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## International trade in oil: Effects on the balance of payments and exchange rates

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There are no objections to the private use of the ECU on exchange-rate policy grounds nor are any expressed by the Bundesbank. Moreover, the demand for privately held ECUs in Germany is likely to be very small in any case since the ECU will probably be no more attractive than the DM, so that the problem for Germany is not particularly great. It must therefore be asked whether the obstacles in the way of the private use of the ECU should not be removed.

### Conclusion

This survey of possible further developments of the EMS is far from complete, but it shows that a number of conceivable measures could be taken that would strengthen the EMS, could hold the promise of

economic advantages and would in no way entail incalculable risks. Every sensible opportunity for closer European integration should be exploited, particularly in this, the most serious European crisis since the signature of the Treaties of Rome, and on the eve of European Parliament elections which politicians expect to produce a vote in favour of Europe despite the failure of European policies.

Nevertheless, it is important, especially after the bitter disappointments of the recent past, to avoid arousing excessive hopes that later cannot be fulfilled. The EMS would therefore benefit if an effective and promising concept were translated into action with as little fanfare as possible.

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## MONETARY POLICY

# International Trade in Oil: Effects on the Balance of Payments and Exchange Rates

by Renate Ohr, Bochum\*

**Oil price increases and the persistent OPEC current account surpluses were considered the main problems of economic development in many industrial and developing countries long after the first oil crisis. Since 1983, however, the OPEC surpluses have been completely absorbed and the official base price of petroleum has fallen for the first time in twenty years, although admittedly in terms of a "strong" dollar. Has the serious damage suffered by oil-importing countries in the two oil shocks been completely neutralised, or are the economies of many countries still strongly influenced by the actions and decisions of the OPEC countries?**

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First, let us look briefly at the quantitative importance of the international oil market and developments in the current accounts of the oil-exporting countries.<sup>1</sup>

Table 1 shows that the ninefold increase in oil prices between 1973 and 1982 (from \$ 3.2 to 29.5 per barrel) led to concrete energy savings in the oil-importing countries but that the associated fall in oil exports was small in comparison with the rise in the cost of the commodity. This is attributable partly to the very low price elasticity of demand for oil<sup>2</sup> and partly to the continued economic growth in many oil-importing countries, which, other things being equal, generates an increase in energy demand.

The result was a persistently strong increase in the value of OPEC exports that did not end until 1981.

However, as export earnings increased, so too did the oil-exporting countries' import demand and their deficit on the services and transfers account, so that their initial large current account surpluses had been almost completely absorbed by 1978. After the second price explosion in 1979-80 the increase in the value of imports again initially remained far below the increase in the value of exports and once again there emerged a substantial current account surplus that did not disappear until 1982.

### Extent of Reliance on Oil

This global portrayal of the problem throws no light on the situation of individual oil-importing and oil-exporting

<sup>1</sup> Only the states belonging to OPEC will be examined.

<sup>2</sup> Cf. the estimates in OECD: Economic Outlook, Special Supplement, No 27, 1980, p. 119.

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## MONETARY POLICY

**Table 1**  
**Current Account Balances of OPEC Countries**

	1973	1974	1975	1976	1977	1978	1979	1980	1981	1982
Oil exports (billions of barrels)	10.84	10.70	9.40	10.76	10.81	10.31	10.53	9.10	7.58	6.01
Value of exports (\$ bn)	39.0	117.9	109.6	133.2	146.8	141.6	214.2	297.6	273.5	210.7
Value of imports (\$ bn)	20.2	35.8	56.2	68.1	86.1	101.5	101.5	131.0	154.7	156.8
Services and transfers (\$ bn)	-12.2	-13.9	-18.0	-24.8	-30.5	-37.9	-44.1	-52.3	-53.8	-56.1
Current account balance (\$ bn)	6.7	68.3	35.4	40.3	30.3	2.2	68.6	114.3	65.0	-2.2

Source: IMF Economic Outlook, 1983.

