

Recent Oil-Market Developments: Causes and Implications

Statement of
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My name is Robert Weiner. I am Professor of International Business, Public Policy & Public Administration, and International Affairs, George Washington University, in Washington, D.C. I am also affiliated with a couple of small businesses, one in consulting, the other in financial services. It is an honor and a privilege to be here today and to offer observations about developments in the world oil market. My views are my own, based on three decades of studying and writing about petroleum. I am not appearing on behalf of my employer or any other entity.

The past few years have witnessed unprecedented volatility in oil and gas markets. The price of a barrel of crude oil has vaulted from a low of \$10 in the late 1990s to almost \$150 in Summer 2008. By December 2008, prices had plunged to \$30 per barrel, only to climb back over \$110 Friday April 8, 2011. Natural gas prices have been just as volatile, rising to over \$13/MMBTU (million British thermal units) in the USA in 2008 before falling back to less than \$2 in Fall 2009, over \$7 in early 2010, back to about \$4 Friday.

This volatility and the causes behind it have been a source of concern to policy makers, industry, and civil society worldwide. How can a commodity so central to modern life be so volatile? What are the reasons behind high and volatile prices? Will this volatility continue? Can it be managed? What are the implications for business?

We all would like to know how long current high oil prices will last. While nobody can foresee the future accurately, “reading the tea leaves” can take us surprisingly far –petroleum futures markets can provide a quick, cheap and unbiased forecast of future oil and gas prices. The lines in Figure 1 below show market forecasts on the dates indicated. When the spot price reached \$90/barrel at the end of 2010, the forecast for the end of 2016 was also \$90. When the spot price reached \$110 last week, the forecast for 2016 was \$105. ***In other words, the market expects most of the current dramatic elevation in oil prices to be permanent.***

To make sense of this, we need to understand what a market forecast is, and how accurate it is. The market forecast presents the consensus of people willing to commit their own and their clients’ capital in buying and selling oil for future delivery. Forecasts are not made

lightly, and have financial consequences for those acting on them. A backward look at past forecasts shows that they are unbiased, meaning half the time too high, half too low, but correct on average. They are not very precise, however, regularly turning out way too high or way too low. They are the best guess we have, however.

This “best guess” has several implications:

- Prices are not expected to stabilize, not continue climbing, as in Dec. 2008. An extreme view that the world is “running out”, sometimes called “peak oil,” is not supported by the data. Sheikh Yamani (former Saudi oil minister) said it best:

“The Stone Age did not come to an end because we had a lack of stones, and the oil age will not come to an end because we have a lack of oil.”
- There is no “true value” or “the price” of oil. Some analysts claim “commodity cycles” – when prices are high they end to return to earth, when low they bounce back. In fact, the opposite is the case; oil prices are close to a “random walk.”
- High prices are likely here to stay, so need to adapt. Small business in most countries is accustomed to much higher prices than in the US as result of high taxes. For example, in the UK, gasoline prices are the equivalent of \$10/gallon.

Some observer are leery of forecasts based on futures markets, and are more familiar and more comfortable with reading tea leaves from the stock market. ***In 2011, the stock-market forecast tells a similar story.*** The price of BPT, a royalty trust traded on the New York Stock Exchange, reflects market expectations of oil prices over 15 to 20 years, and has risen sharply after a period of low volatility.

