

# Crude oil between bull run and recession

March 2009

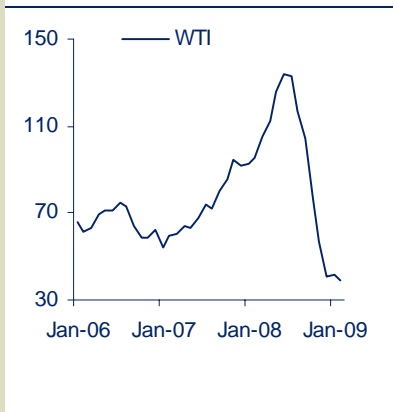
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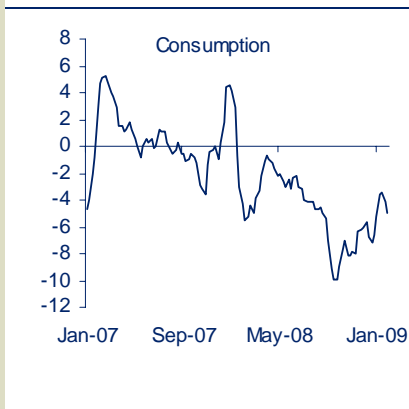
## Chart 1: A precipitous drop in price

Source: Energy Information Administration, \$ per barrel



## Chart 2: Consumption plummets in the US

Source: Energy Information Administration, % change year ago



## Executive summary

- We believe a range of \$65 to \$75 represents a sustainable long-term equilibrium price for crude oil. However, according to our baseline forecast (see page 4) crude oil will not return to this range until the global economy emerges from recession and grows near trend.
- The lack of an adequate global oil infrastructure, rising protectionism, regulation and a mis-match between expertise and capital on one side and the location of most reserves on the other, will continue to drive volatility.
- In the short-term, risks are decisively on the downside, as the recession could prove more protracted and deeper than our baseline forecast, especially if policymakers fail to fend off deflation.
- In the medium term, however, the balance of risk will shift to the upside. Deflation fears could give way to inflation, boosting crude oil as an asset class, while underinvestment during the downturn could result in extremely tight capacity once the global economy recovers.
- In addition to our baseline, we model a risk scenario, whereby prices will fall as low as \$35 in 2009, but will recover to \$100 in 2013. Therefore, the players who will survive the downturn will be around to prosper from a solid recovery.

## Return to long-term equilibrium

After peaking at \$147 last summer, crude oil has now established a new trading range between \$40 and \$50 per barrel (Chart 1). The swift decline in prices has been a function of both a sharp decline in physical demand and tightening credit markets, which have taken the fuel out of the commodity boom.

Under our Baseline scenario, pricing reflects the underlying supply and demand fundamentals. Accordingly, crude oil prices will not gain strength until the end of 2010 when the global economy will start to show signs of life.

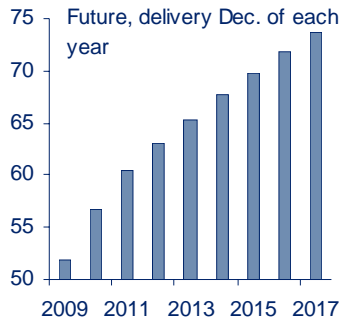
## A sustainable equilibrium

We peg a sustainable long term equilibrium price that is consistent with trend growth in the global economy at \$65-\$75 per barrel:

- Before prices reached record highs in the wake of negative real interest rates, pervasive dollar weakness and fears of mounting inflationary pressures, crude oil

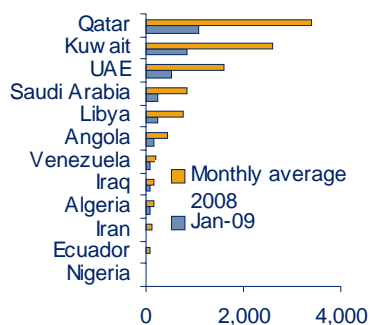
### Chart 3: Futures markets are back in contango

Source: Nymex



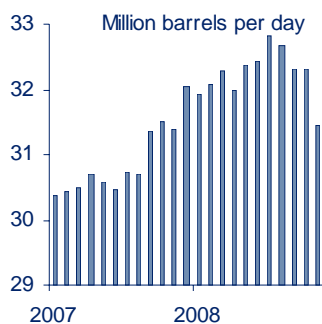
### Chart 4: OPEC suffers drop in per-capita export revenues

