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FACTORS AFFECTING WORLD OIL PRICES TO THE YEAR 2000

by

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World oil prices moved in relatively orderly fashion from 1950 to 1972. They then took a quantum jump in 1973 after which they moved approximately with world inflation. In order to determine the factors which will influence these prices in the future it might be well to start with an analysis of what has influenced them in the past.

In the 1950-72 period, world crude oil prices were largely determined by competitive pressure from increasing excess crude oil producing capacity. During these years average annual gross additions to reserves in the non-Communist world were roughly 27 billion barrels while average annual production amounted to only 9.4 billion barrels. In the 1965-70 period alone, annual gross additions averaged 50 billion barrels, largely because of upward revisions of previously discovered reserves in the Middle East as the full potential of these discoveries began to be realized.

As a result, during this period the world market absorbed rapidly increasing volumes of oil without appearing to make a dent in the available supply. Thus, between 1950 and 1973 non-Communist world oil demand rose at an exponential growth rate of 7.1%, or from less than 10 million b/d to more than 45 million b/d. Yet, by the end of the period proved world oil reserves were six times as large as at the beginning.

The impact of this development on oil prices was that the early postwar attempt to price oil competitively with other energy sources,

particularly coal, gave way in the late 1950's to intra-fuel competition among oil suppliers which caused the real price of oil to decline steadily until the early 1970's when OPEC started to assert itself as a price setter. As a result of this growing pressure of supply on demand, oil undersold coal by more than was economically necessary to expand its market penetration throughout the 1960's. Thus, the economic growth in the Western industrialized countries became largely based on the expanded use of oil.

The excess supply is still with us (despite evidence that the reserve additions are beginning to taper off). However, since OPEC's takeover in 1973 it has ceased to play a role in price formation. One major reason is the production restrictions imposed by several OPEC countries. Kuwait has set a fixed ceiling of 2 million b/d at which rate its proved reserves are equal to 85 years of production. Saudi Arabia, OPEC's super giant, had an 8.5 million b/d ceiling for Aramco production until the beginning of this year, equal to 57 years of its proved and probable reserves. It may reimpose a ceiling, formally or informally, now that its pricing dispute with the other OPEC members has been settled. Venezuela and Libya, too, have fixed production ceilings. The ceilings act of course to insulate the market from the pressure of excess supplies. The other major reason that excess capacity no longer affects prices is clearly OPEC's role as the sole price setter and the fact that, contrary to earlier expectations, intra-OPEC competition has been quite marginal, so that there has been no serious challenge from within to the OPEC price structure.

Obviously, OPEC's criteria in setting prices are essentially different from those of the private companies. While the latter have an incentive to maximize production because of compelling short term commercial imperatives, the former are more concerned with long term national economic and social goals. For most OPEC members oil production will remain the lifeblood of their economies as long as it lasts. They are therefore trying to make it last as long as possible. This applies particularly to countries like Saudi Arabia, Kuwait, Abu Dhabi, Qatar and Libya whose short term ability to absorb additional revenues is much less than their ability to produce additional oil.

The question we must ask, in looking at the future of world oil prices is, do current OPEC prices reflect only the self-interests of the producers or do they have a broader long term justification? If the former is true, they are no more likely to last than cartel prices of other commodities that were invariably forced down over a time by counter-mandling market forces. If the latter is true they are likely to form the basis for the world oil price structure for the remainder of this century.

There is no clear cut answer to this question but there are a number of indications. Had the OPEC price revolution of October 1973 not occurred and had prices remained at their mid-1973 levels, there would probably have been only a mild world recession; world oil demand, instead of falling in 1974 and 1975 and then growing at a rate of about 5.0% in the two following years, would probably have risen at a rate of 6.0-6.5% throughout these four years. The 6% growth rate could have been expected to continue into the 1980's instead of the 3.0-3.5% rate that we are likely to see from 1978 on.

Most oil experts in industry and government believe now that the higher growth rate could not have been sustained beyond the mid-1980's because of the production ceilings established by some OPEC members and also because of a new belief that the remaining recoverable oil resource base is not large enough to permit continuation of an exponential growth rate approximating that of the pre-1974 period. A price increase was therefore clearly required to reflect both the imposed production ceilings and the perception of a declining resource base. Moreover, the private oil companies could not have effected such an increase, given the continuing short term oil surplus (which is still with us) and their commercial, political and legal requirements to behave competitively. Thus, OPEC prices, born out of economic self-interest and nationalistic ideology, may be a more realistic reflection of the true long term supply cost of oil than the pre-1973 prices, although the suddenness of the changeover and the magnitude of the initial increase were both excessive and disruptive.

