GILES KEATING CONTRASTS INVESTMENT IN THE GLOBAL MANUFACTURING SECTOR WITH CAPITAL EXPENDITURE IN THE GLOBAL ENERGY SECTOR AND ANALYSES SOME STARTLING DIFFERENCES.

Two colliding models

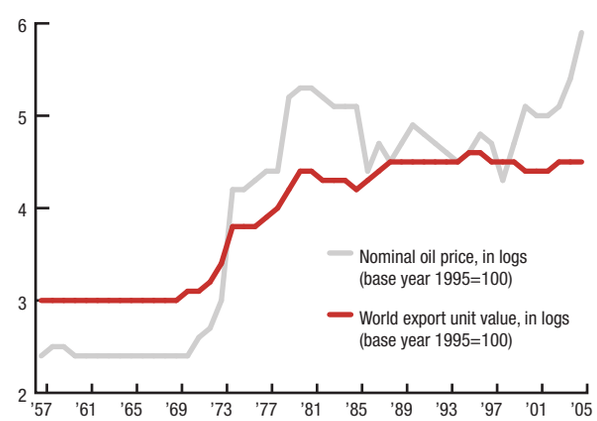
One of the great mysteries in the world economy is the way that the energy and commodity sectors have been investing at only a modest pace for two to three decades, as though the boom in Asia was not happening. Meanwhile the world's manufacturers, big and small, have been expanding their operations in Asia at an almost breakneck speed. Little wonder, then, that energy and commodity prices have moved up sharply while manufactured goods prices are on a downtrend (see *Figure 1*). But why has this dichotomy occurred, and will it persist?

The world's great energy companies have some of the most sophisticated strategic planning teams in the world, and yet they still plan exploration for crude oil and investment in refineries on the basis of oil prices far below the $50-60 a barrel priced into oil forward contracts for future years. Thus, the price signals from the demand side are nowhere near feeding through fully into a supply response, suggesting that high energy prices are likely to persist for many years.

CONCENTRATED POWER One possible explanation for this anomaly is that the global energy sector is one of the world's most oligopolistic. Substantial market power in production/exploration, processing and distribution is concentrated in the hands of a very small number of companies and countries. Oligopolies in commodity sectors tend to have a bias to under-investment, because they face asymmetric incentives. If they keep investment low and demand then turns out unexpectedly strong, their profits from the resulting high prices will likely be almost as good as if they'd foreseen the boom and done more capital spending. But if they invest heavily and demand turns out surprisingly weak, then their profits can fall sharply as prices collapse in the glut. *Figures 2* and *3* illustrate just how weak global oil sector investment has been. Capital expenditure to sales ratios in the large integrated oil majors would have to rise by 50% to regain 1980s/early 1990s levels, while the global rigcount is barely above the average of the last 20 years and less than half its peak early 1980s figure. Having said this, we have no way of saying whether some other structure for the industry would be feasible, or could produce an investment outcome that was in some sense better. The structure is as it is, and we are interested in understanding what economic effects it has rather than trying to evaluate alternatives.

Contrast this with the global manufacturing sector. This contains many very large oligopolistic companies but, unlike the energy and commodity sectors, in their core businesses they have to compete on innovation, product design, marketing and distribution. It is essential that they keep investing heavily in innovative new products, because they will lose market share rapidly if their competitors get a new design to market ahead of them. The current frenetic launches of new games consoles is one example. So in complete contrast to the energy sector, there tends to be a bias towards over-investment. Moreover, the big global companies outsource much of their production to a large number of atomised small and medium-sized suppliers in Asia, East Europe and elsewhere. These smaller companies also have a bias

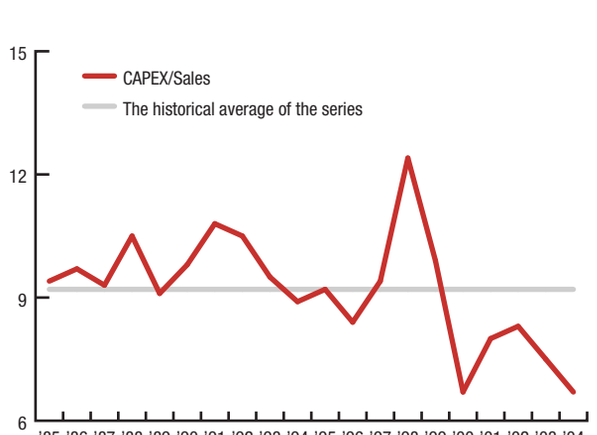
Figure 1. Structural rise in energy prices contrasts with structural weakness in manufacturing prices



Note: First, we have rebased the series to 1995=100 and then taken the logarithm. The IMF world export unit value series is derived largely from manufactured goods.

Source: Datastream, BP Statistics, IMF, Credit Suisse

Figure 2. Integrated oil stocks capex-to-sales ratio



Source: CSFB Oils team research

towards over-investment, since they know that if they don't expand capacity, someone else probably will do so, especially given low interest rates everywhere. This situation is exacerbated by China and some other countries operating imperfect financial markets that tend to under-charge for capital.