Source: Energy Information Administration, US\$



### Chart 5: Moderate reduction in OPEC production

Source: Energy Information Administration



approached a new equilibrium of around \$70 to \$80 in 2007. The oil price settled in that range after the expansion had run for some time and reflected strong demand growth from developed and emerging markets alike. Our new price range of \$65 to \$75 accounts for the fact that even after the recovery, growth rates will remain below those recorded before the credit crunch as some of the excesses will not survive the downturn. Moreover, the futures market is firmly in contango (far-months futures contracts trade at a premium to near-months contracts), indicating that spot markets are very well supplied

- Current future prices are roughly in line with our range estimate. While future prices perform poorly as a predictor of spot prices, we like to think of the futures curve as a series of estimates of what it would cost to develop a field today and bring it online at the date specified by the futures contract. The current futures pricing is consistent with our cost estimate for the marginal barrel, including capital costs. The relationship holds because of a simple arbitrage condition. Producers are indifferent between physical oil obtained at the specified date by developing a new field and a financial claim on the same oil at the specified time.

Even under our baseline forecast, oil prices will not return to their long-term equilibrium before the end of the recession. Recovery will begin at the end of 2010 at the earliest. The reasons for lower oil prices are twofold.

#### 1) Demand destruction will last until 2010

US crude oil inventories are now above the upper limit of the average range for this time of year. Oil demand in the US dropped precipitously in the second half of 2008. While demand will remain weak, it may have bottomed out. Indeed demand destruction in late 2008 may have been amplified by a collapse in trade finance as credit market seized up and refiners and fuel wholesalers cut back on orders. There are now early signs of recovery, as the decline in consumption compared to one year ago is now around 4% up from -10% in October (Chart 3).

The fallout has begun to spread to emerging markets. Chinese exports are down sharply, and will probably fall further in the months ahead. This weighs on GDP growth, which might fall from around 9% in 2008 to less than 5% in 2009. Growth in China is slowing sufficiently to prompt the Chinese government to announce massive fiscal injections and unprecedented monetary easing to stave off the slowdown.

#### 2) OPEC will struggle to enforce discipline

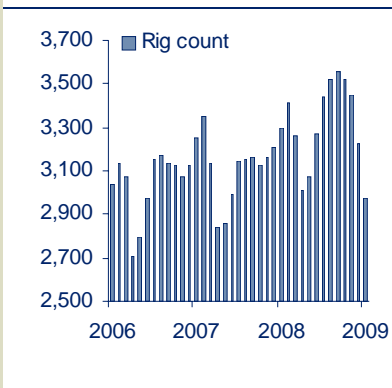
In an environment of sharply falling demand, corresponding reductions in supply could offset downward price pressures. OPEC is certainly trying. Recent pronouncements that aggressive production cuts are forthcoming (in the pipeline so-to-speak) have spooked the market, if only temporarily. In our view investors sometimes fail to distinguish properly between aggressive and ambitious pronouncements and much more timid actions.

Production cuts are particularly difficult to implement as oil revenues are plummeting (Chart 4). Producers can ill afford a further drop in revenues due to cutbacks in output. Take Venezuela as a good example. Its budget for the current fiscal year assumes prices of \$60 per barrel, when the average price of Venezuelan (relatively sour) crude is closer to \$40. Venezuela faces strong spending pressures to subsidise food and other staples amid rampant inflation and declining economic activity.

Other oil-producing countries have embarked on similarly unsustainable spending programs to placate a population that is increasingly suffering from the economic crisis. A lack of jobs for the indigenous population in many of the Gulf states make any further loss of revenue even more painful. Thus, despite significant reductions in official quotas (-14% from actual production agreed in December), actual production cuts have been much smaller (Chart 5).

**Chart 6: Retrenchment in drilling activity**

Source: Baker Hughes, Inc.



## Volatility is a function of inadequate infrastructure

Even under our base case scenario, volatility will remain a prominent feature of the oil market due to an inadequate infrastructure. The global storage and transport infrastructure has not kept pace with demand growth. Inventory adjustments, which smooth demand and supply imbalances, are not as effective. Prices have to do more of the work. During the rally, inventories were too small to provide adequate demand coverage and prices shot up sharply to help bring consumption down.

During the downturn, storage filled rapidly as demand collapsed and prices had to undershoot to prevent additional supplies from reaching storage, causing more supplies to be shut-in.

## The balance of risks will change over time

While it is tempting to model risks as two distinct scenarios, one an upside trajectory where the future path of prices lies always above the path for the baseline and one a downside scenario, the particular economic environment we are currently facing does not lend itself to this conventional approach. Rather the balance of risks is decisively on the downside over the next two years, and then moves to the upside thereafter.

### Short-term risks are solidly on the downside...

Short-term risks are skewed to the downside. Most oil exporters are hedging against further falls in prices. Mexico, for example, protected itself against further falls in prices at the cost of US\$ 1.5 billion.

