecuador	0	0.1	-0.2	0	-0.3	-0.3	-0.2	-0.3
Gabon	0	0.1	0.1	0	-0.1	0.1	0.4	0.4
Indonesia	-0.4	0.7	-1.1	-0.9	0	-1.3	0.5	0.3
Iran	1.1	12.7	4.7	4.7	5.1	-1.4	2.8	5.8
Iraq	0.5	3.0	2.8	3.8	5.0	4.5	10.0	7.4
Kuwait	1.5	8.1	5.9	7.0	5.4	5.8	12.2	11.5
Libya	-0.6	2.2	-0.2	2.3	2.1	1.5	5.5	5.7
Nigeria	0.3	5.0	0	0.3	-0.9	-3.4	0.5	-1.6
Qatar	0.1	1.6	1.0	1.0	0.4	0.9	1.9	2.2
Saudi Arabia	3.1	26.4	13.9	13.8	16.7	2.8	8.9	4.8
United Arab Emirates	0.3	5.6	3.2	3.9	4.1	3.5	6.0	7.2
Venezuela	-0.1	5.8	2.3	1.0	-2.1	-4.1	-2.1	-1.8
Total <sup>b</sup>	4.9	72.3	30.7	35.4	33.0	5.3	45.0 <sup>a</sup>	40.0 <sup>a</sup>

NOTE: These accounts are on an accrual rather than a cash-payments basis, meaning that exports of oil are counted when the oil is shipped rather than when final payment is made. The 1974 total would be about \$12 billion less on a cash-payments basis, but the numbers for the other years would be only slightly affected.

<sup>a</sup> Preliminary U.S. Treasury projections, which assume no further increases in the price of oil beyond July 1979 levels. Informal estimates currently available in Washington suggest that the OPEC surplus will be about \$60 billion during 1979, and that the 1980 total could be anywhere from \$80 billion to \$100 billion. The increases are expected to accrue primarily to Saudi Arabia, Iraq, Kuwait, and perhaps Iran.

<sup>b</sup> Totals may not add owing to rounding.

SOURCES: Estimates by U.S. Dept. of the Treasury and Chase Manhattan Bank.

importing countries? Although the size of the total OPEC surplus, and hence the total deficit of oil importers, was unaffected by exchange-rate changes under the current float, the distribution of that deficit among oil importers is in large part determined by the workings of the managed, or "dirty," float that now prevails for most of the countries in the Organization for Economic Cooperation and Development (OECD).

### The Irrelevance of Conventional Adjustment Mechanisms to the OPEC Surplus

The massive payments disequilibrium that followed the 1974 increase in the price of oil has remained largely immune from the effects of exchange-rate changes or other traditional adjustment mechanisms because of an unusual arrangement that virtually isolates the domestic econo-



mies of the surplus oil-exporting countries from changes in oil revenues and from the resulting shifts in the balance of payments. Like most other exporters of primary products, the OPEC countries receive their export revenue in foreign exchange (dollars). Unlike most others, however, they do not have to provide parallel local-currency payments to domestic residents. The demand for OPEC exports is not matched by a demand for OPEC currencies by either foreigners or OPEC residents. Therefore, an increase in export receipts puts no upward pressure on the exchange rates for OPEC currencies and thus no downward pressure on the exchange rates for the OECD currencies as a group relative to the OPEC currencies. The maintenance of flexible exchange rates by a number of OECD countries produces no force for the adjustment of OPEC current-account surpluses.

One might still expect the classical fixed-exchange mechanism to operate; monetary expansion and rapid increases in disposable incomes in OPEC surplus countries would produce adjustment through inflation and the resulting increase in imports. But the governments of the OPEC countries are the oil producers and the recipients of the resulting revenues. Accordingly, increases in export proceeds do not result in automatic increases in either money supplies or domestic incomes. There are no pressures inside the OPEC economies that would rapidly expand private expenditures on domestic or imported goods when oil revenues increase sharply.

Although individuals in the OPEC countries receive no additional income when oil revenues increase, the governments of these countries do receive this income and might be expected to behave like individuals. Additional government revenue from exports increases both "cash balances," which in a monetarist framework will lead to increased expenditures on imports and to foreign investments, and government "incomes," which in a Keynesian framework will lead directly to increased expenditures on both domestic and imported goods. Although payments equilibrium is not reestablished through increases in privately held cash balances or private incomes, a similar result might occur through the responses of governments to these same forces.

These mechanisms have, in fact, operated in OPEC countries whose oil revenues are small relative to their populations and their development or military goals. As can be seen in Table 1, Indonesia, Nigeria, Venezuela, and similar countries have not run persistent surpluses; government expenditures on imports have been adjusted quickly to use all or most of the extra revenues provided by increases in the price of oil. These mechanisms have not operated, however, in Iraq, Kuwait, Saudi

Arabia, and the United Arab Emirates, whose oil revenues and surpluses have largely dominated OPEC. (Iran was the only other OPEC member to run large and consistent surpluses from 1974 to 1977, but that situation changed dramatically in 1978. Libya has had modest surpluses since 1975, and these are expected to increase sharply in 1979 and 1980.)