**Table 2**  
**Energy Consumption in Various Countries, 1981**

	Primary energy consumption		Oil as a proportion of total energy	Import dependence	
	Total (mtoe)	Per unit of GDP <sup>1</sup> (toe)		overall <sup>2</sup>	on oil <sup>3</sup>
Fed. Rep. of Germany	262.9	0.53	44.4 %	50.9 %	95.6 %
France	180.4	0.45	53.5 %	71.6 %	97.3 %
United Kingdom	194.5	0.79	38.2 %	-6.4 %	-25.0 %
Italy	139.2	0.60	64.8 %	84.6 %	102.1 %
Japan	362.1	0.55	62.6 %	86.1 %	111.7 %
USA	1768.2	0.95	41.5 %	21.1 %	39.1 %

<sup>1</sup> At 1975 prices and exchange rates

<sup>2</sup> Net imports as a percentage of primary energy consumption.

<sup>3</sup> Net imports of petroleum as a percentage of primary energy consumption of petroleum.

Source: Sachverständigenrat, Jahresgutachten 1983, p. 292.

countries, however. For example, the importance of oil in general and imported oil in particular as a source of energy differs starkly from one industrial country to another.

The extent to which economic growth leads to increased oil imports therefore depends on three factors:

- ☐ the average primary energy consumption per unit of gross national product;
- ☐ the average share of oil in total energy; and
- ☐ the dependence on imports for the oil consumed.

Table 2 shows that in Japan, for example, economic growth leads to far larger oil imports than in Germany as oil accounts for a larger proportion of total energy. In the United Kingdom and the USA primary energy consumption per unit of GNP is higher than in Germany, but economic growth in these countries leads to a smaller increase in the demand for imported oil because of their higher self-sufficiency ratio.

The current account situation of the various oil-exporting countries is also far from uniform. Whereas

several OPEC countries used their export receipts, and in some cases more besides, to increase their demand for imports during almost the entire period under review and therefore had current accounts broadly in balance or even in deficit, there are other countries that have continued to record large surpluses up to the present day. The first group comprises countries in which oil revenues are relatively low in relation to the size of the population and where the government is also pursuing ambitious development and/or military objectives that are financed out of export receipts. Such "high absorbers" as Indonesia, Nigeria, Venezuela and Algeria are therefore among the twenty largest debtor countries in the world, despite being members of OPEC and despite high earnings from oil exports.<sup>3</sup> By contrast, countries such as Libya, Saudi Arabia or the United Arab Emirates – countries with relatively high oil revenues, small populations and hitherto relatively modest development and military objectives, in other words "low absorbers" – continue to accumulate persistent balance-of-payments surpluses. In both cases, exports and imports can be concentrated on

<sup>3</sup> Cf. Sachverständigenrat: Gutachten 1983, p. 27

**Table 3**  
**Trade Balances with OPEC Countries**  
in billions of dollars, c.i.f.

	Exports to OPEC				Imports from OPEC			
	1974	1978	1980	1982	1974	1978	1980	1982
USA	5.711	18.119	18.433	23.241	16.116	32.350	53.913	31.221
Japan	4.344	14.923	20.429	24.385	20.313	25.548	58.220	50.130
France	2.425	6.149	10.336	10.646	9.926	11.515	24.481	18.035
Fed. Rep. of Germany	3.666	13.411	13.839	17.737	9.043	9.509	20.616	13.820
Italy	1.864	6.964	10.635	11.529	9.393	9.954	17.507	17.289
United Kingdom	2.430	9.217	11.515	11.606	8.708	6.435	9.920	5.734
Switzerland	0.445	2.019	2.176	2.595	0.594	0.526	1.286	0.996
Denmark	0.146	0.585	0.760	0.900	0.814	0.465	0.628	0.579

Source: IMF Yearbook, Direction of Trade Statistics, 1981, pp. 14-15, and 1983, pp. 14-15.

**Table 4**  
**Deployment of Investible Surpluses of OPEC Countries**

	1974	1975	1979	1980	1981	1982
Investible surpluses in \$ bn	53.2	35.2	60.6	87.0	49.5	3.1
Investments in the USA in %	22 %	27 %	11.5 %	16.5 %	33 %	400 %
Investments in the UK (in £) in %	39 %	12 %	28.5 %	21 %	19 %	-290 %
Investments in other industrial countries in %	23 %	31 %	45 %	49 %	29 %	-200 %
Investments in developing countries and loans to international agencies in %	16 %	30 %	15 %	13.5 %	19 %	190 %

Sources: BIS: Annual Report, various years; own calculations.

different countries, so that as yet we have still indicated nothing about specific bilateral current account balances between individual oil-importing and oil-exporting countries.

