

How BY PHILIP K. VERLEGER, JR. Wall Street Controls Oil

And how OPEC will be the fall guy for \$90 oil.

Control over oil markets, once the province of the major integrated oil companies and then OPEC, may now be shifting into the hands of Wall Street's ubiquitous investment banks. Oil industry experts noted this unwelcome transition at an early December 2006 OPEC-EU meeting in Vienna. Producers clearly were not happy to see their ability to influence prices undermined. EU representatives were equally unhappy because the changeover might increase price volatility. Wall Street types, meanwhile, denied responsibility.

It has become clear in 2006 that one of Wall Street's newest concepts—marketing commodities as an asset class—has altered world energy markets in a surprising fashion. In particular, the injection of cash into commodities by passive investors such as pension funds has created a rich financial incentive to accumulate inventories. Participants in physical energy markets (both oil and natural gas) have responded by putting away almost record amounts and building new storage facilities. The stocks amassed, in turn, have undermined the ability of oil exporters to control prices. OPEC ministers recognize that under certain circumstances the accruing stocks could precipitate a sudden, temporary drop in crude prices similar to the one observed in natural gas last spring.

Philip K. Verleger, Jr., is principal of PKVerleger LLC.

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888 16th Street, N.W.

Suite 740

Washington, D.C. 20006

Phone: 202-861-0791

Fax: 202-861-0790

www.international-economy.com

At the same time, the stock and price rise threatens to raise political hackles. Legislators will no doubt respond this spring with a spate of hearings and perhaps laws directed at an industry incorrectly accused of hoarding.

Here I describe the latest development in the energy market twists and turns of the last three decades. Its appearance has made the tools traditionally used to predict oil market fluctuations at least temporarily obsolete.

A SURPRISING CHANGE

Those who watch oil markets closely were startled last June as oil prices and inventories simultaneously rose to unprecedented highs. The price rise itself was not a surprise. Nor was the stock climb to levels not observed since the 1998 shock. However, the two events occurring simultaneously caught the attention of many and for good reason: historically, high prices have been associated with low inventories and vice versa.

The surprising parallel increase in stocks and oil prices can be observed in Figure 1. There I compare U.S. commercial crude stock levels from January 1986 through December 2006 with the spot price of WTI [West Texas Intermediate, an oil pricing benchmark], which trades on the New York Mercantile Exchange. For presentation purposes, stocks are graphed against

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the left vertical axis and prices against the right. One can note an unusual surge in stocks beginning in January 2005 that matches the crude price rise from \$45 to \$74 per barrel.

The concurrent upsurge in prices and stocks was unusual by historical standards. In the past, inventories of oil and other commodities moved countercyclically with prices. Commercial users of commodities have always been notoriously parsimonious. Indeed, few managers will risk tying up working capital to accumulate additional stocks, and oil companies have previously been very aggressive in minimizing inventories.

Crude for delivery in 2010 will pass

\$90 per barrel.

Moreover, no publicly traded company has reported holding speculative stocks.

On this occasion, however, the stock boost was driven by a profit motive rather than a speculative one. Commercial firms were given the chance to gain by keeping stocks, and they responded by increasing their holdings.

Wall Street provided the opportunity to benefit from adding stocks. For the last fifteen years, investment bankers have touted commodities as an asset class. In the last two years, the idea gained recognition. Commodities were sold as an alternative to traditional bond and stock investments. Building on academic research at Yale and Wharton, analysts from Goldman Sachs, Deutsche Bank, Barclays, PIMCO, and other institutions have circulated papers that demonstrate how investors achieve useful diversification by allocating a small portion of their portfolios to commodities. The diversification occurs because returns from commodities are negatively correlated with returns on equities or bonds.