Figure 1: Recent WTI Crude Oil Spot and Futures Prices

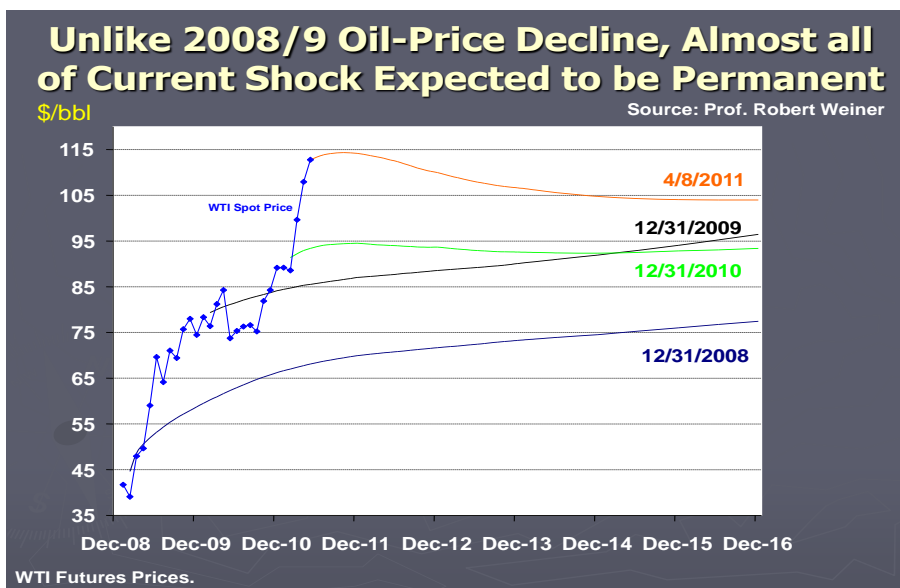
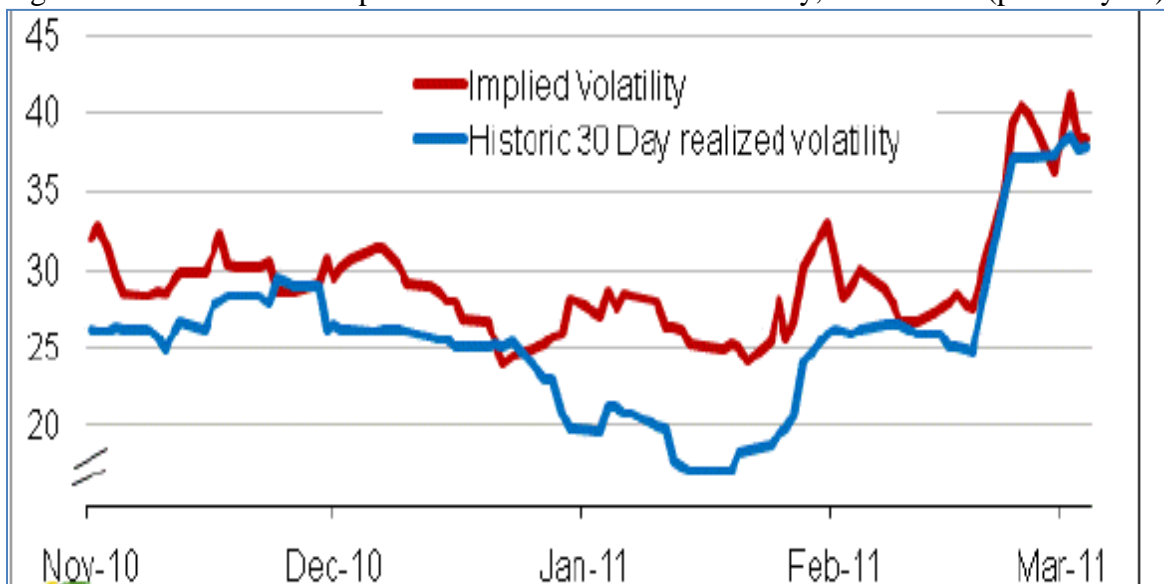


Figure 2: Stock-market Indicator of Long-Term Oil Price Expectations



Market expectations of future volatility have also increased. As seen below, the distribution of likely future prices has widened, reflecting increased uncertainty. Market assessment of future volatility is implicit in options prices. The market forecast of volatility can be imputed from the prices of traded options, and is called *implied volatility*.

Figure 3: WTI Crude oil implied and Historical Price Volatility, Annualized (percent/year)



Source: US Energy Information Administration

Volatility matters a great deal to the oil industry and the economy, especially to credit-constrained participants, such as small businesses, and governments of many oil-exporting and oil-importing regions and countries. Is this volatility likely to continue? A *yes* answer would have very different implications than a *no* answer for financial management, investment, and economic stability.

Addressing this question requires understanding and assessment of the underlying *causes* of volatility. To gauge whether oil prices are likely to be high and volatile in the future, it is necessary to understand why they are where they are today.

There are three potential types of factors underlying volatility. First is market fundamentals — supply, demand, and market power; second is speculation; and third is market manipulation. In a market as large as international oil, the last is relevant only over very brief periods, and cannot be behind the price trends of the last year.