It can be seen from Table 3 that the USA, Japan, France and Italy, for example, can finance only part of their oil imports by exporting to the OPEC countries. By contrast, the United Kingdom, Switzerland, Denmark and also Germany actually recorded trade surpluses vis-à-vis the OPEC group in several years.<sup>4</sup>

#### Investment Decisions by OPEC Countries

It is well known that oil receipts that are not recycled through trade do not remain in the OPEC area but are reinvested in the international financial markets (capital recycling), so that the overall balance of payments of the OPEC countries is broadly in equilibrium. This too can be reconciled with bilateral balance-of-payments disequilibria, for the recipients of the financial flows are not current account debtors to OPEC in the same degree.

A precise breakdown of OPEC capital investments by country is not available at present. However, Table 4

provides a basis from which a number of conclusions can be drawn, particularly with regard to dollar investments.

It appears that the proportion of petro-dollars invested in industrial countries other than the USA steadily increased from 1974 to 1979 whereas the OPEC surpluses remaining in the USA declined in relative terms over this period. Fluctuations in the proportion of investments made in the USA are mainly to the detriment or benefit of investments in the United Kingdom. In 1982, however, the picture changes completely; not only the current surpluses – which were hardly worth mentioning that year, in fact – but also a substantial part of existing OPEC funds were invested in US financial assets, for which purpose OPEC capital was withdrawn chiefly from the United Kingdom but also from other industrial countries.

The first point to note, therefore, is the fact of persistently high current account surpluses in at least some OPEC countries. Moreover, the investment of

<sup>4</sup> To assess the current account as a whole, however, the balances on services and transfers, which are mostly positive for industrial countries vis-à-vis OPEC states, would also have to be added.

surplus funds in the international financial markets does not necessarily eliminate bilateral balance-of-payments disequilibria between individual industrial countries and the OPEC group, as financial investments in individual oil-importing countries are not always sufficiently attractive to finance their current account deficits entirely by means of capital investments from the OPEC countries.

At this point the question arises whether the observed bilateral current account and balance-of-payments disequilibria are perhaps reduced over time by the money-supply, income and exchange-rate mechanisms familiar from the textbooks or whether there are circumstances peculiar to the oil market that impede the traditional balance-of-payments adjustment mechanisms.

### **Traditional Adjustment Mechanisms**

According to traditional balance-of-payments theory, persistent balance-of-payments disequilibria under a regime of fixed exchange rates can generate the following money-supply, income and price effects that can tend towards a restoration of balance-of-payments equilibrium over the long term:

□ *Money supply mechanism.* There is an inflow (outflow) of foreign exchange reserves equal to the balance-of-payments surpluses (deficits) and, other things remaining equal, this causes the money supply to expand (contract). An expansion in the money supply has both inflationary and interest-rate-reducing effects, thereby adversely affecting both the current and capital accounts, so that the balance-of-payments surplus is reduced. Conversely, a contraction in the money supply leads to an improvement in the balance of payments.

□ *Income mechanism.* Whereas the money supply mechanism presupposes disequilibrium in the overall balance of payments, income effects can also be generated by current account deficits or surpluses alone, irrespective of the overall balance-of-payments situation. The emergence of a current account surplus leads to increasing demand for home-produced goods. In a situation of full employment, the excess of nominal aggregate demand over nominal aggregate supply leads to price increases, which in turn cause a deterioration in the current account. Similarly, a current account deficit reduces demand for domestic products and hence leads to excess supply in the home market, which induces deflationary tendencies and leads to an improvement in the balance of payments. In times of underemployment there are real income effects that operate in the same direction, in that a rise in income leads to increased imports and hence to a reduction in the current account surplus and vice versa for a fall in income in deficit countries.

□ *International price effect.* If the balance-of-payments disequilibria stem from current account surpluses or deficits caused by international differences in inflation rates, imported inflation leads to a levelling of inflation rates over the long run and hence removes the causes of disequilibrium.

