The Oil Price Crises of 1998–9 and 2008–9

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Oil prices collapsed beginning in late 1997 from an average of $17 per barrel (dated Brent used as a wide reference at the time) to a low of just above $10 per barrel. This low level, which was reached as early as March/April 1998, held with some fluctuations, until early 1999. The fall was of the order of 40 percent. The impact on the export revenues of oil-exporting countries was severe. The base price of $17 per barrel that has been characteristic of oil price movements since 1989 was not very rewarding. A 40 percent fall from this level involves a greater percentage fall from net unit revenues since that number, equal to price minus unit costs, is smaller than the per barrel price. To illustrate, assuming that average per unit cost was about $1.5 per barrel at the time, per unit revenue at $17 per barrel would have been $15.5 per barrel. A $7 per barrel price fall would have reduced revenue by 45 percent.

The oil-exporting countries felt economically vulnerable to the oil price fall, and this prompted them fairly quickly into action, but success in reversing the price movement was long delayed.

In 2008, oil prices (taking the WTI futures price as a reference) began to fall in early July from a peak of about $146 per barrel. It is wrong to measure the fall (or rise) of a price taking for the base a trough or a peak. What will do for exciting news headlines is of no use analytically. The fall in oil prices from the $100–145 per barrel range that obtained in the first half of 2008 to the $35–50 per barrel range recorded in the period November 2008 to April 2009 represents (taking the mid-points of these two ranges) a fall of about 65 percent. This is a much larger percentage fall than in 1998–9; but an oil price in the $40–50 per barrel range in 2009 is less damaging economically for many oil-exporters than the $10 per barrel price was in 1998–9. This does not mean, however, that most of them would not prefer a higher price as indicated by the King of Saudi Arabia when he suggested that $75 per barrel would be fair, efficient and therefore desirable.

The 1998–9 and 2008–9 crises differ in several respects. A most important difference relates to the causes of the price collapse. To be sure, there was a common occurrence: in both cases: world oil demand was falling. In the first episode, this began to happen in late 1997 and continued under the impact of the Asian economic crisis. In the second episode, oil demand began to fall in the USA at the beginning of 2008, if not earlier, largely in response to the rise of the domestic prices of petroleum products. Later on, the recession caused by the credit crunch and the failure of a number of financial institutions led to a fall in either the level or the rate of growth of oil demand in other countries.

The difference between the two episodes lies, however, in other causes: the pursuit of a price war in 1998 and the hubris that swept financial markets starting some time in 2004 if not earlier.

In 1997, Saudi Arabia and other OPEC Member countries were upset by the output maximisation policy pursued (or claimed to be pursued) by PdVSA, the national oil corporation of Venezuela, at a time when world oil demand was either stagnating or falling. At an OPEC Conference of oil ministers held in Jakarta late in 1997, Saudi Arabia persuaded other member countries, apparently without great difficulties, to increase the then current production quotas by 10 percent.

The argument used was that the International Energy Agency (IEA) has been underestimating world oil demand and overstating the volumes of non-OPEC production for reasons that anybody can guess. This had been going on for a long time by then. The result was that the call on OPEC was underestimated and this seemed to justify the proposed increases in quotas. Some commentator later quipped: 'strange that the ministers could not see the Asian economic crisis by looking down from their hotel windows in Jakarta'.

Almost immediately oil prices dived down. This alarmed Mexican officials who saw, before anybody else, the adverse implications for the economies of oil-exporting countries; it alarmed the Venezuelans who began to realise that their boasts about maximising production have heavy costs in terms of oil revenues; it alarmed the Saudis who were seeking a way to retrieve the situation.

Because the problem was essentially an internal OPEC affair the market naturally focused on OPEC – the internal strife and the attempts to solve it; the relationships between Members, not only Venezuela and Saudi Arabia, also Saudi Arabia and Iran; and on the fundamental policy issues of production programming and the perceived degree of implementation of such decisions. And because this was an OPEC internal affair the recourse to oil diplomacy between member countries and other oil-exporting nations occurred from an early stage.

As usual, the market indulged in extreme scepticism. Successive decisions by OPEC and a few non-OPEC exporters announcing production cuts were met with disbelief, so much that every such decision in 1998 was followed by a price fall. Furthermore, there was a lack of trust between protagonists – Saudi Arabia and Venezuela, Iran and Gulf Countries. Active mediation by Mexico, despite some successes, was also met with disbelief or outright dismissals.

