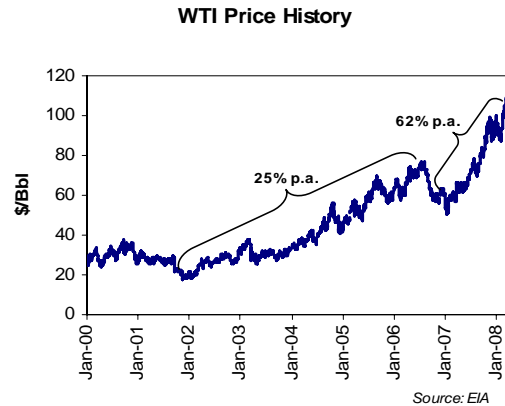
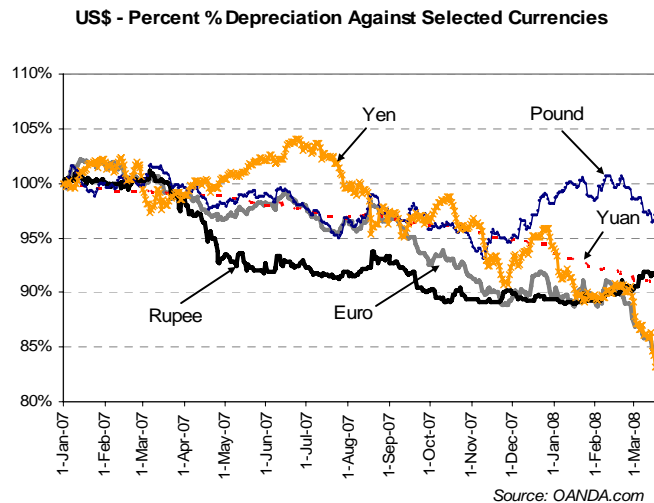


## Oil Price Rise: Beyond the Usual Suspects

One of the biggest energy stories of the decade is the rise in oil prices. West Texas Intermediate, the US benchmark, opened the new millennium at \$25.56 per barrel, less than a quarter of the current level. Higher oil prices are dragging gas and LNG up as well. In Asia and much of Europe, LNG contracts are linked to oil by an explicit contractual formula that traditionally has followed an “S-Curve” to dampen price rises above certain defined thresholds. But sellers have recently been making headway in increasing the slope to crude oil and eliminating the S-Curve structure entirely. Without the S-Curve and at crude oil parity on an equivalent heating-value basis, the \$110/Bbl barrier breached by WTI on March 13 equates to almost \$19/MMBtu for delivered LNG. In the US and the UK, where delivered LNG prices are set by gas-on-gas competition, markets are still strongly influenced by oil prices, albeit with other intermediating factors, and largely mirror crude’s rise. Henry Hub, for example, started 2002 at \$2.75/MMBtu. But it stood at \$9.11/MMBtu on March 19.



High oil prices go a long way towards explaining the current boom in LNG, both because the strong crude oil market favored use of comparatively cheaper gas, and because the high prices allow LNG – once a premium source of energy – to compete head-to-head with pipeline imports and domestic production. In retrospect, the oil price rise seems relentless, but this is not quite true. A closer look shows two distinct periods of increase. The first began in January 2002 and lasted through July 2006. During this period, WTI increased almost 26% per annum. It then declined for the rest of 2006, losing a third of its value. Starting in 2007, the price of oil took off again. From January 2007 to the middle of this month, the growth rate was much higher, about 60%. WTI has wobbled thus far in 2008, but as of March 19 still had grown at an annualized rate of 50%. Crude may have reached a plateau in the \$100 to \$110/Bbl range, or it may be about to head higher. Possibly it has peaked, as the US recession moves into adolescence and spreads to other countries.