The “fundamentals view” emphasizes increasing scarcity of petroleum as a nonrenewable resource. Fundamentals refer to consumption changes stemming from economic growth in China, India, and other countries, as well as supply changes associated with depletion of low-cost sources of supply, and the absence of discovery of new large oil and gas fields. These changes are seen as the main drivers behind increasing oil prices. Figures 4a and 4b below show that almost all of the increase in oil demand in the past decade is from developing countries. Figure 4c focuses on China; the country still uses far less oil than the USA.

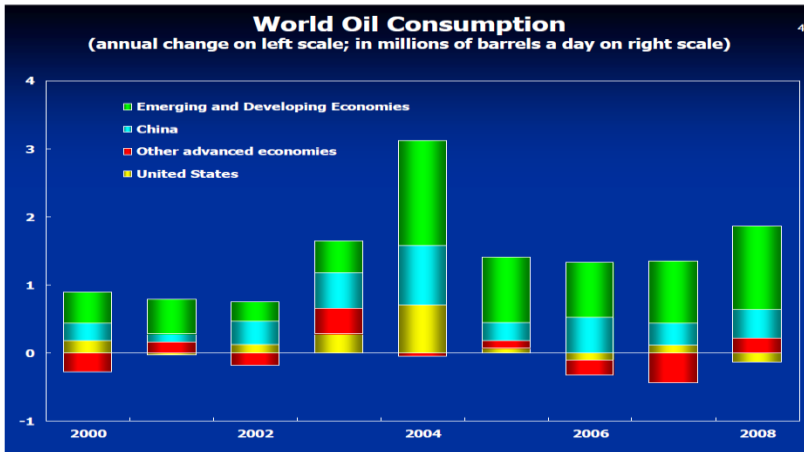
In this view, long-term changes in production and consumption are overlaid with short-term fluctuations in fundamentals arising from weather, natural disasters, conflict in oil-exporting countries, and unpredictable production decisions by the Organization of Petroleum Exporting Countries (OPEC).

An alternative view is that higher prices may be due to fundamentals, but that speculators (traders from outside the oil industry seeking gains from price fluctuations) are behind volatility in these markets. Speculative activity in oil and other commodities is climbing rapidly with the expansion of hedge funds. Moreover, pension funds and other investors are sinking more capital into commodities, including oil. Suspicion about speculative activity is fueled by the absence of comprehensive data on the extent of speculation around the world.

It is common during times of market upheaval, however, for policy makers, industry, and civil society to place much of the responsibility on speculation. Speculative capital has been characterized as “hot money,” with capital flows driven by “herding” and “contagion” among participants in foreign-exchange, stock, bond, and commodity markets.

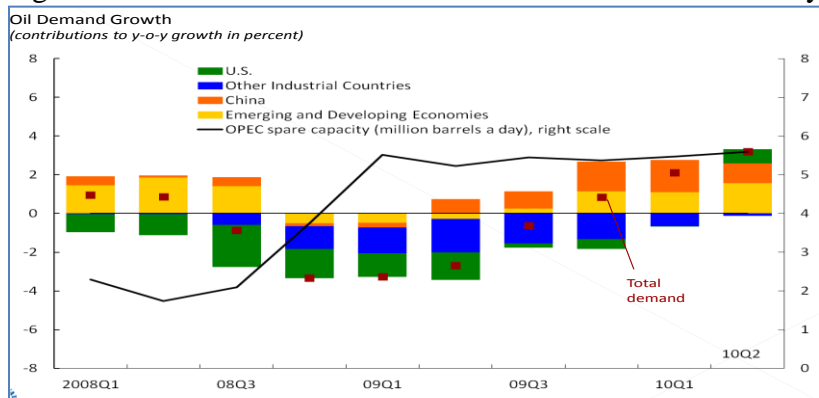
In the case of oil markets, research by others and myself casts doubt on the role of speculators in oil-price volatility. On any given day, roughly half the speculative action is on each side of the market, leaving little room for speculators to influence oil prices over horizons longer than a couple of days. See e.g., Weiner, “Sheep in wolves’ clothing? Speculators and price volatility in petroleum futures,” *Quarterly Review of Economics and Finance* 2002, <http://www.sciencedirect.com/science/article/B6W5X-45MW05T-D/2/3fe7531fbbfdb448be452c5d1e7b6107>

Figure 4a: Oil Demand Increases over 2000-2008 Nearly all from Developing Countries