Oil Storage Problem

Oil can no longer be held in open pits as it was in the 1930s. It must be kept in tanks or on ships, and both have a fixed supply. As storage fills, the prices facility owners charge for it increase. The boost in storage costs drives down cash prices. Such an impact occurred in summer 2006 when cash prices in U.S. natural gas markets dropped by more than 60 percent to \$4.50 per million Btu. In an even more extreme case, in September natural gas sellers briefly paid buyers in Great Britain to take gas. (The statement is correct. British firms paid buyers to take gas because storage was full.) Thus Wall Street's commodity asset class innovation has the potential to destabilize energy markets thoroughly.

—P. Verleger

Many pension fund managers have been convinced. Between 2004 and 2006, as much as \$100 billion may have been invested in commodities. Figure 2, taken from a Goldman Sachs presentation, shows a rough estimate of the cash input from passive investors. One can see from the graph that financial institutions had marketed the idea as early as 1991. However, one can also note the idea only took hold in 2004.

Those investing in commodities are not typical of other commodity market participants. They are not speculators. They do not trade frequently, and they do not sell short. Investors buy a diversified portfolio of commodities and hold on to it. Energy commodities, particularly oil, make up a large portion of the indexes because energy accounts for a large share of the economy.

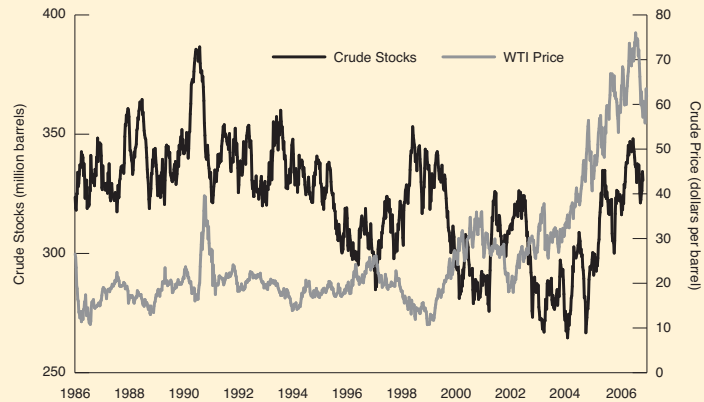
Proponents of commodity investing recommend full collateralization of contracts. Although commodity futures are by definition margined transactions, commodity investors set aside the contract's full value when they buy. Thus the purchaser of 1,000 barrels of crude will reserve \$60,000 if oil sells at \$60 per barrel. The money not used for margin is invested in a highly liquid instrument such as a Treasury bill.

The most widely quoted academic proponents of commodity investment (Gary Gorton and Geert Rouwenhorst) do not promise investors returns from price appreciation. Rather they demonstrate how a return can be earned as a result of markets normally being in "backwardation," a condition that occurs when cash prices exceed futures prices. As they explain,

Keynes and Hicks postulated the theory of normal backwardation, which states that the risk premium will, on average, accrue to the buyers. They envisioned a world in which producers of commodities seek to hedge the price risk of their output. For example, a producer of grain sells grain futures to lock in the future price of the crops and obtain insurance against the price risk of grain at harvest time.

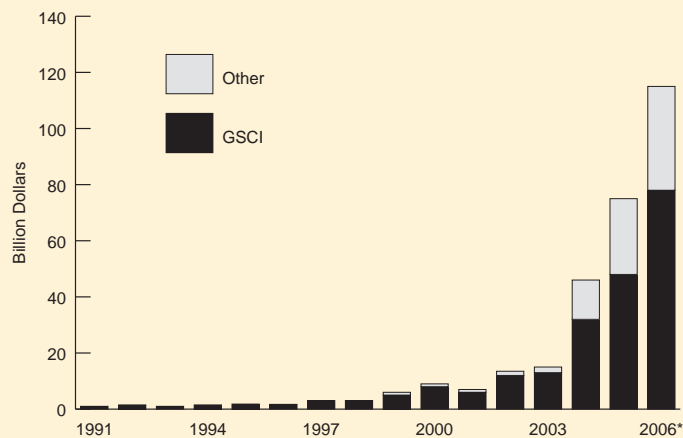
Speculators provide this insurance and buy futures, but they demand a futures price that is below the spot price expected to prevail at the maturity of the futures contract. By "backwardating" the futures price relative to the expected future spot price, speculators receive a risk premium from producers for assuming the risk of future price fluctuations.¹

Figure 1 U.S. Commercial Crude Stocks vs. WTI Spot Price, 1986 to 2006



Source: U.S. Department of Energy; Platts.