The consuming countries initially opposed the new price levels of course vehemently. All kinds of schemes and plans were designed, proposed and debated to breakup OPEC or at least undermine its price structure. None worked and eventually these countries came to accept the OPEC price structure partly because of OPEC's demonstrated ability to ward off all attacks against it but more importantly because importing countries came to realize that the staggering postwar increase in their dependency on oil -- from 29% to 50% of world energy demand between 1950 and 1975 -- had to be slowed down and that a substantially higher

price was the only effective instrument likely to accomplish this. The official recognition of this realization was President Carter's National Energy Plan which, in effect, legitimized OPEC prices by identifying them as the true world replacement cost of oil and proposing to raise all domestic oil prices to consumers to at least that level and also let newly produced domestic oil move up to it.

Thus, the possibility that the OPEC price will collapse, so widely predicted until less than a year ago, can for all practical purposes be ruled out as a factor in price determination in the foreseeable future.

Another factor presently at work, namely maintenance of OPEC prices in real monetary terms through adjustments to offset inflation in the cost of goods and services bought by OPEC members, has probably been strengthened by President Carter's proposal to index all domestic oil prices to U.S. inflation.

Since mid-1974 OPEC has said repeatedly that its future pricing policy would be limited to protecting the victory of its 1973/74 revolution by guarding the price levels it had achieved then against erosion through eventual deterioration in its terms of trade with the nations to which it sells most of its oil and from which it buys most of its goods and services. In the past three years OPEC has approximately, though hardly unanimously, kept to this principle, with price increases on the order of 23 percent, as measured by changes in the price of Saudi Arabian marker crude.

Over the next several years OPEC's current pricing policy is likely

to be maintained as well as its commercial surplus of oil because of the coming onstream of substantial volumes of non-OPEC production from Alaska, the North Sea, Mexico and Egypt between now and the early 1980's. Thus, the real price of world oil will probably remain more or less unchanged during this period while the monetary price may rise 5-7% annually.

Beyond this period, prices are likely to continue to rise at not much more than the world inflation rate as long as they will be set by OPEC rather than market forces. The latter will assert themselves if and when allowable OPEC production becomes insufficient to meet demand. Whether and when this will happen depends on the demand growth in the importing nations, on the discovery and production of non-OPEC oil and, perhaps most importantly, on the production ceilings imposed by individual OPEC members not for political purposes but in order to stretch the life span of this principal source of wealth and adjust their annual oil revenue to their perceived ability to absorb it.

Saudi Arabia will of course be the key factor in determining incremental world production and thus carry the primary responsibility in setting world supply levels. It will be a very heavy responsibility, since Saudi Arabia's decisions will affect the economic welfare of the entire world throughout the next 20 years at least. If the country decides to maintain its present production level of 9.5-10.0 million b/d, supply constraints with attendant price increases could develop by the early 1980's. If, on the other hand, it decides to gradually double its output, which it could easily do on the basis of existing

proved and probable reserves, a shortage could be averted until well after 1990 by which time other factors may come into play to ease demand pressures on its oil supplies.

Even the upper level of Saudi production would have to be accompanied by a substantial reduction in the global growth rate for oil demand to minimize the possibility of a physical resource constraint, as opposed to the artificial constraint of production ceilings below sustainable capacity, in the 1990's. Probably, a sustained annual growth rate of just under 3% from about 1980 on would get us through the remainder of this century.

This may seem excessively low in comparison with the more than 7% rate prior to 1974. But with a modestly lower general economic growth rate than in the 1950-73 boom period, an energy growth rate lagging somewhat behind the economic one because of conservation measures and continued improvements in the efficiency of energy utilization, and an oil growth rate somewhat below that of energy because other energy sources, like coal and nuclear power, are growing more rapidly, a 3% level is entirely achievable without major economic dislocations.

Altogether, then, oil prices may be expected to rise in monetary terms but probably not in real terms until the early 1980's. After that they could rise in real terms, perhaps substantially if we are unable to curb our demand increase to well below half the historic rate and if Saudi Arabia and one or two other Persian Gulf countries freeze prevailing production levels. In that case market factors,

rather than OPEC, would set the price required to balance supply and demand, although OPEC would of course receive the additional income from the higher prices.

One final comment: synthetic oil not likely to be a significant factor in world oil supply and, hence, price formation before the end of the century. On the basis of present economics, lead times, environmental constraints and absence of government support, no more than 2-3% of world oil demand will be met from synthetics by 1990. If this share were to triple in the following ten years, it would still not be enough to act as a ceiling on world crude oil prices, although it could conceivably act as a floor.

Altogether, it would seem therefore that throughout most of the remainder of this century oil prices will not be under significant direct competitive pressure from substitute energy sources.