

# Oil Price Volatility

## Bassam Fattouh and Paul Segal consider causes and mitigation strategies

On 9 October 2009, the Oxford Institute for Energy Studies held a one-day conference in Oxford on ‘Oil Price Volatility: Causes and Measures of Mitigation Strategies’. The conference focused on three themes: the role of fundamentals and financial factors in explaining the recent sharp swings in oil prices and the marked increase in price volatility; an assessment of the plans and strategies currently pursued to dampen oil price volatility; and the potential measures that could be adopted to mitigate the impact of sharp swings in the oil price on the energy industry. The group of participants included key senior figures from government, oil companies, the financial industry, and academia. The conference was conducted under the Chatham House Rule of non-attribution. This note contains a summary of the proceedings.

### Oil Prices: Speculation or Fundamentals?

The sharp swings in oil prices in the last two years have polarised views about the drivers of these movements: some believe that prices are driven by fundamental determinants, and others argue that ‘speculation’ has contributed significantly to price movements. Many participants agreed that this dichotomy between fundamentals and speculation is unhelpful: there is no clear definition of ‘speculation’ as all actors in the market are, in fact, taking a view on future prices, and one cannot distinguish between ‘speculators’ and ‘hedgers’. While one can distinguish between financial and industry players, there are no consistent differences in their behaviour – witness the huge forward sales for 2009 that Mexico made in 2008. Moreover, financial players do not

operate in isolation of the physical parameters and are often driven by oil market fundamentals.

On the other hand, there clearly are traders who do not pay any attention to oil fundamentals, and to whom the oil price is just a number on a screen, to be predicted using short-run computer models. Such people have a stake in oil price volatility because their trading profits depend upon it. Whether they have any substantial impact on the oil price, however, is a different question. A problem will only arise if their trading distorts prices away from a ‘correct’ level that would give appropriate signals to producers and consumers.

It was broadly agreed that the idea that the oil price can be ‘sliced’ into components – e.g. that \$X of the price are explained by fundamentals and a further \$Y by speculators – is confused.

Oil must be understood as both a physical good and a financial commodity, and it is expectations of future fundamentals that drive the price at the far end of the curve. One striking feature of the market during the price rise that occurred until mid-2008 was that the far end of the curve rose with the prompt price, implying that expectations of future fundamentals were changing with the prompt oil price.

The key question is whether the oil market is a helpful contributor to price discovery, or whether the large fluctuations in the oil price are inefficient and destructive. Short-term price fluctuations such as occur on a daily or weekly basis were agreed to be of little importance for policy makers. Views differed, however, on the big price swings. Some argued that very high oil prices reflect a genuine demand for more oil, which is helpful because it incentivises a supply response through investment. Others, on the contrary, said that they were not helpful and merely caused uncertainty and disruption, noting that the large movements of mid-term futures prices

implied that the market was evidently failing to correctly predict future prices, and therefore failing to aid price discovery. On the other hand, future fundamentals are extremely uncertain and it would be wrong to pretend that anyone really knows what the correct price will be in the future.

Further complications in the oil market include the following. First, the market has a large cartel. Second, prices are not determined by marginal costs, because the supply curve is not smooth but very lumpy. If anything, costs follow prices through demand for inputs rather than the other way around. Third, the market is extremely opaque. Physical trades outside financial markets in particular are very un-transparent. Moreover, producers’ reluctance to share information about their reserves means that no one really knows how much oil there is underground.

### “futures prices implied that the market was ... failing to aid price discovery”

The question of the oil majors’ behaviour on futures markets was raised. It was noted that they typically have a policy of not selling forward, on the basis that investors bought their shares because they wanted exposure to the oil price. Some questioned this logic, observing that investors can get direct exposure to the oil price through appropriate securities and futures contracts, and that buying shares in a company necessarily involves taking a view on the management of that company as well.

It was noted that there is lack of liquidity further along the futures price curve, and that the market performance would improve if there were more liquidity. There were concerns that new regulatory measures could further decrease liquidity at the back end of the futures curve.