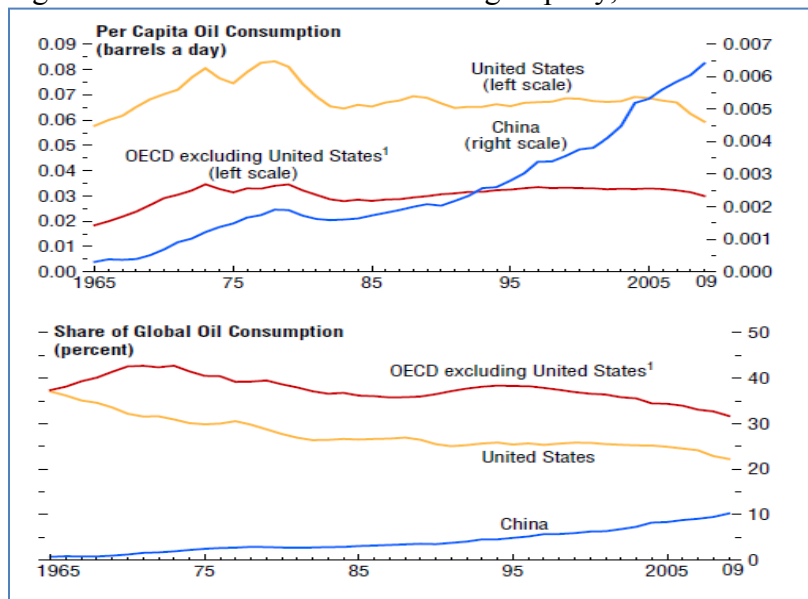
Source: IMF

Figure 4b: Oil Demand Growth over 2008-10 Recession Nearly all from Developing Countries



Source: IMF

Figure 4c: China's Oil Demand Rising Rapidly, but Still Far below Industrialized Countries'



Source: IMF

and Weiner, "Speculation in international crises: report from the Gulf," *Journal of International Business Studies*, 2005, <http://www.palgrave-journals.com/jibs/journal/v36/n5/abs/8400158a.html>

If speculators do not affect oil prices much, what does? Volatility may be a cause of the dramatic increase in speculative oil trading, but it is unlikely to be an effect. Instead, volatility is related to shocks to oil supply and demand stemming from factors like geopolitics, weather, and economic growth. As oil production declines in the US and North Sea (Figure 5a), the demand increases above are being met from production from countries of the former Soviet Union and OPEC (Figure 5b). Over three-fourths of the world's oil reserves are concentrated in OPEC (Figure 5c). Worldwide, a handful of countries amount for most oil reserves (Figure 5d).

Figure 5a. US and North Sea Oil Production Declining

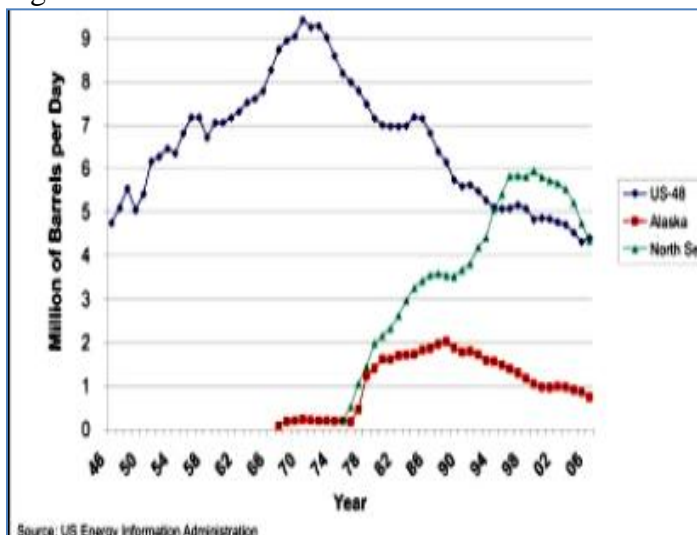


Figure 5b. OPEC and FSU account for All of Oil Production Increase over last Decade