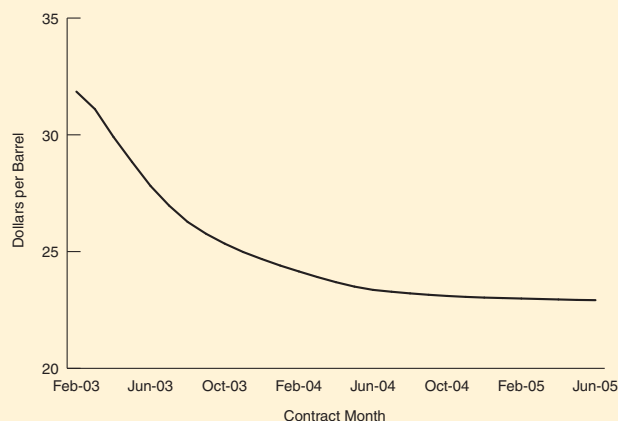
Figure 2 Estimated Growth in Global Commodity Investment



*End of August 2006

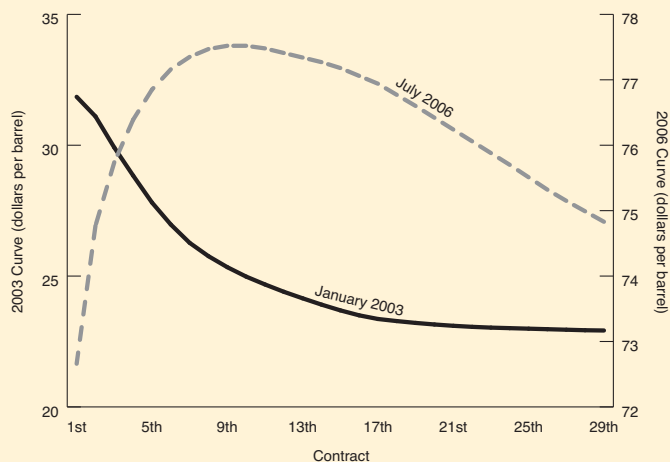
Source: PKVerleger LLC from reports published by Goldman Sachs, Citigroup, and Financial Times.

Figure 3 Forward Price Curve for WTI on January 1, 2003



Source: Platts; NYMEX.

Figure 4 Forward Price Curve for WTI on January 1, 2003 vs. Forward Price Curve on July 19, 2006



Source: Source: Platts; NYMEX.

For illustration, I show in Figure 3 the forward price curve of oil on January 1, 2003. At that time, the first future settled for \$31.68 per barrel and the second future at \$30.50. If spot prices remained at \$31.68 per barrel, the investor could count on making \$1.18 per barrel in 30 days. Investors could earn an annual return of almost 60 percent if they repeated the exercise each month by “rolling” their investment into the next contract.

Gorton and Rouwenhorst examine data for a thirty-year period and show that a portfolio of commodities structured as described above would earn returns that match those from bonds and equities. They also show the returns are negatively correlated, implying that commodity investments help diversify portfolios.

INTRODUCING “NORMAL CONTANGO”

The movement of passive investors into commodities shifted markets from backwardation to contango, the condition that occurs when futures prices exceed cash prices. Quite simply, energy markets today are too small to accommodate the increased activity of investors seeking to buy commodities and still stay in backwardation. Producers who might sell futures to hedge the risk of a price decline generally do not do so, having been counseled by other representatives of the same investment banks that buyers of their equities did not want them to hedge.