**Deflation.** Our forecast highlights deflation as a severe risk in the near term and policymakers have deployed unconventional weapons from the arsenal of monetary policy to minimise deflation risks. If these aggressive measures were to fail, crude oil prices would fall below our baseline.

- The global recession would be deeper and more protracted than in our baseline forecast, as consumers would postpone purchases; spare capacity would rise, and investment spending would fall. Physical demand for crude oil would plummet as a result.
- Demand for crude oil as an asset class would drop sharply as well. To the extent that commodities are valued as a hedge against inflation, there would be no rationale for holding yield-less assets in a deflationary environment.
- **Protectionism.** In times of economic distress governments face the temptation of protecting domestic industries at the expense of foreign competitors. If governments succumb to the temptation, other governments will retaliate and there will be a rapid proliferation of trade disputes, which could escalate into outright trade wars, reversing the benefits from globalisation. As a result, the recession will be deeper and longer. There is mounting evidence that policymakers are moving into this dangerous direction: Many bailout schemes have been designed to help national companies while protectionist rhetoric has heated up.

### ...but medium term risks are on the upside

In the medium term, however, the balance of risk will shift to the upside. There is some symmetry in the risk outlook as the factors that could drive prices down in the short-term sow the seed of fast price growth in the medium to longer term.

- **Deflation fears could give way to inflation.** Policymakers' aggressive response to the threat of deflation has brought record low nominal interest rates and unprecedented injections of liquidity. This has led to rapid increases in the monetary

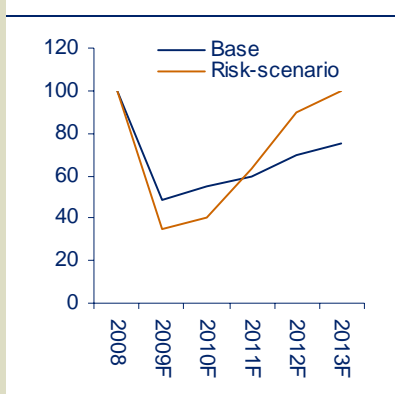
base. For now, banks have absorbed the additional money supply as excess reserves and deleveraging has kept broader measures of the money supply in check. However, once credit markets start to function properly, more money will be created, leading to mounting inflationary pressures.

To the extent that crude oil is viewed as an inflation hedge, investment in crude oil would look attractive. Demand from financial investors could pick up sharply. The simultaneous onset of demand recovery and rising inflation could propel crude oil prices sharply higher by early 2011. A further boost would be provided by rising gold prices. Gold is the traditional inflation hedge, but may look increasingly expensive relative to crude oil, if gold prices continue to rise.

- **Deflation would restrict investment spending.** Under our downside scenario, capex would drop much more sharply than under our baseline scenario. Deflation would undermine capex in two ways. First, it would lower crude oil prices directly as the prolonged recession that would inevitably accompany deflation would depress demand. This would reduce cash flow for oil companies as well as incentives to invest due to rising spare capacity. Second, deflation would increase the burden of outstanding debt, making it more difficult for borrowers to service their loans or repay debt. Combined with the drop in real economic activity, this would feed back onto banks' balance sheets, forcing further write-downs. The result would be tighter credit making it difficult for oil companies to secure the necessary funding for new projects. New capacity additions would be delayed. The lack of capex during the downturn would give way to even tighter capacity upon economic recovery.
- **Protectionism could hamper global capital flows.** Underinvestment will remain a structural problem even after credit markets will start to function properly again and the global economy rebounds. This is because of the persisting mis-match of where most of the industry's expertise and capital can be found—in the West—and where the most promising reserves are located—under the control of state owned monopolies. But if Western governments resort to protectionism they will have less moral authority to demand from resource-rich economies to allow foreign capital to enter. And the destination countries have less of an incentive to do so if they are prohibited from investing the proceeds in developed economies.

**Chart 7: an illustration of our forecast and scenarios**

Source: RBS Group Economics, \$ per barrel



## Conclusion

Our baseline forecast calls for a return of crude oil prices to their long-term equilibrium range of \$65 to \$75 by 2011. Risks are heavily skewed to the downside before then, but the balance shifts toward the upside during the course of 2011. Chart 7 shows our baseline forecast and most likely risk scenario.

Ongoing price volatility offers opportunities for our trading business, but building large positions betting on outright price increases or declines should be avoided. Those players that have sufficient reserves to weather the downturn will be around to benefit from a solid recovery.

2009	2010	2011	2012	2013
49	55	60	70	75
35	40	63	90	100

Source: RBS Group Economics

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