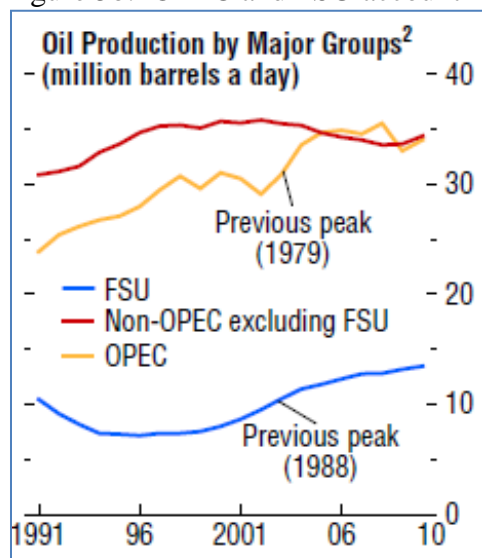


Figure 5c. OPEC dominates world's Oil reserves; a few countries dominate OPEC

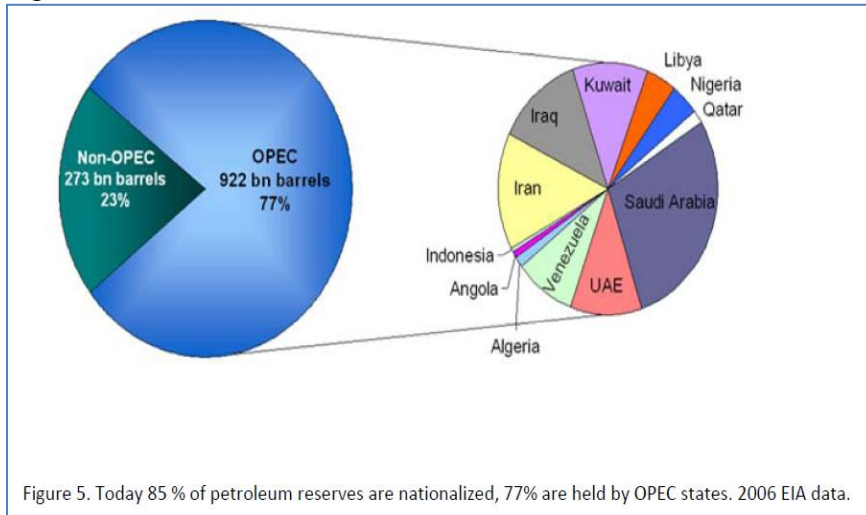


Figure 5d
Global Oil Reserves concentrated in S. Arabia, Canada, Iran, Iraq, Kuwait, Venezuela, UAE, Russia



Policy risk in the USA and Other Countries Destroys Asset Value, Hurting Investment and Future Production

While there may be little that US businesses can do about market volatility beyond managing risk, the country can promote investment, and eventually additional production, through reducing non-mark volatility, especially policy volatility. Political risk reduces investment and destroys the value of petroleum assets. While political risk is clear in countries such as Russia, Venezuela, and Libya it is also an important factor holding back investment and future production in almost every oil-producing country, including the USA (Figure 6).

Figure 6. Policy risk is a factor in almost every oil-producing country, hurting investment

Recent Examples of Policy Risk in Industrialized Oil Countries

- The current (March 2011) UK Budget raises taxes on domestic oil-production income from 50 to 62 percent. ***“Valuations of U.K. assets have been lowered by 15 to 20 percent,”*** said an analyst at RBC Capital Markets in Edinburgh. *“The rate rise is particularly unfortunate for potential sellers of North Sea assets.”* **Businessweek**, 25 March 2011
- Following the 2010 Deepwater Horizon Spill, the US federal Government froze drilling offshore Alaska and Gulf of Mexico, idling (domestic and foreign) investment. ***“Political risk in the US is very high. Not just for our industry, but for business in general. Managing our risk here is a significant undertaking, just as it is in many other parts of the world. This is not a particularly easy place to do business in.”*** Exxon CEO Rex Tillerson, interview published 11 April 2011
- The Alberta government hiked gas royalties in 2007, but **reversed the changes in 2010 as investment left the province.**

Conclusion

The long-run level of oil-price volatility is high, and likely to remain high. The fundamental factors driving volatility show no evidence of increased stability. On the other hand, signs of continuing increases in volatility are also few. The world economy is likely to face volatility levels similar to those in the present and recent past for an extended period. Like many markets, oil has experienced periods of extreme turbulence (sometimes called “shocks” or “disruptions”), which will likely continue. Volatility could easily be substantially elevated over long-run levels for limited periods.

Business will continue to be innovative and adaptable in a world of high and volatile oil prices. To foster investment and future production, it is important to establish and implement clear, stable policy in the areas that affect petroleum the most – taxes and regulation. This is most easily seen for offshore drilling, but also affects new technologies (e.g., oil and gas production from shale).