The consequence of this impasse was predictable. Futures prices rose relative to cash prices. As can be seen from Figure 4, the market shifted from backwardation on January 1, 2003, to contango by July 2006. (In Figure 4, the 2003 curve is graphed against the left vertical axis and the 2006 curve against the right because the price level in 2006 is roughly double that of 2003.) The change in the curve’s shape is remarkable. Usually, markets become more backwardated as cash prices rise.

Inventory accumulation began once markets shifted into contango because it became profitable for commercial firms to add to stocks. In a contango market, a company acquiring stocks avoids the risk of a price decline by hedging. Thus in July an oil company could acquire incremental oil for \$76 per barrel and simultaneously hedge the

volume by selling futures for \$80 per barrel. This transaction—referred to historically as a “cash and carry”—nets the company a \$4-per-barrel profit whether oil rises to \$100 or falls to \$10. Not surprisingly, firms jumped at the opportunity. As noted above, both prices and inventories rose.

In theory, companies could acquire oil indefinitely. Prices could rise and stocks follow. However, at least one real impediment to this scenario exists: storage. Oil can no

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longer be held in open pits as it was in the 1930s. It must be kept in tanks or on ships, and both have a fixed supply. As storage fills, the prices facility owners charge for it increase. The boost in storage costs drives down cash prices. Such an impact occurred in summer 2006 when cash prices in U.S. natural gas markets dropped by more than 60 percent to \$4.50 per million Btu. In an even more extreme case, in September natural gas sellers briefly paid buyers in Great Britain to take gas. (The statement is correct. British firms paid buyers to take gas because storage was full.) Thus Wall Street's commodity asset class innovation has the potential to destabilize energy markets thoroughly.

POLICY DILEMMAS

The emergence of high inventories and high prices and the possibility of a price collapse create dilemmas for OPEC and policymakers in consuming countries. For OPEC, the risk is obvious. Lawmakers in consuming nations seeking to reduce greenhouse gas emissions are also troubled by the prospect of low prices. Yet, there may be little they can do to ameliorate the situation.

OPEC's problem concerns the price level. OPEC can and has cut oil production to squeeze stocks and raise prices. In March 1999, Saudi Arabia led the organization in a program to reduce consumer inventories across the globe. Between mid-1998 and early 2001, global stocks shrunk by almost 700 million barrels. When they implemented this policy, OPEC officials predicted that prices would rise as stocks declined. Many doubted this, but by early 2001 prices had tripled from \$10 to \$30 per barrel. In early December 2006, Saudi Arabia's oil minister Ali Al-Naimi commented that global inventories were rising again. He fretted that prices might come under pressure.

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Other OPEC members stated more explicitly that production cuts were needed to reduce world stocks by 100 million barrels.

There is a problem with this thinking, however. OPEC cannot make inventories decline by cutting output. A reduced oil supply might induce those holding stocks to sell and take profits. Alternatively, they might decide not to sell, in which case consumption would have to decrease. In this second scenario, crude oil prices would need to increase between 10 and 20 percent to balance the market. This would bring crude back to the summer peaks of nearly \$80 per barrel.

Of course, a crude price hike is just what those marketing commodities as assets seek. More investors and more money would pour into commodity indexes, much of it into oil. The incentive to hold stocks would strengthen and inventories might build despite OPEC's production cut.

The process will end when storage fills. Then OPEC will need to reduce output further or risk prices falling precipitously. We could very well observe a price decline and OPEC attempts to arrest it. During 2007, I suspect we will see an oil price surge followed by a rush of cash into commodities. Forward prices will be bid higher. Crude for delivery in 2010 will pass \$90 per barrel. Stocks will rise further while Congress and the press accuse oil companies of hoarding. Then buyers will realize at some point that they have no place to put the oil and prices will tumble. The history of commodity market cycles suggests the decline could be spectacular. Single digit prices are possible, although probably only for a day or two.

As an EU official said privately, "The market has been destabilized." ♦

NOTE

1. Gary Gorton and K. Geert Rouwenhorst, "Facts and Fantasies about Commodity Futures," *Financial Analysts Journal* 62, No. 2 (March/April 2006), p. 48.