The current-account surpluses have been concentrated largely in countries with very large oil revenues, small populations, and development or military goals that are modest relative to the revenues. Iraq and Saudi Arabia each have populations of just over ten million and massive incomes from oil. Because major investment projects were bunched up, resulting in inefficiencies from carrying them all on at once, and because the price of oil fell relative to the price of imports, Saudi Arabia spent almost all of its oil revenues during 1978.<sup>1</sup> The recent increases in the price of oil and the likelihood that the Saudi government will respond to fundamentalist Islamic pressures by reducing the rate at which the country is modernized mean that Saudi Arabia is now returning to the previous pattern of large current-account surpluses. Tiny countries such as Kuwait and the United Arab Emirates probably cannot spend their receipts on sensible development programs. The governments of the major surplus countries cannot be expected to respond to increases in either cash balances or incomes in ways ascribed to individuals by theories of balance-of-payments adjustments. Libya would superficially appear to have the oil revenue and population characteristics of these four surplus countries, but it has apparently managed to spend almost all of its revenues on military equipment and "foreign aid." Treasury predictions of large Libyan surpluses in 1979 and 1980 are apparently based on the expectation that Colonel Qaddafi's financial support of radical efforts in the Middle East and elsewhere will not increase as rapidly as the price of oil.

As can be seen in Table 2, monetary expansion has been rapid in all of the OPEC countries in recent years. It was particularly rapid in Saudi Arabia and the United Arab Emirates, although a sharp deceleration occurred in the latter country from 1976 to 1978. Rates of growth of the money supply were considerably less extreme in the other major surplus countries, Kuwait and Iraq. The apparent lack of any relationship between rates of monetary expansion and the size of continuing current-account surpluses in the OPEC countries results in large part from the differing roles of oil revenues in different economies. In countries such as

<sup>1</sup> According to *IMF Survey* (Sept. 17, 1979, p. 287), the terms of trade of major oil exporters fell by 10.5 per cent during 1978. This was a major cause of the sharp reduction in the OPEC current-account surplus that year.

TABLE 2  
 PERCENTAGE ANNUAL GROWTH IN DOMESTIC MONEY SUPPLY  
 IN OPEC COUNTRIES, 1973-78

	1973	1974	1975	1976	1977	1978	1973-78 Average
Algeria	28.3	9.1	30.4	29.6	21.3	26.3	24.2
Ecuador	34.9	50.8	10.8	31.1	23.1	11.6	27.1
Gabon	24.1	66.9	54.7	76.4	-8.0	-6.2	34.7
Indonesia	41.6	40.4	37.3	23.7	25.3	24.0	32.1
Iran	29.9	37.1	20.2	45.9	23.1	n.a.	31.2 <sup>a</sup>
Iraq	24.2	43.0	35.3	20.6	n.a.	n.a.	30.8 <sup>b</sup>
Kuwait	21.1	14.0	48.0	35.9	24.6	29.5	28.9
Libya	24.5	46.7	15.1	31.2	26.8	n.a.	28.9 <sup>a</sup>
Nigeria	24.0	51.1	85.5	44.6	38.1	1.7	40.8
Qatar	19.4	35.8	78.6	57.0	32.7	10.5	39.0
Saudi Arabia	39.9	41.4	89.6	71.2	58.3	28.1	54.8
United Arab Emirates	n.a.	57.3	69.5	81.5	10.4	10.8	45.9 <sup>c</sup>
Venezuela	19.7	43.6	50.3	14.7	24.1	15.7	28.0

<sup>a</sup> Average for 1973-77.

<sup>b</sup> Average for 1973-76.

<sup>c</sup> Average for 1974-78.

SOURCE: *International Financial Statistics* (October 1979, line 34 for each country).

Venezuela and Ecuador, oil revenues are not large enough to dominate the economy and relatively modest accelerations of growth in the money supply are sufficient to produce adjustment when oil revenues increase. In countries such as Kuwait or the United Arab Emirates, however, the oil industry *is* the economy. This means that recent increases in oil revenues have been so large relative to the economy and the money supply that even a rapid acceleration of monetary growth will not produce current-account adjustment.

Although forces inside the OPEC surplus countries have not produced adequate adjustment, monetary and income changes in the oil-consuming countries might be expected to encourage a movement toward current-account equilibrium on their side of the payments disequilibrium. As noted earlier, the OPEC practice of accepting payment in dollars and of maintaining surplus funds in dollars and other OECD currencies has meant that there has been no exchange-rate pressure on the OECD currencies as a group that would cause adjustment. To the extent that the OPEC governments hold their surplus funds in assets that are not liabilities of the OECD central banks, there is also no automatic downward pressure on the money supplies of the OECD countries. If U.S. dollars are transferred from oil companies to OPEC governments, which hold

them in commercial banks in New York or London, there is no decline in the reserve base of the U.S. commercial banking system. If the OPEC governments purchase U.S. Treasury securities in the open market, these funds move to the seller of the securities and are still in the commercial banking system. Only if the OPEC governments hold deposits in, or buy securities from, the Federal Reserve System would the U.S. money supply fall automatically. That decline, moreover, would probably be quickly sterilized. When the OPEC countries hold Eurodollar deposits or other U.S. dollar assets purchased from private parties, however, there is no decline in commercial bank reserves to sterilize.

Real incomes decline in the oil-importing countries because of worsened terms of trade, and this might be expected to be a modest force for current-account adjustment. The decline in real incomes in the oil-importing countries reduces other purchases, producing recessions and a reduction in current-account deficits. The recessions experienced by many OECD countries after the 1974 oil price increases were examples of this process, and they did produce a decline in the OPEC surplus from the 1974 peak of \$72 billion. The combination of strong recoveries in the OECD countries and further oil price increases is producing a return to massive OPEC surpluses in 1979 and 1980, but the further worsening of the terms of trade of the oil-importing countries may soon produce another set of recessions and a temporary reduction in the OPEC current-accounts surplus.