## Mitigating Oil Price Volatility: Issues and Current Proposals

The motivation for regulating the oil market is to reduce the incidence of big oil price swings, the view being that they are unhelpful to both producers and consumers. Widespread concern was expressed at the possibility that regulation of energy markets, aimed ostensibly at reducing undesirable volatility, may in fact hinder legitimate and useful activity. Many energy producers use financial products in order to finance investment, and if such products were regulated away then these producers would be unable to get financing. There is a lot of political pressure on the US government to be seen to be doing something to stabilise markets and this may lead to poorly thought out action. The G20 position is to increase transparency and data collection rather than regulate which financial products are to be allowed.

Regulation of banks more generally should not be conflated with regulation of energy markets. There may be too little competition in the banking sector, and there was an under-pricing of risk.

Most activity on oil markets is by consumers and producers of oil, as opposed to financial actors. As already mentioned, the largest IOCs typically do not buy or sell forwards, but most other oil companies do.

Financial actors can be divided into four broad camps. Macro hedge funds trade in a range of markets, not just commodities. They have a top-down approach and take a view on macroeconomic issues. Specialist commodity hedge funds are more bottom-up, using large quantities of data and taking a strong view of fundamentals of supply and demand. 'Black box' hedge funds have a view of the oil price based on calculations known only to them. Finally, institutional investors typically put between 0.5 and 8 percent of their funds into commodities for the sake of portfolio diversification. They tend to sell when prices are high and buy when they are low, stabilising the market, owing to (price-weighted) limits in their portfolios. It is rare now for institutional

investors to want aggregated standard commodity indices; they usually prefer more bespoke products.

Banks have been the largest traders of oil since 1985. What has changed is that banks have become more involved in physical trade, e.g. bridging the gaps between producer and consumer clients.

It was argued that the real problem for 'price discovery' on the basis of 'medium-term fundamentals' is that such fundamentals do not exist: there are too many unknown variables, including supply, oil technology, alternative technologies, demand and so on. Given these facts, transparency may help a bit, but not a lot. Perhaps we have to live with this uncertainty, in which case regulating markets won't solve the problem.

This view was disputed on the basis that a range of fundamentals such as OPEC decisions and changes in global demand do have the expected effect on the oil price.

From the point of view of energy demand, subsidies are a large problem as they distort the market by increasing demand. The Middle East is a major subsidiser, and China used to be, but no longer. Fiscal difficulties in the face of the rising oil price led to a number of countries reducing subsidies.

## Oil Price Volatility: Potential Policy Responses

ENI have a proposal to stabilise the large swings in the oil market because high prices hinder global growth, while low prices reduce investment both in oil production and in alternative energies. The proposal is based on two pillars: the first is the establishment of a global energy agency to represent both producers and consumers, and to present transparent, timely and complete information on the oil market; the second is the introduction of some tools to stabilise the oil market, which would involve both spare capacity and global oil inventories. At present spare capacity is not remunerated, so it needs to be.

An alternative proposal by Robert Mabro is to establish a committee that

could be given the role of determining reference oil prices, based on as objective a view as possible on market fundamentals. It was suggested that there might be analogies with the delegation of interest rate determination to the Monetary Policy Committee of the Bank of England. International agreement would be required to allow the committee to operate.

Two major problems were discussed. First, agreeing on the right price for oil. Second, operationalising any proposed regulation, which is problematic given that commodity price agreements historically have not worked well. It was also suggested that a stable price might even be undesirable if it meant a failure to change when fundamentals changed, and thus a loss of useful price signals. On this basis a crawling price band might be appropriate.

## "regulation of energy markets ... may in fact hinder legitimate and useful activity"

Some thought that merely publicising a 'reference price' or 'focal point' for oil, even in the absence of formal mechanisms to enforce it, might act to stabilise the market. The recent relative stability of price between about \$60 and \$80 was seen by several participants as the results of comments by King Abdullah to the effect that \$75 was a reasonable price. If the USA were to make a similar statement then the effect may be even more robust.