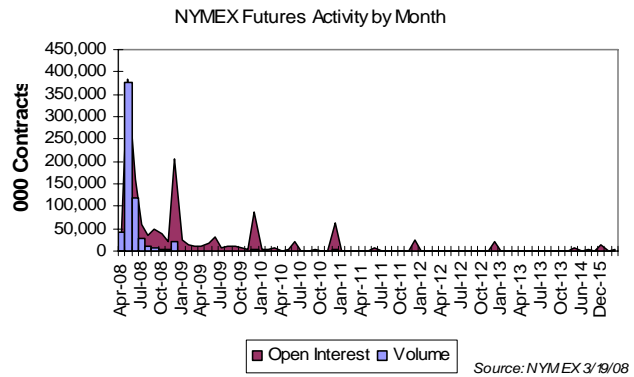
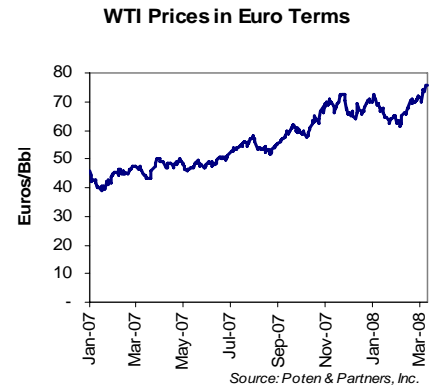
Common explanations for skyrocketing oil prices don’t match the peculiar sequence of climb, falter and lunge that the data show. Surging demand doesn’t account for it. The peak year for growth in oil demand this century was 2004, when it expanded 3.5%. In subsequent years, the increase fell to less than half that rate. Among countries, Chinese consumption has certainly grown sharply, but it accounts for only 9% of world demand. Its growth has slowed sharply since 2004, from 17% in 2004 to about 6% in 2007. On the other hand, the US still accounts for a quarter of

world oil consumption. Its economy is deeply troubled, and its outlook for economic growth in general, and oil demand increases in particular, are weak. This would be consistent with declining oil prices starting with the eruption of the sub-prime market crisis in the summer of 2007 – just the opposite of what has occurred.

The pattern of political unrest is also hard to reconcile with the oil price sequence. Today's troubles seem less dramatic than the Israel-Lebanese war of July 2006, let alone the US invasion of Iraq five years ago. Even US-Iranian tension has declined following interagency intelligence from Washington downplaying Iran's nuclear threat. These countries are currently focused on internal elections, the US for the presidency and Iran for parliament. Shenanigans in Venezuela and Nigeria continue to curtail production, but are unfortunately already quite familiar.

Casting about for an explanation, some analysts have turned to exchange rates. Since 2007, the US dollar has plummeted against other currencies. So far this month it has been routed spectacularly by both the Euro and the Yen. Oil prices have not climbed nearly as much if measured in other currencies. In Euros, for example, the rate of increase in WTI since January 2007 is "only" 46% per annum, and has stabilized around €65/Bbl since October. The relative cheapness of oil in other currencies helps prop up dollar prices since consumers elsewhere have less incentive to cut consumption. But the effect should be modest and gradual. Worldwide, the industry is still dollar-denominated for both suppliers and downstream markets. The International Energy Agency, for example, just revised its 2008 oil demand forecast down by 100,000 barrels per day from its February prediction. It is hard to explain this decline other than from a dollar perspective.

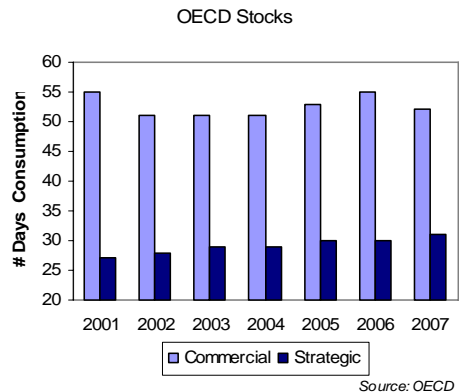
Other analysts blame speculative investment in futures and options markets for the recent sharp increase in prices. Under this theory, the mortgage-based securities mess and rocky stock market performance have driven liquidity into commodities, causing oil and other primary goods to bloat. There is some support for this view. In the US, increasing inflation and sharp cuts have sent the Federal Reserve fund rate into negative territory in real terms. The prime rate has followed the Fed down, and currently stands at 1.2% in real terms. Such rates make commodity investments cheaper, and may increase the attractiveness of commodities as a hedge against higher inflation. Investment in financial commodities instruments has soared. The total open interest in the world's major crude futures contracts has increased by about 140% since the start of 2006. As of March 19, the total open interest in NYMEX WTI oil futures was 1.4 billion barrels, while average physical production of WTI is only in the range of 500,000 b/d.