The balance-of-payments adjustment processes that economists describe for regimes of either flexible or fixed exchange rates are based on direct linkages between shifts in the balance of payments and the domestic economy. The linkages are automatic in the sense that they do not require changes in government policy to produce adjustment. If the government remains passive, payments disequilibria either cause exchange-rate changes, which affect relative prices within one or both economies, or they affect the domestic money supplies and incomes in both the deficit and surplus countries. Under either exchange-rate regime, the balance of payments is linked to one or more aspects of the domestic economies of both surplus and deficit countries, and these linkages produce some degree of payments adjustment. The circumstances under which the OPEC countries sell oil eliminate all of these linkages in the OPEC countries and almost all of them in the oil-importing industrialized countries. The result is the current situation, in which there are no major automatic forces for adjustment of either the OPEC surplus or the deficit of the oil-importing countries as a group.

## Balance-of-Payments Accounting for OPEC

The fact that the same economic agents (the governments of the OPEC countries) who receive virtually all the oil revenue also determine what imports will be purchased and how the remaining surplus will be invested abroad makes the normal definition of a balance-of-payments surplus arbitrary or meaningless for these countries. The distinction between the capital-account and foreign-exchange-reserve items, on which the official settlements definition of payments disequilibrium is based, assumes that the economic agents who make investment decisions, which are recorded in the capital account, are different from those who undertake residual or accommodating transactions, which appear as foreign-exchange reserve flows. Since this assumption obviously does not hold for the dominant OPEC surplus countries, it is not at all clear how their balance-of-payments surpluses can be measured.

Saudi Arabia, for example, ran an accumulated current-account surplus of just over \$54 billion from 1974 through 1976, but it accumulated only about \$23 billion in foreign-exchange reserves during the same period.<sup>2</sup> Since the government or its agents made almost all of the other \$31 billion in foreign investments, the distinction between foreign-exchange reserves and the remainder of Saudi Arabia's foreign assets seems almost meaningless. It is at least clearly misleading to suggest that Saudi Arabia had a payments surplus of only \$23 billion during this period.

Under these circumstances, it might be more reasonable to use the current account as the measure of payments disequilibrium, which would suggest a surplus of \$54 billion for Saudi Arabia in 1974-76. One objection to this measure is that foreign-exchange reserves are supposed to be highly liquid, so that it is not reasonable to view Saudi investments in long- and medium-term assets as constituting reserves. The use of the "basic" balance-of-payments format, where the balance of payments is measured as the sum of the current and long-term capital accounts, avoids this problem by placing such nonliquid investments above the line as autonomous items, while short-term investments of all types are placed below the line with official foreign-exchange reserves. Since the vast majority of Saudi investments have reportedly been in short-term forms, the difference between the current-account and the "basic" balance-of-payments results would be quite small. In contrast, Kuwait has apparently made sizable long-term investments, so the difference between the two accounts there would be considerably larger.

<sup>2</sup> *International Financial Statistics*, International Monetary Fund, various issues.

The use of the "basic" format still leaves the question of whether Saudi and Kuwaiti medium- and long-term investments are really autonomous. Do these countries really "want" to invest abroad, or are they doing so only because huge current-account surpluses make it necessary to put the resulting surplus funds somewhere? The credibility of the latter explanation argues that these investments are accommodating, and consequently that the current account is the best measure of Kuwait's and Saudi Arabia's payments positions. The \$54 billion figure appears to be a far better estimate of the Saudi payments surplus in 1974-76 than the \$23 billion figure suggested by the official-settlements accounts or whatever figure the basic-payments format would indicate. Kuwait had a current-account surplus of \$21 billion in 1974-76, while official foreign-exchange reserves increased by only about \$1.5 billion. The \$21 billion figure also appears to be the more reasonable estimate of Kuwait's surplus.

The current OPEC experience is not the only occasion on which revenues from a dominant export have been isolated from the domestic economy to block normal forces for payments adjustment. Other developing countries have responded to sudden and sharp increases in the price of a dominant export by applying heavy export taxes to prevent or at least greatly reduce an increase in domestic disposable income. They have also taken payment for these exports in foreign exchange to avoid pressure on their exchange rates or domestic money supplies. Colombia adopted this response to the increases in coffee prices that followed the partial destruction of the Brazilian crop by frost in 1975, and the operations of the government marketing boards for cocoa in Ghana and Nigeria have produced the same effects when cocoa prices have increased sharply. In these and similar instances, however, the payments surpluses were both small and temporary. The OPEC situation appears to be a unique combination of the absence of historic forces for payments adjustment and a huge and apparently far from transitory surplus.

### **The Application of Conventional Adjustment Mechanisms to the OPEC Surplus**

The conclusion that the resistance of the massive OPEC surplus to standard adjustment forces results from the isolation of the internal economies of the OPEC countries from their international sectors might suggest that the solution to the current payments disequilibrium is to end this isolation and allow the traditional forces to produce adjustment. But how would such forces operate in the current context, and would the ap-

plication of the classical remedies for payments deficits really be acceptable to the oil-importing countries? It appears that the adjustment mechanism would be so harsh in this case that a continuation of a difficult and disruptive disequilibrium is probably preferable.

If, for example, the OPEC countries had set prices and received oil payment in their local currencies, a decision to adopt floating exchange rates would have produced a sharp appreciation for a number of OPEC currencies and parallel increases in the U.S. dollar price of oil. If at the outset Saudi Arabia had set a riyal price of oil equivalent to \$8 per barrel and then allowed the riyal to float, a Saudi decision not to make investments abroad during recent years would have necessitated a large appreciation of the riyal to clear the exchange market. There is no way of knowing what the dollar price of oil would have been if Saudi Arabia and its neighbors had adopted this approach, but the combination of the highly inelastic demand for oil in the consuming countries and demand for imports in Saudi Arabia and its neighbors suggests a very high price. The OPEC countries that are not in large current-account surplus have been producing oil at close to full capacity during recent years; their terms of trade would have improved with such a price increase, but they would have produced very little additional oil. The burden of adjustment would have been on reductions in world consumption of OPEC oil and increases in oil output and imports in the major surplus countries. The small populations of these countries suggest a very limited ability to absorb more imports, particularly since the governments rather than individuals receive the extra income from oil sales. If the governments of Iraq, Kuwait, Saudi Arabia, and the United Arab Emirates had decided not to make foreign investments but instead to allow the U.S. dollar price of oil to increase through an appreciation of their currencies sufficient to produce current-account equilibrium, the result would have been increases in the price of oil far in excess of those experienced by the importing countries between 1974 and 1978.