One of the major consequences of oil price changes is the distributional impact. Even if we decide that the price of petroleum products to consumers should be high, e.g. in order to incentivise energy efficiency, the question still remains whether this is to be achieved through taxes in rich countries or through a high oil price. The former benefits consumer countries, the latter producer countries. Even if no reference price or stabilisation mechanism is agreed, we should look to ameliorate the negative

consequences of high oil prices for poor oil importers.

The producer–consumer dialogue can be an informal mechanism for dampening price movements. However, doubt was expressed over the possibility of any real understanding between producers and consumers, whose points of view are too opposed to reach any such agreement.

## General Discussion and Summing-up

The discussion in the conference illustrated the complexity of oil markets, and it should come as no surprise that deriving an efficient price that accurately reflects market fundamentals may not always be feasible. This has been compounded by the fact that factors outside the market such as macroeconomic news could influence the price formation process. Although the sharp swing in oil price was mainly an oil story, the big collapse and the recent behaviour of oil prices were less related to oil market developments. It was also recognised that investment upstream involves two marginal costs: high costs where IOCs operate and low marginal costs in some OPEC countries. Any price within this wide band could equilibrate the market. Some participants also raised the issue of depletion rates, which imply a premium above long-run marginal cost. This factor is likely to become more important in the future. Others pointed out that fiscal issues in oil-exporting countries are likely to be fundamental for pricing in the future.

There was more-or-less an agreement that lack of regulation in the oil market was not the major cause of the oil price swings witnessed in the last few years, and that some proposals for regulation now may have limited effects or even be potentially problematic.

It was also accepted that while the futures markets are key for price discovery, the links between spot (physical benchmarks) and futures prices remain unclear. In private, IOCs and NOCs always complain about the lack of transparency in the

price formation process in the physical markets, but they are reluctant to raise the issue in public. One of the participants argued that allowing some of the crudes with large underlying physical supply to be re-traded in the market would create a very liquid and transparent market, and would cause the imperfect WTI benchmark to wither away. However, such an argument did not receive wide support.

It was recognised that a serious problem in understanding the oil market is the discourse itself. Terms such as ‘transparency’, ‘price discovery’, ‘speculation’, and so on, which are not clearly defined by those who use them, just add to confusion. A second problem is the lack of serious efforts to look for alternatives to the current system. If parties are disturbed by big swings then they have to think seriously about alternative pricing regimes. There are different possibilities with advantages and disadvantages, but they must be discussed and studied.

One of the participants considered that such radical actions are not necessary as it is not obvious that the high volatility is in fact a big problem. It has not derailed investment and the industry can cope with it. The wider political and economic effects should be dealt with in the context of macro-economic policy. In fact, it could be argued that counter-cyclicality in the global economy has played a stabilising role. In contrast, some argued that the reason the oil market witnessed volatility in the first place is related to the fact that the world economy did not react in the way one would have anticipated – the high oil price did not lead to a slow down when expected, so the feedbacks from the world economy were muted. However, not everyone agreed, and some pointed out that feedbacks were present – especially through the squeeze on real incomes in oil-importing countries.

It has been suggested that, in some instances, when there is great uncertainty, the market can coordinate on public signals. Although such signals don’t carry much information, they are particularly relevant because of the beauty-contest nature of the market

– people care more about what other people think than about the reality.

This led to an interesting idea relating to the role of the producer–consumer dialogue. The distribution of the rent between producers and consumers cannot be part of any agreement because it is a zero sum game. But the dialogue does not have to be about rents. If, for example, it is assumed that production cannot go beyond 95mb/d, it is clear that there is a future need to increase efficiency and/or develop more non-conventional energy. Then it might be possible to get consensus on how to achieve the level of 95mb/d – for example by funding marginal projects. There was a general agreement that in the current market circumstances, this would require something like a price of \$60–80. Such signals concerning price preferences, supported both by producers and consumers, could help stabilise market expectations, with positive effects on reducing oil price volatility.