Even so, it is hard to argue that speculative money can dominate physical movements, for month after month, in the oil market. Oil is a global market, with different crude types usually correlating closely. The total open interest in NYMEX futures is much smaller when viewed in relationship to the global market, corresponding to about 16 days of world production. Furthermore, the

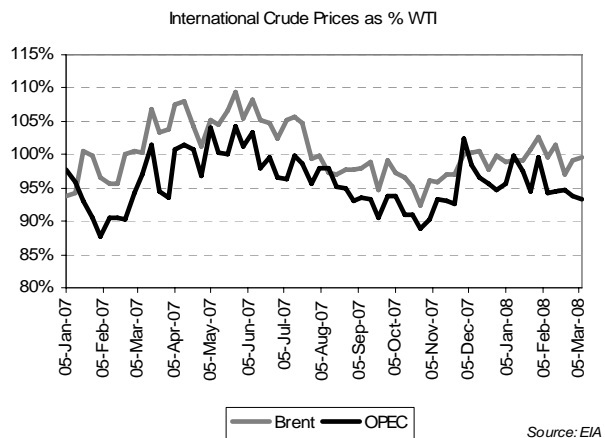
great majority of the futures activity is concentrated in the early months. This means that most speculative investments are grounded in physical demand when near contracts roll off the board at the end of the month. Any price inflation caused by investment flows should be reflected either as an arbitrageable discrepancy between the futures and spot prices or a persistent increase in physical inventories of crude. With few exceptions, such discrepancies have not occurred.

For countries in the Organization for Economic Cooperation and Development at least, inventory build is hard to see in aggregate numbers. OECD total oil stocks finished 2001 and 2007 at an identical relative level, equivalent to 82 days of consumption. A closer look, however, shows an important change in inventory composition. Strategic oil reserves mandated by OECD governments (ironically, as security against oil shocks) have increased 15% over the period. North America and Western Europe account for the increase, with relative stock levels climbing from 23 to 27 days in the former region and 23 to 28 days in the latter. These strategic increases have been offset by declining commercial stocks. The commercial decline is partly due to improved logistics in the petroleum supply chain, and partly because the futures market price curve is now mostly flat. But any increase in physical stocks that financial investors might have triggered has been frustrated by strategic purchases and winter demand. The market clears, at triple digit prices.



The movement of commercial stocks in the OECD countries matches the pattern of increasing WTI prices. Relative commercial stock levels declined from 55 days in 2001 to 51 days in 2002 through 2004, before returning to 55 days in 2006. In 2007 they declined from 54 to 52 days, with the sharpest decreases in Western Europe and the OECD Pacific. Possibly the world economy could make do with lower strategic reserves – not just in the US, as some economists and members of Congress have begun to advocate, but in Western Europe as well. A quid pro quo could be better coordination of interest rate policy between central banks.

To compound matters, US and European regulations have been extending low-sulfur requirements for refined fuels, while the US Department of Energy has shifted toward sweet crude in its purchases for its Strategic Petroleum Reserve. Presumably the DOE's move is to avoid having to relax environmental regulations for sulfur emissions – as it did in the aftermath of Hurricane Katrina – when the reserves are someday returned to market. The shift to sweet crude may have driven up the price of light, sweet crudes like WTI against heavier benchmarks such as weighted-average exports from the Organization of the Petroleum Exporting Countries. But the data here is inconclusive. Most of the movement in WTI against other crude markers is due to a fire at a Valero refinery in the spring of 2007 that caused a mini-glut at Cushing, Oklahoma, WTI's main trading point.



The world oil market has certainly been stretched tight by burgeoning demand in China and other developing nations, while supply has struggled to catch up. But it seems likely that the latest surge in oil prices has mostly been caused by the falling value of the dollar and commodity speculation by financial investors, coupled with uncoordinated policy-making in the US and between Washington and other countries. It is hard to justify \$110/Bbl oil prices with the fundamentals. Just where and when the oil price will settle is hard to predict. Not all the financial players are oil bulls, however: A recent Royal Bank of Scotland report calls the current price level “unsustainable” and predicts that crude oil will probably fall below \$80/Bbl by this time next year. If more banks agreed with RBS, it would almost certainly be right.