A similar result would have occurred in the unlikely event that the OPEC countries had adopted local-currency pricing of oil and fixed exchange rates before allowing their domestic money supplies to adjust to the payments surplus. If both the OPEC countries and oil importers had refrained from sterilizing the monetary effects of the payments disequilibria, the result would have been rapid inflation in the OPEC countries, which would have caused a rapid increase in imports. A parallel deflation in the oil-importing countries would have produced a recession (or worse) and an eventual decline in wages and prices.

If the OPEC countries did not increase the local-currency price of oil

as other domestic prices rose, the only additional effect on the terms of trade would have been through the decline in the prices of exports in the oil-importing countries. Equilibrium would have been established primarily through the effects of rapid inflation in the OPEC countries and a severe downturn in the oil-importing countries.

If the OPEC countries wanted oil revenues to remain a constant proportion of government receipts or wanted to recapture increases in wage rates and other oil-industry costs, the price of oil would have had to increase as domestic inflation accelerated. In such a case, the terms of trade of the oil-importing countries would have deteriorated far more rapidly and the adjustment process would have been even more painful. Current-account adjustment would still have been achieved through the effects of deep recessions in the oil-importing countries and inflation in the OPEC economies, but the change in the terms of trade caused by the further increases in oil prices would have made the process even less pleasant for the oil-importing countries. Flows of capital from OPEC to the rest of the world would have continued until the adjustment process was completed. The OPEC countries would have accumulated foreign-exchange reserves, which are financial claims on the rest of the world, until their inflation and deflation in the oil-importing countries produced current-account equilibrium. These capital flows would not have been autonomous or voluntary but would instead have been necessitated by OPEC's decision to maintain fixed exchange rates for their currencies.

These scenarios have been developed not because they are likely but rather to suggest that the classical adjustment process is not always to be preferred over a continuing disequilibrium. Professors and central bankers in the industrialized countries frequently lecture officials of developing countries about the desirability of forcing rapid payments adjustment rather than depending on continued use of the Euromarkets, the International Monetary Fund, or other credit sources. Devaluations and domestic austerity are prescribed and accompanied by admonitions about "biting the bullet." Although these policies may in fact be necessary in some developing countries, the imposition of the same "bullet biting" adjustment mechanisms on the industrialized countries in general and the United States in particular during the last five years would have been more than painful: It would have produced a recession far worse than that of 1974-75.

Fortunately, the OPEC surplus countries are apparently willing to continue accumulating financial claims on the OECD countries, so this unpleasant process is unnecessary. The industrialized countries are not in the situation faced by many developing countries, because they appear



to have a limitless source of credit.<sup>3</sup> As long as the Saudis and their neighbors are willing to lend, the OECD countries can finance continuing current-account deficits and the disruptive adjustment process described above will be unnecessary. But if ever the surplus countries decide that oil in the ground is a more attractive investment than financial claims on the industrialized countries, the result will be unpleasant. If the OPEC countries decide to stop making additional foreign investments (including increases in foreign-exchange reserves), they will have to force their current accounts into equilibrium, which implies the results described earlier. The industrialized countries would be well advised to see to it that the OPEC surplus countries continue to find it attractive to accumulate financial claims on the rest of the world. Whatever fears may have been raised by the prospect of OPEC surplus countries becoming major creditors or equity investors in the OECD countries, the alternative is worse. The United States and its allies may not like going into debt to finance oil purchases, but they ought to be pleased that it is possible to do so—that the OPEC surplus countries are willing to lend rather than force current-account adjustment.

The unpleasant and even destructive aspects of forced current-account adjustment result from the extremely low price elasticity of demand for oil in the importing countries in the short to medium term. If close or even partial substitutes for imported oil existed, the resulting increase in the price elasticity of demand for OPEC oil would make the movement to current-account equilibrium by the OPEC countries much less painful to the oil-importing countries. A far more modest increase in the relative price of oil would be sufficient to reduce oil consumption by enough to

<sup>3</sup> The payments problems of most oil-importing developing countries have been made more difficult by their inability to arrange large direct loans from the surplus OPEC countries. As the price of oil has risen rapidly, these countries have avoided the rigors of current-account adjustment only to the extent that they have been able to borrow from official international institutions such as the World Bank and the IMF, or from private financial institutions. A large part of this financing has been provided by private commercial banks in New York, London, and other financial centers. These banks raise money from the surplus OPEC countries, usually through Eurocurrency deposits, and re-lend to deficit developing countries. This process has now gone on for long enough and has involved such large amounts of money that questions are being raised about the prudence of its continuation. The debts of the non-oil developing countries have grown rapidly, and it is widely felt that many commercial banks are fully extended (or overextended) in a number of such countries. The recent oil price changes are expected to increase the current-account deficits of the developing countries to almost \$60 billion in 1980, which will raise further questions about their credit-worthiness. If it is imprudent for the major commercial banks to lend large amounts of new money to these countries, it will become very important that the surplus OPEC countries either provide considerably more funds to the official intermediaries for lending to the non-oil developing countries or do much more direct lending to these countries.

produce current-account balance. This fact is one more reason to hasten the development of substitutes for imported oil. The oil-importing countries had better develop large alternative energy sources and a far more successful conservation effort before the surplus OPEC countries decide to stop accumulating financial claims on the rest of the world. Unfortunately, it remains quite possible that the United States will develop alternatives to massive oil imports only when compelled to do so, perhaps through an OPEC decision to stop lending. Necessity would become the mother of invention, but it would certainly be a harsh parent.

