IEA/IEEJ Forum on Global Oil Market Challenges

GLOBAL OIL MARKET OUTLOOK

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Key questions

1. What will the global economic recovery be like? Anaemic growth, perhaps even a double-dip?
2. How will oil demand respond to renewed economic growth?
3. What are the prospects for non-OPEC oil supplies?
4. What oil price is Saudi Arabia comfortable with?
5. How will OPEC cope with the expected surge in Iraq's oil production capacity over the next seven to ten years?
6. What impact will technology have on the oil market?
7. Has the climate change argument suffered a serious body blow?

Oil demand growth … an end to the OECD horror show?

	2007 tbpd	2008 tbpd	2009 tbpd	2010 tbpd	2011 tbpd
OECD	- 397	- 1610	- 2080	24	274
of which USA	*0*	*- 1180*	*- 780*	*100*	*120*
Non-OECD	1285	1023	522	773	652
Former CPEs	450	320	- 75	563	404
of which China	*325*	*323*	*285*	*377*	*289*
GRAND TOTAL	1338	- 268	- 1632	1312	1330
		1.6 %	-0.3 %	-1.9 %	1.6 %	1.5 %

The trend rate of growth of global oil demand since 1986 has been 1.6% per annum. Oil demand in the OECD has been on a downward trajectory since 2005 despite strong economic growth, suggesting that high oil prices hammered its rate of oil demand growth. In the second half of 2008 the global economy slid into recession and this adverse development, in conjunction with record high oil prices in the first half, took world oil demand into negative territory. A deep recession took hold of the OECD economies in 2009, pushing incremental world oil demand heavily into the red.

Incremental oil supply

	2007 tbpd	2008 tbpd	2009 tbpd	2010 tbpd	2011 tbpd
OECD	- 70	- 578	27	- 273	- 23
Non-OECD	- 1493	- 240	1110	112	75
FSU	503	47	452	288	- 55
China	55	63	0	143	- 35
Processing gains	72	78	48	21	19
OPEC NGLs	103	110	88	613	355
OPEC crude	1043	1405	- 3380	429	18
GRAND TOTAL	213	885	- 1655	1332	354

NOTE: Angola (with an average output 1.675 mbpd) joined OPEC in January 2007, Ecuador (with output of 0.51 mbpd) joined in December 2007 and Indonesia (average output of crude and NGLs of 1 mbpd) left OPEC in January 2009.

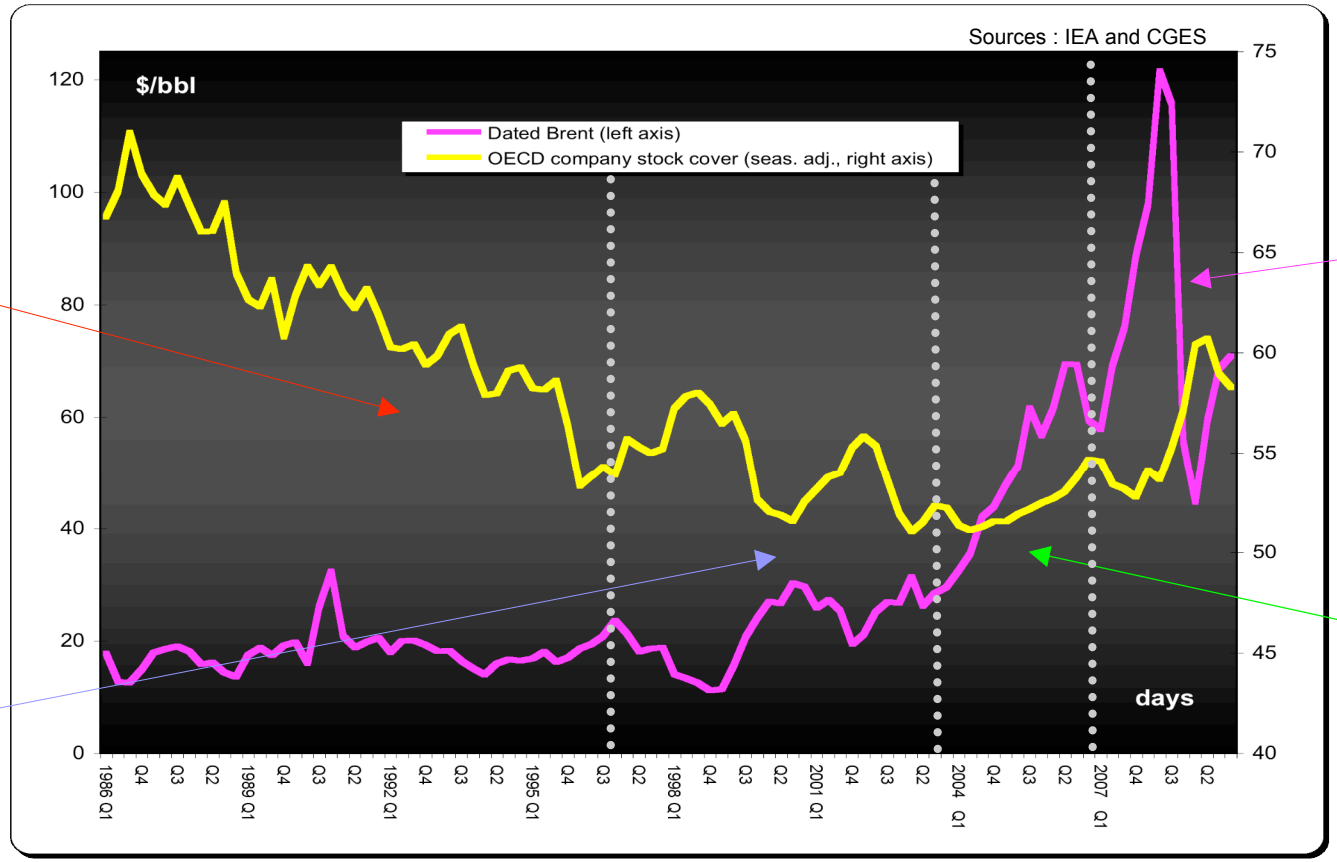
The oil price puzzle: stock cover and the price of oil