The belief that the market was flooded with supplies moved the term structure of futures prices into a contango from August 1997. The difference between the price of the first and second months futures contracts was not very high by current standards. They did not reach $0.20 per barrel until the end of November 1997; by March 1998 the differential reached on some days the unprecedented level of $0.42

per barrel. At that time, a differential of $0.18–0.20 per barrel was sufficient to provide an incentive to buy physical oil, add it to inventories, and sell a futures contract at a $0.20 (or more) higher price than the spot.

Inventories were built up, not as much as stated by the proponents of the 'missing barrels' myth; and an inventory build-up results in falling prices as this is interpreted without qualifications as signifying excess supplies in the sense that exporters are deliberately flooding the market.

The oil price initial fall and subsequent stagnation at low levels lasted throughout 1998 and until March 1999. A market almost entirely focused on the internal relationships between OPEC Members was by March 1999 convinced that OPEC unity had been restored by two events: an agreement between Iran and Saudi Arabia reached by the respective foreign ministers of these two countries in January 1999, and even more crucially by the election of Hugo Chávez to the presidency of Venezuela. Furthermore, the output cuts that the market had ignored for so long had at last begun to be seen biting, so long is the lag between the actual impact of fundamental economic forces and the perception of this impact. As often in the history of oil political and economic forces combine to deliver an outcome.

What has been happening in 2008–9 and will continue to unfold in the months to come has different causes but some common features in the outcome. OPEC was not initially at the centre of the story despite accusations against it by uninformed leaders of some OECD countries. The relentless oil price rises on the futures exchanges were essentially a financial phenomenon. Investors had accessed to huge volumes of money (either borrowed or owned) seeking high returns. Commodity markets appeared to be attractive because of a belief that the demand for oil and other fuels, and for grains, was rising due to fast economic growth in the emerging countries while supplies were constrained. When this is the case prices are bound to rise. These views got strong support from banks that produced bullish forecasts and were eagerly followed. After all the leaders of financial markets cannot but be financial institutions.

Optimisation of portfolio strategy also played a role leading to price rises. At some point commodities seemed more attractive than equities or bonds. Pension funds decided, rationally no doubt, to hold commodities instruments in their portfolios. This increased the demand for these instruments pushing their prices up.

Those involved in these financial markets argued forcefully that the oil price increases that continued to obtain until early July 2008 were entirely due to the fundamentals of supply and demand. Economists who are not specialised in oil felt very comfortable with this explanation. After all supply and demand – the economic fundamentals – are the basic tools of their trade. But 'demand for what' is the question that is rarely asked. Is it the demand for a physical barrel of oil or for futures contracts or other derivatives denominated in oil?

The futures oil price (WTI on the NYMEX) rose from $100 per barrel to $146 per barrel in the first six months of 2008 despite significant falls in US oil demand and the absence of any evidence of contemporary supply shortages. The alleged reason for this price movement was expected future supply tightness. The subsequent 65 percent fall in oil prices was attributed to fall in demand but the view previously held that supplies will be tight in the not-too-distant future seems to have been suddenly forgotten insofar as the front market is concerned.

The question in 1998 was: How do you re-establish trust among OPEC Member Countries? The question today is: How do you mend a pricing system prone to huge destabilising swings?

OPEC naturally has decided to intervene with production cuts to raise oil prices from the low levels reached. We enter here in the familiar territory of market scepticism. The initial market reaction was to dismiss both the decision to cut production (the views being that either the proposed cuts are too big and therefore unrealistic, or too small and irrelevant) and the likelihood of strict implementation. One may ask: Why should implementation, to be effective, correspond exactly, up to the last barrel, to the production quotas agreed by OPEC member countries? There are cases when the production agreement overstates the volume that needs to be cut. And it is important to recall in this context that most exporting countries tend to supply, within the limits of their capacity, according to the demands of their customers.

This should balance supply and demand on the assumptions that oil companies will not consistently nominate more than they will eventually require and that producers will not encourage buying with aggressive price cutting competition. The catch, however, is that companies' nominations may include a demand for inventory build-up in response to a contango in the term structure of futures prices.

In 1998 the term structure of oil prices was in contango. In 2008/9 the differentials between the first and second month WTI futures contracts have tended to be in the order of $2.0–2.5 per barrel. This is more than adequate to induce the building up of inventories and in turn to depress prices. A build-up has taken place in the Cushing Oklahoma region, a critical location where WTI crudes and Canadian crudes are supplied. There are reports that some oil companies and trading houses are chartering VLCCs to use them for storage. This complicates OPEC's task as it did in 1998 because drastic production cuts will be needed to turn the term structure into backwardation.

In both episodes a central issue relates to the interface between OPEC and the oil market (by which I mean these places where reference prices for oil in international trade are determined). The conventional policy consists in signaling to the market through production cuts OPEC's displeasure with the level or the falling tendency of prices. A more direct policy would be to define a preferred price (that can be changed according to circumstances) and defend it with automatic

production adjustments. This idea was advocated ten years ago but has not gained the policy makers' favour.