It is often argued in the oil-consuming countries that the current OPEC price is purely the result of the exercise of monopoly power, and that this price is in no way fair or efficient. Despite OPEC's obvious market power, it is not clear that prices during the period since 1974 have been unreasonable. Oil consumption has not fallen, and known or proven reserves have risen so slowly that they are now a lower multiple of annual consumption than in 1973. (According to the American Petroleum Institute statistics, proven world reserves of oil rose by 2.4 per cent between the end of 1973 and the beginning of 1979, and world oil consumption rose by 13.7 per cent during the same period; the ratio of proven reserves to annual consumption fell from 30.7 to 27.8.) The OPEC countries have produced at close to full capacity for much of this period, and serious shortages are widely predicted for the mid-1980s even if all of the OPEC countries are producing as much as possible.<sup>4</sup> Oil prices have only now reached levels at which some oil substitutes may become economically feasible.<sup>5</sup> If the world's oil industry has been operating at close to optimum capacity, and if shortages are widely expected in the mid-1980s because proven reserves are not rising as fast as consumption, it becomes difficult to argue that the price of oil has been "too high." It may have been higher than oil consumers wished, but it has not been high enough to compel the United States and other countries to reduce consumption of imported oil, to bring oil substitutes into the market, or to significantly reduce the rate at which the world is depleting a finite and irreplaceable resource.

### **Flexible Exchange Rates and the Distribution of Current-Account Deficits among the OECD Countries**

Although the post-1973 regime of flexible exchange rates will not lead to adjustment of the OPEC current-account surplus under current pay-

<sup>4</sup> See Walter Levy, "The Years That the Locust Has Eaten: Oil Policy and OPEC Development Prospects," *Foreign Affairs* (Winter 1978/79) for predictions supporting this view. There have been press reports recently that CIA studies also predict serious shortages of oil in the mid- and late 1980s.

<sup>5</sup> See *The Economist* (Oct. 6, 1979, p. 124) for data on the costs of various oil substitutes from an engineering study by the Bechtel Corporation.

ments arrangements, this exchange-rate system does have major effects on the distribution of the resulting current-account deficits among oil-importing OECD countries.

Under a system of flexible exchange rates, the determination of the current account is based to a considerable degree on the fact that it must be a mirror image of the capital account, including foreign-exchange reserve flows if the float is "dirty" or managed. Exogenous shifts in net capital flows cause exchange-rate changes to which the current account must ultimately adjust. In the short run, both the current and capital accounts are likely to respond to exchange-rate movements caused by shifts in OPEC investment patterns, but the longer the new pattern of capital flows continues, the more important the current account becomes to the adjustment process. The appreciation of a currency resulting from such OPEC shifts can be expected to generate some capital outflows among speculators who conclude that the new exchange rate is higher than the long-term equilibrium. It will probably cause additional capital outflows by portfolio managers who want to maintain their previous ratio of assets in various currencies, since the appreciation has increased the value of assets in that currency relative to the rest of the portfolio. Finally, if stabilizing private capital flows do not develop quickly, or if private capital flows are destabilizing because of a speculative run on a currency, the change in the exchange rate may become large enough to encourage official capital flows as central banks use foreign-exchange reserves to stabilize the exchange market. These capital-account adjustments, however, are of a stock-adjustment type and so are unlikely to continue indefinitely. Once stabilizing speculative positions have been taken and portfolios returned to desired currency ratios, private capital flows are likely to decline sharply. Central-bank intervention may continue for longer, but it is also unlikely to continue indefinitely if the goal is to produce a stable exchange market rather than a return to fixed exchange rates.

Since the long-term price elasticities of demand for traded goods and services are typically much higher than short-term elasticities, the response of the current account to the exchange rate can be expected to increase as time passes. Shocks to the exchange market, caused by shifting flows of OPEC funds or other factors, produce payments adjustment through both the current and capital accounts as the exchange rate moves. Stabilizing capital flows are likely to be of greater importance in the short run, but current-account adjustment becomes more significant with the passage of time, as capital flows with stock-adjustment aspects decline and larger long-term elasticities of demand for traded goods and services become effective. OPEC decisions about the currencies in which their surplus funds are invested can then be viewed as affecting exchange

rates, which in turn produce long-term current-account adjustments. Countries that attract large inflows of OPEC (and other) capital will have correspondingly large current-account deficits, and *vice versa*.

This long-term process can most easily be seen through an oversimplified example. Assume a three-country world consisting of Saudi Arabia, Japan, and the United States, in which Saudi Arabia sets oil prices and receives payments in U.S. dollars. Further assume that the United States and Japan maintain a clean float and there are no capital flows between these two countries. If Saudi Arabia has an annual current-account surplus of \$20 billion, the distribution of the resulting deficit between Japan and the United States will depend solely on Saudi investment decisions. If they invest all \$20 billion in U.S. dollar assets, the resulting exchange rate between the yen and the dollar will produce a \$20 billion U.S. current-account deficit irrespective of how much oil the United States or Japan imports. A Saudi decision to switch \$10 billion per year into yen assets will produce an appreciation of the yen sufficient to give Japan a \$10 billion current-account deficit. Since all payments are made in dollars, the exchange rate for the riyal has no effect on this process: Saudi decisions as to the mix of currencies in which their surplus funds will be invested determine the yen/dollar exchange rate and hence the division of the current-account deficit between Japan and the United States.

