

# Economic SYNOPSES

short essays and reports on the economic issues of the day

2012 ■ Number 8



## Speculation in the Oil Market

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**H**istorically, the primary driver of oil prices has been global demand.<sup>1</sup> An expanding global economy demands more raw inputs, including oil, and this increased demand pushes up prices.

However, the past decade has seen a surge in the financialization of commodities—that is, the creation and trading of financial instruments indexed to commodity prices. According to estimates (Masters, 2008), assets allocated to commodity index trading rose from \$13 billion in 2004 to \$260 billion in March 2008. Many policymakers and economists have observed that this rapid and unprecedented growth in commodity index trading coincided with a boom in commodity prices; some have extended that observation into a conclusion that speculation by financial traders—and not supply and demand—drove the recent bubble in commodities.<sup>2</sup>

This kind of argument is perhaps strongest in oil markets, where large investment banks, hedge funds, and other investment funds have invested billions of dollars in oil futures contracts over the past decade. We investigate these allegations by identifying four components that contribute to the price of oil and assessing each of them individually.<sup>3</sup> Disentangling the true drivers of oil prices over the past decade is a critical first step for allocating resources efficiently and designing good policy.

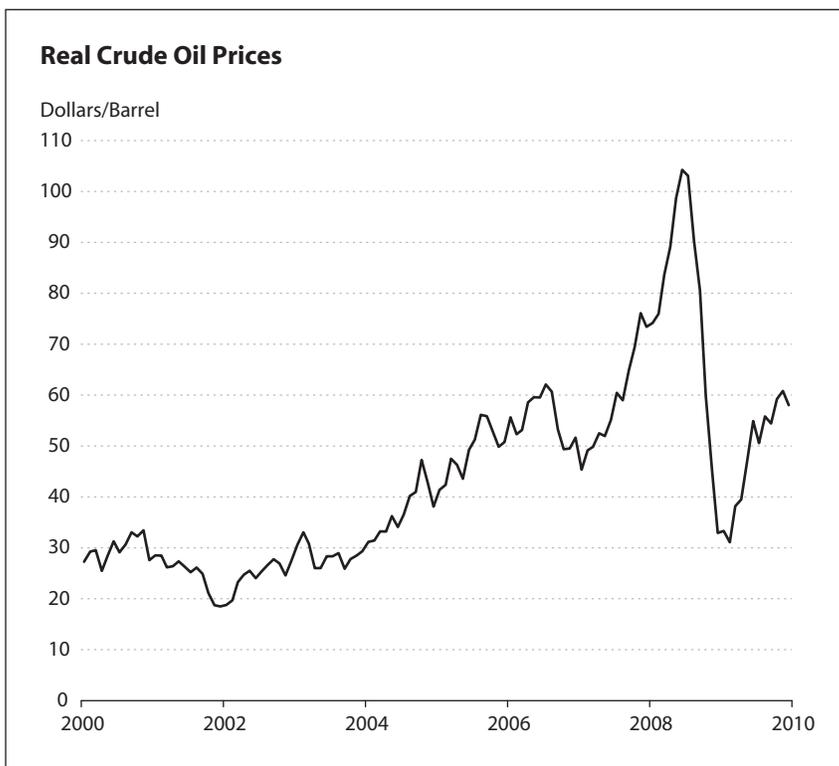
**Global Supply:** Simply, the availability of oil inversely affects the price of oil. For example, when the Organization of Petroleum Exporting Countries (OPEC) unexpectedly decides to decrease oil production, oil prices increase.

**Global Demand:** A booming world economy demands more industrial commodities, and at the top of that list is oil. Continuous growth in emerging countries such as China and India, for example, increases the aggregate world demand for oil. The same principle that applies

to supply also applies to demand—but in the opposite direction: As demand for oil increases, so does its price.

**Oil Inventory Demand:** This concept is related to precautionary demand. Expected future shortfalls in oil supply, relative to demand, motivate people to store oil for future use. The possibility of either a sudden shortage in production or a new source of demand can create an expected shortfall. For example, uncertainty about future oil supply may arise from political instability in key oil-producing countries, such as Nigeria, Iraq, Venezuela, or Iran. Such uncertainty increases demand for storing oil, which drives up the current price.

**Speculation:** Speculation is the act of purchasing something today in anticipation of selling it at a higher price at



a later date. Financial markets allow traders to speculate on oil prices in the following way: Traders buy a contract for oil to be delivered at a later date (a futures contract), sell that contract before the oil is due for delivery, and use the proceeds to purchase other futures contracts for delivery at a more distant date. Investors who expect the price of oil to rise in the future are motivated to take this position in these contracts; moreover, as demand for these futures contracts increases, so does their price, which also raises the current price of oil.

These factors all interact to produce an overall price pattern, but it is instructive to see what their effects would be if they were disentangled from one another. So, we investigated the degree to which each factor individually contributed to oil price trends over the past decade. Our results were not surprising. The past decade adheres to the expected historical pattern: Global demand has been the main driver of oil prices. Our estimation in this scenario shows that global demand explained about 40 percent of the oil price increase within the past decade.

### Disentangling the true drivers of oil prices is a critical first step for allocating resources and designing good policy.

Speculation was the second-largest contributor to oil prices and accounted for about 15 percent of the rise. The effect that speculation had on oil prices over this period coincides closely with the dramatic rise in commodity index trading—resulting in concerns voiced by policymakers.

Just as interesting as the rise in the price of oil was its sudden collapse in the second half of 2008. This was driven by the financial crisis and was manifested in two ways: a sharp contraction in demand, due to the global recession, and a decline in commodity index trading, due to diminished risk appetite in financial markets.

Oil inventory demand played a smaller role in the oil price buildup, though this demand accounted for a large share of the spike from mid-2006 to mid-2008. And oil supply contributed the least to both the boom and bust in oil prices.

On balance, the evidence does not support the claim that a sudden explosion in commodity trading tectonically shifted historical precedent: Global demand remained the primary driver of oil prices from 2000 to 2009. That said, one cannot completely dismiss a role for speculation in the run-up of oil prices of the past decade. Speculative demand can and did exacerbate the boom-bust cycle in commodity prices. Ultimately, however, fundamentals continue to account for the long-run trend in oil prices. ■

#### Notes

<sup>1</sup> See Kilian (2009).

<sup>2</sup> See Tang and Xiong (2011).

<sup>3</sup> For a discussion of the exact time frames used and the mathematics behind the methodology, see Juvenal and Petrella (2012); also see Fawley, Juvenal, and Petrella (forthcoming).

#### References

Fawley, Brett; Juvenal, Luciana and Petrella, Ivan. “When Oil Prices Jump, Is Speculation To Blame?” Federal Reserve Bank of St. Louis *Regional Economist*, April 2012 (forthcoming).

Juvenal, Luciana and Petrella, Ivan. “Speculation in the Oil Market.” Working Paper 2011-027B, Federal Reserve Bank of St. Louis, January 2012.

Kilian, Lutz. “Not All Oil Price Shocks Are Alike: Disentangling Demand and Supply Shocks in the Crude Oil Market.” *American Economic Review*, June 2009, 99(3), pp. 1053-69.

Masters, Michael W. Testimony before the U.S. Senate Committee on Homeland Security and Governmental Affairs, June 4, 2008; [www.hsgac.senate.gov/download/062408masters](http://www.hsgac.senate.gov/download/062408masters).

Tang, Ke and Xiong, Wei. “Index Investment and Financialization of Commodities.” Working Paper, Princeton University, January 2011.