Under floating exchange rates, the above-mentioned effects are largely eliminated. Instead, the currency of the surplus (deficit) country appreciates (depreciates) and its competitiveness therefore deteriorates (improves) until balance-of-payments equilibrium has been restored via a decline (increase) in exports. If one assumes that exchange-rate related capital

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movements can occur, equilibrium can be restored more quickly owing to capital transactions induced by expectations of currency appreciation or depreciation. In the case in point, this would mean a sharp appreciation of OPEC currencies against the currencies of the oil-importing countries.

### **Peculiarities of the Oil Market**

The massive current account and balance-of-payments disequilibria that accompany oil transactions remain largely unaffected by the mechanisms described above, however, for the reason that in the oil-exporting countries the domestic money and foreign currency markets and the incomes of the population at large are almost completely isolated from oil revenues and corresponding changes in the balance of payments. As the OPEC countries receive their export earnings in dollars, an increase in these receipts does not lead to a rise in the exchange rates of OPEC currencies against the currencies of oil importers; it is only their rates in terms of the dollar that change.

The adjustment mechanisms of the money-supply and income effects, which should operate under constant exchange rates according to the traditional theory, are also limited in scope. Invoicing in dollars and the direct deployment of these dollar receipts to buy imported goods or for reinvestment in the international capital markets means that the OPEC countries as a whole have no balance-of-payments surplus and hence that their money supply remains unchanged. On the other hand, the oil-importing countries that cannot match their purchases of oil by exports of goods to the OPEC countries or inflows of capital from OPEC record balance-of-payments deficits vis-à-vis the OPEC countries, but these disequilibria express themselves in excess demand for dollars, not OPEC currencies. If a country intervenes to prevent a depreciation against the dollar induced in this way, these balance-of-payments deficits manifest themselves without balance-of-payments surpluses against the USA to offset them, so that an outflow of foreign currency reserves occurs and the money supply contracts. Deflationary or recessionary effects associated with this can nonetheless induce some movement towards balance-of-payments adjustment from this side.

The process of adjustment via income effects is also of little significance for the OPEC countries themselves, because the balance-of-payments surpluses neither automatically increase the domestic disposable incomes of private residents and hence their import demand nor do they generate an increase in domestic

demand that would raise prices and automatically cause a deterioration in the current account. The scale of induced imports depends largely on decisions by state agencies, which in almost all cases are the oil producers and recipients of the associated revenue. In the oil-importing countries, however, real reductions in incomes and the deterioration in the terms of trade have induced some balance-of-payments adjustment through falling oil imports.

Finally, the international price effect also operates differently here from the way indicated by the traditional theory. Whereas balance-of-payments and exchange-rate theory assumes the existence of the Marshall-Lerner criterion (which states that price or exchange rate increases lead to a deterioration in the current account), it can be seen in this case that oil price rises always improve the current accounts of the OPEC countries since oil demand is very inelastic to price changes. Similarly, increases in the prices of their imports do not necessarily lead to a substantial reduction in demand on their part either.

Hence oil price increases cause OPEC current account surpluses to increase rather than reducing them, and the oil-related upward pressure on industrial prices offsets some of the surpluses, but not enough, by increasing the value of imports by oil-exporting countries.

It can therefore be concluded that the processes of balance-of-payments adjustment that economic theory describes for both fixed and floating exchange rate systems are based on direct links between balance-of-payments changes and the domestic economy. These relationships are termed automatic, as no government action is necessary to set the process in motion. The circumstances in which the OPEC states sell oil eliminate such bilateral relationships between oil-importing countries on the one hand and OPEC states on the other.

### **OECD Countries**

The OPEC countries' practice of demanding their oil revenues in dollars and also investing funds that exceed the scope of trade recycling in dollars or other OECD currencies means that exchange rate changes – or money-supply effects if exchange market intervention is undertaken to stabilise exchange relations – occur only between OECD currencies.