If capital flows between Japan and the United States are allowed in our example and a clean float is still assumed, the distribution of the current-account deficits becomes a function first of the original Saudi investment decisions as described above, and then of further flows of funds (often called secondary recycling) between New York and Tokyo. The current account of each country remains the mirror image of its capital account, but now the capital account is determined both by Saudi investment decisions and similar decisions in New York and Tokyo. If, for example, the Saudis invest all \$20 billion in dollar assets but \$10 billion in capital then flows from the United States to Japan, the resulting yen/dollar exchange rate will produce a \$10 billion current-account deficit for each of the two oil-importing countries. Relative interest rates, speculative expectations, and a number of other factors determine first where the Saudis put their surplus funds and then how much is passed through to investments in the other country. The current accounts of the oil-importing countries ultimately adjust to shifts in net capital flows through the exchange rate, and countries with continuing capital-account surpluses will have parallel current-account deficits.

Viewed in this light, a sizable current-account deficit is no longer a sign of economic weakness but rather the result of a country's attractive-

ness to foreign investors. Countries that offer both high yields and safe investment climates will have exchange rates that overvalue their currencies in terms of purchasing power parity and the resulting current-account deficits. The strength of their currencies will protect their terms of trade and allow levels of investment well in excess of domestic saving. Oil-importing countries that fail to attract net capital inflows will be compelled to pay for their oil with real resources. Their currencies will depreciate by enough to force the current accounts into long-run equilibrium at the probable cost of worsening terms of trade. In a regime of clean floating exchange rates, a current-account deficit is no longer the result solely of inflation or other economic failures but is instead largely the result of economic strengths that attract net capital inflows.

### **OPEC Investment Patterns: 1974-78**

Partial data on OPEC investment patterns can be found in Table 3. The totals do not match Table 1 because not all OPEC investments are reported and some are reported late. These figures do suggest, however, where the surplus OPEC countries have been putting most of their excess funds.

The most obvious conclusion to be drawn from this table is that OPEC investment patterns have changed sharply during the 1974-78 period. The British attracted large amounts of money in 1974, a significant proportion of which went into sterling assets. After 1974, however, the flow of funds into the United Kingdom dropped sharply and almost no new funds went into sterling assets. Virtually all the OPEC funds flowing to Britain were put into foreign-currency (Eurocurrency) deposits, which did nothing to support the sterling exchange rate. As Table 4 shows, the British current account declined sharply in 1974, when the OPEC countries put a sizable volume of funds into sterling assets, and then recovered during the next four years, when OPEC inflows declined.

While a number of factors—including relative rates of inflation and growth in Britain and its trading partners—may have contributed to this pattern of current-account changes, it is at least consistent with the earlier suggestions that OPEC investment decisions affect the current-account positions of oil-importing countries through movements of the exchange rate. Downward pressure on sterling during 1975 and 1976 could be viewed as a partial result of the decline in OPEC capital inflows and as a partial cause of the improvement in the U.K. current account. The strengthening of sterling in 1977, however, was clearly based on factors other than investment decisions by OPEC countries.

TABLE 3  
ESTIMATED DEPLOYMENT OF OIL EXPORTERS' SURPLUSES, 1974-78<sup>a</sup>  
(in billions of U.S. dollars)

	1974	1975	1976	1977	1978
United Kingdom	21.0	4.3	4.5	4.1	-1.7
British Government stocks	0.9	0.4	0.2	—	-0.3
Treasury bills	2.7	-0.9	-1.2	-0.2	0.2
Sterling deposits	1.7	0.2	-1.4	0.3	0.3
Other sterling investments <sup>b</sup>	0.7	0.3	0.5	0.4	0.1
British Government foreign-currency bonds	0	0	0	0.2	0
Foreign-currency deposits	13.8	4.1	5.6	3.4	-2.0
Other foreign-currency borrowing	1.2	0.2	0.8	0	0
United States	11.0	10.0	12.0	9.2	1.3
Treasury bonds and notes	} 6.0	2.0	4.2	4.3	-1.6
Treasury bills		0.5	-1.0	-0.8	-0.9
Bank deposits		4.0	1.6	0.4	0.7
Other <sup>b</sup>		1.0	6.9	7.2	5.3
Other countries	20.6	17.4	18.7	19.9	12.2
Bank deposits	9.0	5.0	6.5	7.5	3.6
Special bilateral facilities and other investments <sup>b,c</sup>	11.6	12.4	12.2	12.4	8.6
International organizations	3.6	17.4	2.0	0.3	0.1
<b>Total</b>	<b>56.2</b>	<b>35.7</b>	<b>37.2</b>	<b>33.5</b>	<b>11.9</b>

<sup>a</sup> Excludes liabilities arising from net borrowing and inward direct investment and also, on the assets side, changes in credit given for oil exports.

<sup>b</sup> Includes holdings of equities, property, etc.

<sup>c</sup> Includes loans to less developed countries.

SOURCES: *Bank of England Quarterly* (September 1975) and *IMF Survey* (Apr. 4, 1977, and July 23, 1979).

TABLE 4  
U.S. AND U.K. CURRENT-ACCOUNT BALANCES  
(in billions of U.S. dollars)

	1973	1974	1975	1976	1977	1978
United Kingdom	-2.6	-8.6	-4.1	-2.0	0.5	1.0
United States	+6.9	+1.8	+18.4	+4.3	-15.3	-16.0

SOURCE: *Economic Outlook*, OECD (July 1979, pp. 70 and 150).