1985-96

OECD company inventory cover was trending downwards without any noticeable effect on the oil price.

1996-2003

Period during which stock-cover and the oil price moved in opposite directions.



2007-09

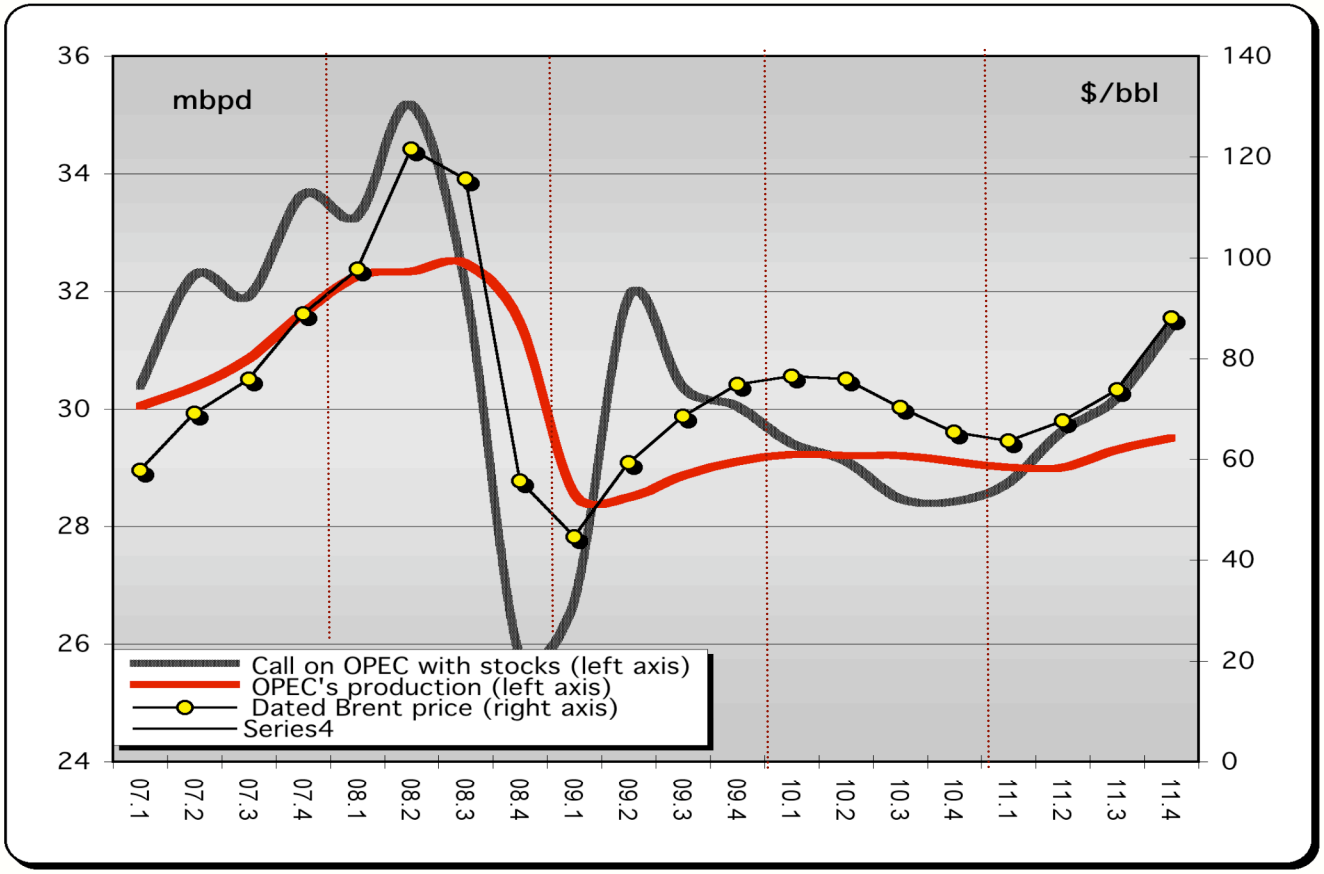
Oil prices in this period seem to have over-reacted hugely to changes in stock cover.