In other words, a price, rather than a production policy, is the relevant instrument to achieve a price objective. Common sense supports such a proposition. There are difficulties, of course, in switching from one type of policy to another. These difficulties can be exaggerated however. OPEC fears that a price policy will subject it to criticisms about causing price shocks. The sobering thought is that OPEC was the object of virulent attacks by the UK prime minister, Gordon Brown, and the Australian prime minister among others for having caused prices to rise to $100–145 per barrel when an elementary knowledge would have informed leaders that the reference prices for oil in international trade are determined in futures exchanges in which OPEC countries do not participate.

OPEC will be blamed whatever it does. This being the case, why not adopt a pricing policy that has the merit to address *directly* the price objective? The additional advantage is that OPEC will be more able to stabilise prices than futures markets where volatility is the name of the game.

Energy RD&D: a much needed clean tech stimulus

Marianne Haug

Can an industry that spends about 1 percent of net sales on Research, Development and Demonstration (RD&D) transform our energy system? Can an industry with the lowest RD&D intensity of any high tech sector tackle the clean technology investment challenges of the coming decades – 1 percent of GDP according to the Stern Review of 2006 or up to US $540 billion per year to 2030 according to the 2008 IEA WEO estimates?

The facts are well known: industries that transformed our economies – telecommunications, information technologies, pharmaceuticals or biotechnology spent consistently 10–15 percent of net sales on RD&D. The RD&D intensity of the automobile industry that focused up to now more on incremental than radical innovations averaged about 4–5 percent per year.

The comparable figures for the energy sector are telling: oil and gas companies in OECD countries spent 0.35 percent of net sales per year on RD&D over the past five years. The fifteen top RD&D spenders among the PFC Energy fifty companies spent a mere US$10 billion on RD&D in 2007. In absolute terms, Royal Dutch Shell spent the most – US$1.2 billion followed by Exxon Mobil at US$814 million, TOTAL at US$800 million and Schlumberger at US$728 million. RD&D intensity in the oil and gas sector is highest among the service companies: Schlumberger and Baker, Hughes averaged 3 percent per year compared to Halliburton at 2 percent. The year 2007 showed a marked increase in low carbon RD&D of oil and gas companies mainly for CCS, hydrogen/fuel cells, and biofuels, but figures vary greatly among firms. The present shake-out of clean technologies portfolios will show who among the oil and gas companies will integrate clean technologies in its core business in the medium term.

The steady decline of private RD&D spending for electric utilities is well documented for Japan, Europe and the USA. Some suggest that the liberalisation process affected the firms' willingness to invest in technology and innovation. The RD&D intensity of Japanese utilities dropped to 1 percent per year by 2002 and has hardly recovered. The RD&D intensity of the European utilities dropped to as low as 0.7 percent in 2005. The absolute RD&D spending of European utilities remained relatively constant: the top twelve European utilities invested yearly EUR 1.0–1.2 billion over the 2003–2007 period. This picture is changing as a majority of European utilities now invest proactively in clean technologies – wind, CCS, nuclear and other renewables and associated RD&D. The utilities industry relies to an important extent on the innovative capabilities and investments of its suppliers. The RD&D intensity of the European manufacturers of electrical equipment and components averages 6 percent per year and that of the non-EU manufacturers about 3 percent per year.

How do these figures fit into the overall picture? The IEA estimates in 2009 that global corporate energy RD&D is in the order of US$40–60 billion per year. Clean energy RD&D not including nuclear expenditures may account for as much as US$10 billion according to New Energy Finance (2009). In contrast, the public energy RD&D of IEA countries dropped by a factor of two in real terms over the past 25 years. It was a mere US$12.1 million in 2007 or about 15–20 percent of total energy RD&D expenditures.

These trends and figures are a real cause for concern: innovation is at the heart of improving existing technologies, at replacing traditional ones and bringing about systemic or regime changes. Innovation and investments toward a clean energy transition by the private sector will not happen unless the public sector addresses the two fundamental market failures: first, energy prices need to internalise environmental and energy security externalities; and second, distortions in the incentive to innovate, the 'technology' market failure needs to be reduced or eliminated.

Much has been written and done about the first market failure. Investors value reliable price signals and a stable regulatory framework. Carbon pricing, feed-in or premium tariffs for low carbon technologies, targets, standards and public procurement are paving the way in many countries. The Kyoto Protocol, the EU-ETS, the EU Energy and Climate Package, country/state specific low carbon