The relationship between OPEC investment decisions and the behavior of the current account is somewhat less clear for the United States than for Britain. The United States attracted a relatively stable flow of OPEC funds from 1974 through 1977 (Table 3), but the U.S. current account recovered sharply in 1975 and deteriorated in 1976 (Table 4), in large part as a result of the 1974-75 recession and the subsequent recovery. Because the U.S. dollar remains the dominant reserve currency and is also used heavily in a range of international transactions, a variety of official and private capital flows could easily have overwhelmed the effects of OPEC investment decisions. The U.S. current account remains a mirror image of all capital flows, but those flows include large shifts of funds by official monetary agencies of countries that still maintain fixed parities or manage their floating exchange rates.

The role of official reserve flows is particularly important in understanding the apparent lack of any relationship between OPEC investment decisions and the U.S. current account in 1978. OPEC investments in the United States declined sharply in 1978, at a time when other investors had doubts about the future of the dollar. The result was an acceleration of the downward pressure on the dollar that had begun in late 1977. Since the current account does not respond quickly to the exchange rate and since the U.S. economy was in the middle of a strong cyclical recovery, the U.S. current account did not recover in 1978. Official support for the dollar became necessary to stabilize exchange markets in 1978. The 1977-78 depreciation of the dollar, along with the possible effects of the end of a strong cyclical recovery, does appear to be causing a sharp recovery of the U.S. current account during 1979. OPEC and other investment decisions are apparently affecting the U.S. current account through the exchange rate with a lag of about a year.

There are two other points worth noting in Table 3. First, the proportion of OPEC investments going to countries other than the United States and Britain has increased steadily since 1974. Only one-third of such funds went to other countries in 1974, but this figure rose in the following years until it was over 100 per cent in 1978, when net withdrawal of funds from the United Kingdom occurred. Second, OPEC investments in international organizations such as the IBRD have been negligible since 1975. After modest investments in 1974 and much large commitments in 1975, OPEC flows into the international organizations almost ceased in 1976 through 1978. Third-world complaints that the United States and its OECD allies are making insufficient commitments to the soft-loan window of the World Bank and to other concessionary lending facilities in the international financial institutions might be referred to Riyadh, Kuwait, and Abu Dhabi.

## Managed Floats and Mercantilism

The earlier conclusion that a current-account deficit could be viewed as the desirable result of a country's ability to attract OPEC and other capital inflows implicitly assumed that fiscal and monetary policies could be depended upon to offset the deflationary effects of currency appreciations fully and promptly, and that adjustment problems in individual traded-goods industries could be ignored. But there have been unfortunate and even disillusioning experiences with fiscal and monetary "fine tuning," and very real sectoral problems have resulted from the impacts of sizable appreciations on traded-goods industries. Thus current-account deficits cannot be viewed as favorably as the previous discussion suggests, despite the fact that they result from an attractive investment climate. Such problems have led governments to attempt to manipulate net capital flows, and hence the current account, under the existing regime of floating exchange rates.

The introduction of a managed or "dirty," float complicates the previous arguments and conclusions. Now the capital flows that affect the current account include flows of foreign-exchange reserves resulting from manipulative intervention by central banks. Returning to the previous and oversimplified three-country example, if Saudi and other private investment decisions produce a net capital flow into Japan of \$15 billion, then Japan should have a current-account deficit of that size. If, however, the Bank of Japan decides to protect local traded-goods industries by absorbing \$10 billion through exchange-market intervention, the resulting change in the yen/dollar exchange rate will shift \$10 billion of the presumed current-account deficit to the United States. A U.S. decision to add \$10 billion worth of yen to U.S. foreign-exchange reserves through similar intervention would produce the original exchange rate and shift the \$10 billion current-account deficit back to Japan. Equal and offsetting central-bank intervention in Tokyo and New York produces the clean-float results.

The division of the \$20 billion current-account deficit between the United States and Japan is now determined by *all* capital flows. The U.S. current account is simply the net capital account, including both private and official monetary flows, with the sign reversed. Under this exchange-rate regime, old-fashioned mercantilism can be practiced in a new way—through the manipulation of official capital flows and hence the exchange rate rather than through tariffs and quotas. The goals are the same, but the techniques are more subtle. Countries like Japan that want to protect and expand their traded-goods industries undertake exchange-market "stabilization" programs in which sizable and frequent additions are made



to their foreign-exchange reserves. If this is too obvious, official guidance or "moral suasion" can be used to encourage domestic financial institutions to move large amounts of capital out of the country, which produces the same result. The currencies of such countries are systematically undervalued, and traded-goods industries are protected by such intervention.

Evidence of managed floating exchange rates can be found in Table 5. All the countries in this table were supposedly maintaining floating exchange rates (either individually or as part of a bloc) after 1973, but they all experienced sizable increases in their holdings of foreign-exchange reserves. From the end of 1973 through 1977, the Japanese "stabilized" their exchange market in a way that added about \$11 billion to their foreign-exchange reserves. (1978 is excluded from this discussion because it included a major official support program for the dollar; reserve additions by many countries during that year were not purely voluntary but were instead a response to U.S. requests for aid in stabilizing exchange markets.) The Swiss doubled their reserves over the same period. After experiencing some decline in reserves during the first years of the float, the British responded to strong upward pressure on sterling by making huge reserve additions during 1977. The increases in Dutch, German, and French reserves might be viewed as the result of their participation in the European "snake" except for the fact that the participants as a group had large increases in reserves and no single member experienced a significant decline. Although the snake was supposed to float relative to the dollar, the float appears to have been managed in a manner that held the European currencies down relative to the dollar and other nonparticipating currencies. The sizable accumulation of reserves by the countries in the European snake indicates that, if the float had been clean, the group of participating currencies would have appreciated further against the dollar, improving the competitive position of U.S. firms exporting to Europe and having the opposite effect on European firms selling in the United States.