2003-06

Unusual period during which stock - cover and the oil price were moving in the same direction.

The relationship between inventory cover and oil prices is not straightforward. From 2Q03 onwards forward cover rose from 51 days to 55 days, yet oil prices rose relentlessly, except for two episodes of price weakness (4Q05 and 4Q06-1Q07), both associated with rises in inventory cover. After 1Q07 OECD company stock cover first fell and then rose; oil prices moved accordingly, but in a grossly exaggerated fashion.

The rollercoaster of desired stocks



To explain the price collapse in 4Q08 and the surge in 2Q09 we have had to resort to dramatic changes in desired stocks that cannot be explained in terms of traditional fundamentals-based analysis. Expectations seemed to have played a key role in driving oil prices down and then up again.

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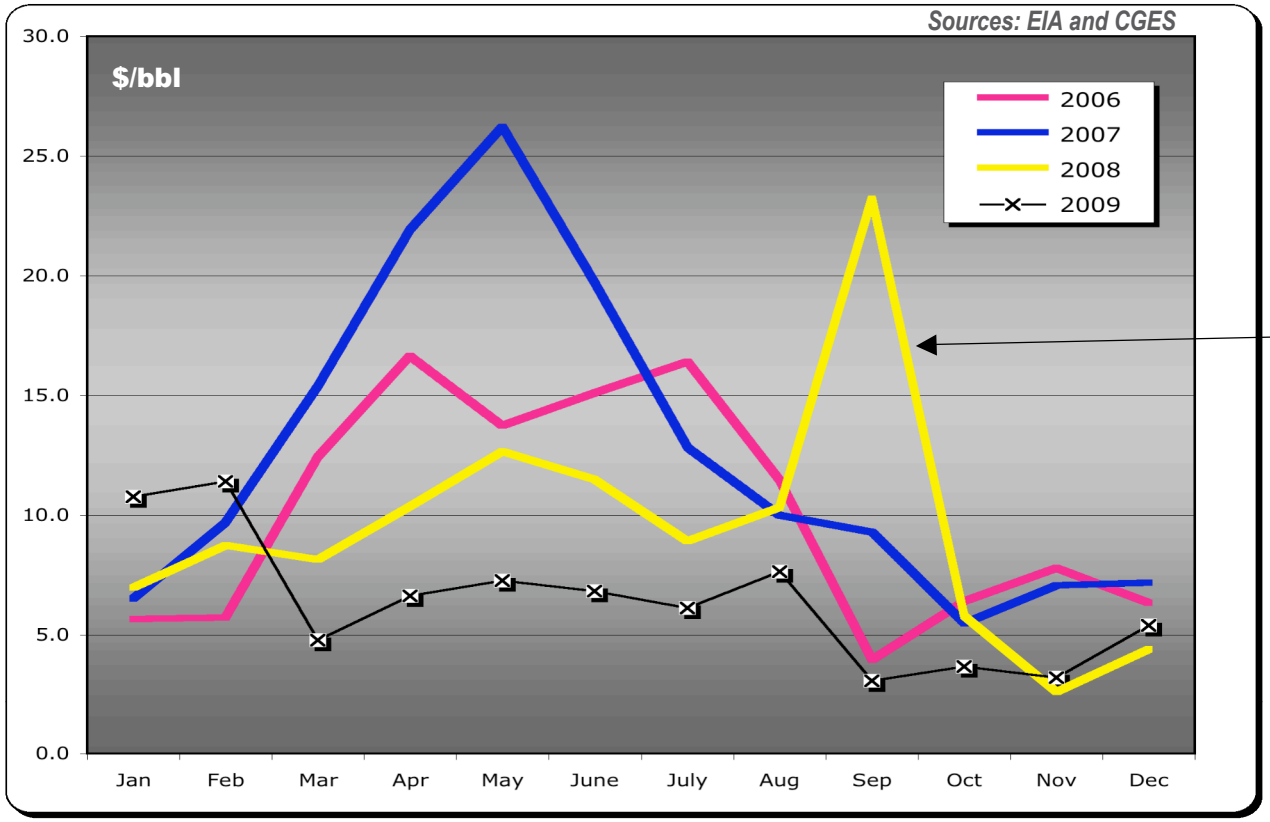
Is crude too expensive? 4-product refining margins in the US, 2006-2009

US refinery utilisation %	
2003	92.6
2004	93.0
2005	90.6
2006	89.7
2007	88.5
2008	85.3
2009	82.8



Last year, refining in the US suffered from low margins and low utilisation rates. Margins were low because US refiners were unable, due to the recession, to claw back in the product markets the crude oil price rises. Refinery utilisation rates have been declining since 2004 because rising crude prices have led to weaker US oil demand growth.

