NEWS

Jun 24, 2008

Rising cost of oil 'due to speculation'

As long as oil prices continue to spiral, pundits seem destined to argue over the reasons why. Increasing demand from emerging Chinese and Indian markets is sure to be at least partly to blame, but no-one can agree on the influence of another possible cause: financial speculation.

Speculation drives up the price of a commodity beyond its natural value and can happen in several ways — for example, when investors hedge against future oil prices if they are expected to appreciate.

Now, econophysicists Didier Sornette (http://www.er.ethz.ch/people/sornette) of ETH Zurich, Switzerland, and Wei-Xing Zhou of the East China University of Science and Technology, together with Ryan Woodard of ETH Zurich, claim that speculation must have driven some of the escalation in oil prices. They have found evidence for a "bubble" — an indicator of speculation — in prices since 2003, when the cost of an oil barrel was four times lower than it is today.

Super-exponential growth

Bubbles are a controversial topic in academic finance because there is no clear way to define them. However, Sornette's group says it can pin them down by examining the precise rate of growth in prices.

In an economy without speculation, the price of commodities tends to grow by a fixed percentage every year; this is an exponential rate of growth. But when an economy is influenced by speculation, the percentage increase can grow too. This gives rise to a power-law growth or, as the researchers call it, a "super-exponential growth".

Sornette's group has looked at three different models to see if oil prices exhibit super-exponential growth. Each of these models is based on a "log-periodic power law", which characterizes the super-exponential growth, and contains three main parameters: the time when the bubble is expected to end; the exponent of the power law; and a scale factor. The researchers found that all three models fitted the oil-price data well, implying that the growth has indeed been a bubble (*Physica A* submitted; preprint at arXiv:0806.1170v2 (http://arxiv.org/abs/0806.1170v2)).

'99% certain'

Could it be that there is no financial speculation, but that the demand for oil from China and India is growing super-exponentially, like a bubble? Sornette's group cites figures on world oil supply and demand from the International Energy Agency that suggest this cannot be the case. Sornette told *physicsworld.com* that he is "99% certain" speculation is influencing current oil prices.

Sornette group first came up with his theory of super-exponential growth as a symptom of economic bubbles in 1996. In 2005, they used it to predict (http://physicsworld.com/cws/article/news/22421) the burst of the US housing bubble.

About the author

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