Although floating exchange rates cannot prevent the OPEC current account surpluses as no upward pressure is brought to bear on OPEC currencies, the

exchange rate system nevertheless does influence the distribution of deficits among the oil-importing countries. In a system of floating exchange rates the level of the balance on current account is determined by the level of the balance on capital account and changes in foreign currency reserves (in the context of managed or dirty floating). Changes in capital flows induce exchange rate adjustments that affect the current account. The decisions of OPEC countries as to the currencies in which they will invest their dollar surpluses therefore initially affect the exchange rates of these currencies against the dollar,<sup>5</sup> thereby causing current account changes vis-à-vis the USA. Shifts in investment capital among the OECD countries can also lead to bilateral exchange rate and current account changes between these countries. Hence, with clean floating and no exchange market intervention, countries that experience substantial inflows of OPEC capital or other foreign investment in financial assets register correspondingly large current account deficits not only vis-à-vis OPEC countries but also in relation to other oil importers. In this instance, such current account deficits that are financed by capital account surpluses are not necessarily a sign of economic weakness but the result of a country's attractiveness in the eyes of foreign investors.<sup>6</sup>

### The Dollar Exchange Rate

The remarks made so far on the effects that trade in oil and investment decisions by OPEC countries have on balance of payments and exchange rate developments in various oil-importing countries will now be used to explain changes in the dollar exchange rate, although naturally they cannot be regarded as the sole determinants.

After the first oil price shock two contrasting tendencies were working upon the dollar. First, the USA itself initially had a relatively small current account deficit with the OPEC countries, and the other oil-importing countries' demand for dollars to pay their oil bills was large. Secondly, the OPEC countries frequently invested their dollar surpluses in other currencies and in subsequent years US oil imports grew faster than those of other countries.

Two further contrasting effects apply to the pound sterling. Whereas until 1976 an admittedly declining part

of the trade in oil was still conducted in sterling, since that date the dollar has been the only invoicing currency.<sup>7</sup> On the other hand, the importance of North Sea oil is increasing, so that the United Kingdom's dependence on imported oil is rapidly declining.

Until 1979-80 the dollar depreciated against most other OECD currencies. Obviously, there were cyclical reasons for this besides the influences outlined here. For example, in 1977-78 the US current account even deteriorated against the other OECD countries owing to economic recovery and inflation, and the adverse expectations to which this led caused capital outflows.<sup>8</sup>

After the second oil price shock the dollar experienced a strong upward revaluation against almost all other currencies. Apart from the current account surplus in 1980-81 caused by, among other things, the earlier depreciation, it was mainly the high US interest rates that attracted international capital to the USA, including OPEC funds. The importance of OPEC resources invested worldwide can be seen from the 1982 figures, for example. In that year, in which the OPEC countries as a group recorded no current account surplus, \$12.5 billion in petro-dollars nevertheless flowed into the USA, having been withdrawn from the United Kingdom and the other industrial countries.<sup>9</sup> The corollary of this massive transfer of OPEC investments is the large US current account deficit since 1982, caused mainly by the induced rise in the dollar. This deficit is not, as might have been expected, against the OPEC countries (here the change in US energy policy has been having a positive effect of late) but vis-à-vis the other OECD countries.

The conclusion can therefore be drawn that a not inconsiderable part of the dollar's divergence from its purchasing power parity against the currencies of other industrial countries can be attributed to the investment policy of the OPEC countries. These divergences in turn induce corresponding current account imbalances between the USA and the other OECD countries that stem ultimately from OPEC policy. It is largely immaterial whether the oil-exporting countries again record current account surpluses in future, as the existing OPEC funds are already sufficiently large to cause sharp exchange rate movements if they are transferred within the international capital markets.

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<sup>7</sup> Cf. Stephen Golub: Oil Prices and Exchange Rates, in: *The Economic Journal*, Vol. 93, 1983, p. 586.

<sup>8</sup> Cf. Bank for International Settlements. *Fifty-third Annual Report*, 1983, pp. 163 f.

<sup>9</sup> Cf. Table 4. In addition, a large part of the "unidentified" capital inflows into the USA appears to come from the oil-exporting countries; cf. BIS, op. cit., p. 116.

<sup>5</sup> Cf. Robert Dunn: Exchange Rates, Payment Adjustment and OPEC: Why Oil Deficits Persist, *Essays in International Finance*, No. 137, Princeton 1979, pp. 12 ff.

<sup>6</sup> Cf. Renate O h r : Ruckführung der Öl-Dollars nach wie vor aktuell, in: *liberal*, Vol. 24, 1982, p. 380.