Table 5 includes every major U.S. industrial competitor except Canada. (Canada had relatively stable reserves from 1972 through mid-1976 and hence could be viewed as operating a relatively clean float. The results of the late 1976 election in Quebec produced strong downward pressure on the Canadian dollar, and Bank of Canada support efforts caused exchange reserve losses of about \$1.4 billion in 1977 and 1978.) The large increases in the reserves of these countries during the 1973-77 period suggest that their exchange-market interventions put U.S. exports and import-competing firms at some disadvantage. The impact may not have been large, but it created understandable frustration on the part of U.S. firms and

TABLE 5  
FOREIGN-EXCHANGE RESERVES EXCLUDING GOLD, END OF PERIOD, 1972-78  
(in billions of U.S. dollars)

	1972	1973	1974	1975	1976	1977	1978
France	6.2	4.3	4.5	8.5	5.6	5.9	9.3
Germany	19.3	28.2	27.4	26.2	30.0	34.7	48.5
Italy	3.0	3.0	3.4	1.4	3.3	8.1	11.1
Japan	17.6	11.4	12.6	12.0	15.7	22.3	32.4
Netherlands	2.7	4.3	4.6	4.9	5.2	5.7	5.1
Switzerland	4.4	5.0	5.4	7.0	9.6	10.3	17.8
United Kingdom	4.8	5.6	6.0	4.6	3.4	20.1	16.0

SOURCE: *International Financial Statistics* (Oct. 1979).

labor unions. The Japanese have been the principal target of the resulting criticism because of their dominant role in many U.S. import markets and the size of their reserve increases, but Table 5 indicates that the problem was widespread. One goal of the new IMF exchange-market surveillance system is apparently to discourage this new form of mercantilism. It is important that this system succeed.

### Summary and Conclusions

The world's payments experience of the last five years has not been kind to the conventional theory of balance-of-payments adjustment. Neither flexible exchange rates nor other traditional adjustment mechanisms have operated as expected. The typical analysis of the causes of current-account shifts has become increasingly unpersuasive because the conventional theory is based on assumptions that no longer held after December 1973. OPEC represents a new phenomenon—a strong and apparently permanent cartel that dominates the market for the most important single product in international trade. In addition, OPEC includes a few important producers who cannot possibly use all their export revenues to purchase additional imports. The management of oil receipts by these and other OPEC members has been designed to isolate their domestic economies from the macroeconomic effects of the large payments surpluses generated by the increases in oil prices. As a result, the traditional adjustment mechanisms have not operated to eliminate these surpluses. It is far from clear, however, that it would have been in the interests of the oil-importing countries for these mechanisms to operate successfully. To the contrary, a rapid movement back to current-account equilibrium through traditional adjustment processes would have

imposed a far worse burden on the oil-importing countries than they have actually experienced in the last six years. Continued payments disequilibrium and the likelihood of long-term adjustment as substitutes for OPEC oil are developed have been clearly preferable to the classic adjustment process.

Although the current system of floating exchange rates has done little or nothing to adjust the OPEC surplus, it has had a major impact on the distribution of the parallel deficits among oil-importing countries. Nations that attract OPEC investments or net capital inflows from other sources run mirror-image current-account deficits under a floating-exchange-rate regime. If the float is managed, net capital flows must be defined as including foreign-exchange reserve flows. Countries that steadily add to their foreign-exchange reserves despite a public commitment to a floating exchange rate reduce or eliminate their current-account deficits by shifting them to other countries. Official attempts to "stabilize" exchange markets offer a new way to pursue the old goals of mercantilism: Keep buying dollars to stabilize the exchange market, and a current-account surplus will result.

These conclusions do not mean that the adoption of flexible exchange rates by most of the OECD countries in 1973 was a mistake and that the world should return to the Bretton Woods system. It is extremely unlikely that any fixed-parity system could have survived the payments shocks of the 1973-79 period, and some form of exchange-rate flexibility was clearly a necessity. The possibility of unstable speculative behavior and the large internal economic costs associated with sizable exchange-rate changes make a clean float unlikely and probably undesirable. The problem instead is to arrange and control official intervention so as to render it nonmercantilist. The recently instituted exchange-market surveillance role of the IMF has the potential for providing such control.

A system of parities with "objective indicators" for prompt and mandatory exchange-rate adjustments also might solve the problem of manipulated floating rates. One major difficulty, however, would be that speculators who understood the workings of the indicators might find it easy to predict a parity change and make riskless profits by moving funds just before the adjustment was made. To avoid this problem, exchange-rate changes would have to be small, frequent, and of uncertain timing. This leaves the issue of how to design indicators that would produce rapid signals for such small parity changes without requiring spurious and unnecessary exchange-rate adjustments.

Even if an exchange-rate system evolves that deals with the problems of the 1973-79 experience, the OPEC countries as a group will retain a

large payments surplus, and the rest of the world will have an offsetting deficit. Exchange-rate flexibility will not adjust this disequilibrium; as long as the OPEC surplus is concentrated in underpopulated countries like Saudi Arabia, Kuwait, Iraq, and the United Arab Emirates, there is no prospect for an increase in OPEC imports sufficient to produce adjustment. The only long-term solution is a sharp reduction in consumption of OPEC oil by the OECD countries in general and by the United States in particular. In the meantime, the best hope is that a large payments disequilibrium can be maintained through the willingness of the OPEC surplus countries to lend to the rest of the world. If these countries should conclude that oil in the ground is a better investment than the financial assets available in OECD capital markets, the economic and financial problems of the oil-importing countries will become far worse than they have been since 1973.

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