DIFFERENT INDUSTRIAL STRUCTURES The dichotomy between under-investment in commodities and energy, and over-supply in manufacturing, is thus broadly explained by there being a totally different industrial structure in the two areas. Looking ahead, this does not seem likely to change much. Maybe gradually, capital markets in China and elsewhere will become less imperfect, choking off some of the local investment, but this could take a long time given the intertwining of banking systems with local politics. And indeed, over time there could even be an intensified push to over-investment in innovation and product design, as leading Asian corporates start to flex their muscles on the world stage, creating new global brands and forcing a response from the incumbents. More immediately, it is just about possible that the inflationary threat from high energy prices might force up interest rates enough to upset the ongoing global boom in manufacturing investment. But this seems a fairly low probability, mainly because the ongoing deflationary pressure from new manufacturing capacity looks powerful enough to offset most of the inflationary push caused by energy and commodity costs, and because central bankers know that killing off the manufacturing investment boom could itself be inflationary. So the US Federal Reserve will probably stop tightening when US short rates are somewhere around 4.5%, which would still be very low (in real and nominal terms) by the standards of the last few decades.

Meanwhile, in the energy complex, there could be government intervention to encourage higher investment, notably in refining capacity. But this would take place against the background of the oligopolistic structure. So while it may make the headlines and appeal to the voters, on a strategic view over a number of years it is unlikely to fundamentally change the bias towards limited investment.

BREAKING THE TREND Therefore it seems likely that for a long time, short-term cycles aside, investment will continue buoyant in manufacturing and relatively restrained in the energy/commodities complex. This in turn suggests that over many years, energy and commodity prices will continue to rise, while those of manufacturers fall, albeit with cyclical hiccups along the way. Eventually, however, we see this trend being broken. This break would come not because of a change in the industrial structure of either manufacturing or of the commodity/energy area, but rather because of a collision between the two different models.

Over the longer term, we believe that the big reaction to high and rising prices for energy and other raw materials will come from innovation on the manufacturing side, rather than from a massive rise in supply. Since large modern manufacturing companies have innovation at the heart of their core business model, it will be natural for them to develop new products that minimise the use of energy and materials inputs. And while initially much of this innovation will be relatively modest and incremental, over time we are likely to see much more radical change.

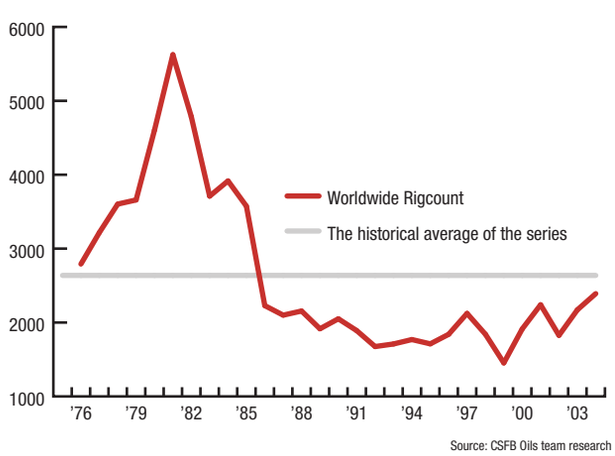
The explosion of interest in petrol-electric hybrid cars is an early indication of this trend, and perhaps will be followed by diesel-electric hybrids offering another quantum leap in efficiency. Much more radical steps lie beyond this, such as the development of the current embryonic market in pure electric vehicles into a mass-market for lightweight urban transport, car-shaped but using barely more materials than a powered bicycle, and made safe by restrictions on the use of conventional heavyweight vehicles in towns. Another example is the development of improved solar energy systems, much of which is being done by the general manufacturing sector rather than by the large integrated energy companies. One of the exciting developments here is the linkage with other emerging technologies, such as the use of Light Emitting Diodes (LEDs) for lighting, which require far less electricity than corresponding conventional filament bulbs. As a result, widespread adoption of solar-powered residential and office lighting, and to a more limited extent heating, is not a silly projection to make for ten years hence.

Many more possibilities exist, but the purpose of this article is not to predict how technology will evolve. Rather, it is to argue that an oligopolistic manufacturing sector, competing on innovation, will respond to the enormous shift in relative prices now underway by inventing completely new products, the emergence of which will eventually erode demand for energy and raw materials and thus ultimately reverse the relative price shift. But that will likely take well over a decade to play out.

Executive summary

- **Oligopolies – such as the global energy sector – tend to have a bias to under-investment.**
- **In contrast, the global manufacturing sector has to invest heavily in innovative new products.**
- **Under-investment in energy and over-supply in manufacturing is unlikely to change in the near future.**
- **The response in the long term will be manufacturing innovation which will minimise the use of energy and other materials.**

Figure 3. Worldwide rigcount



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