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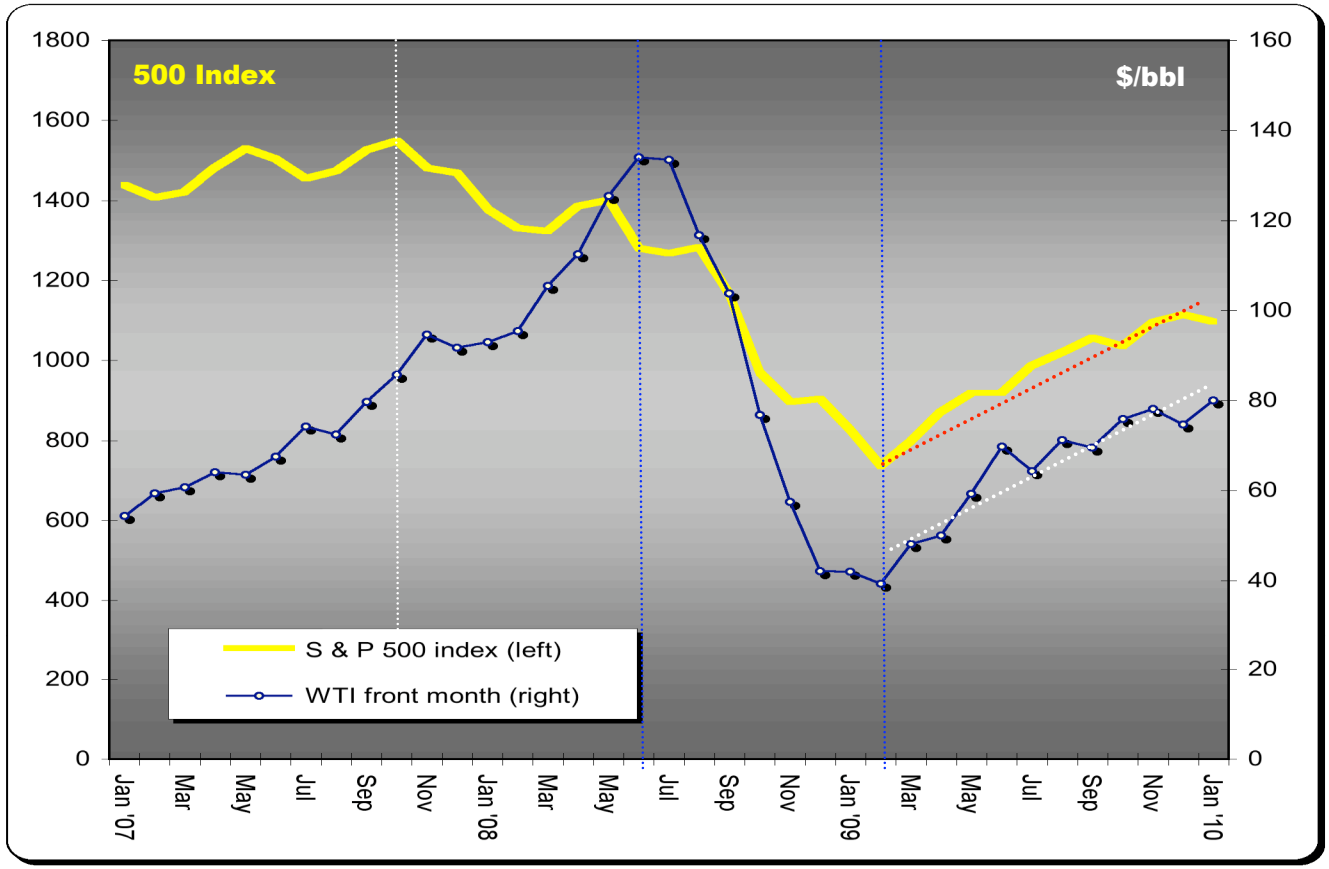
Is the price of oil more susceptible these days to financial plays?

Cheap money in the US has encouraged the so-called Dollar carry trade, whereby those able to obtain loans borrow Dollars cheaply and invest them in higher-yielding dollar-denominated assets, including oil.

Those who borrowed Dollars to invest outside the US also benefited from the fall in the value of the $ on repayment of the loans.

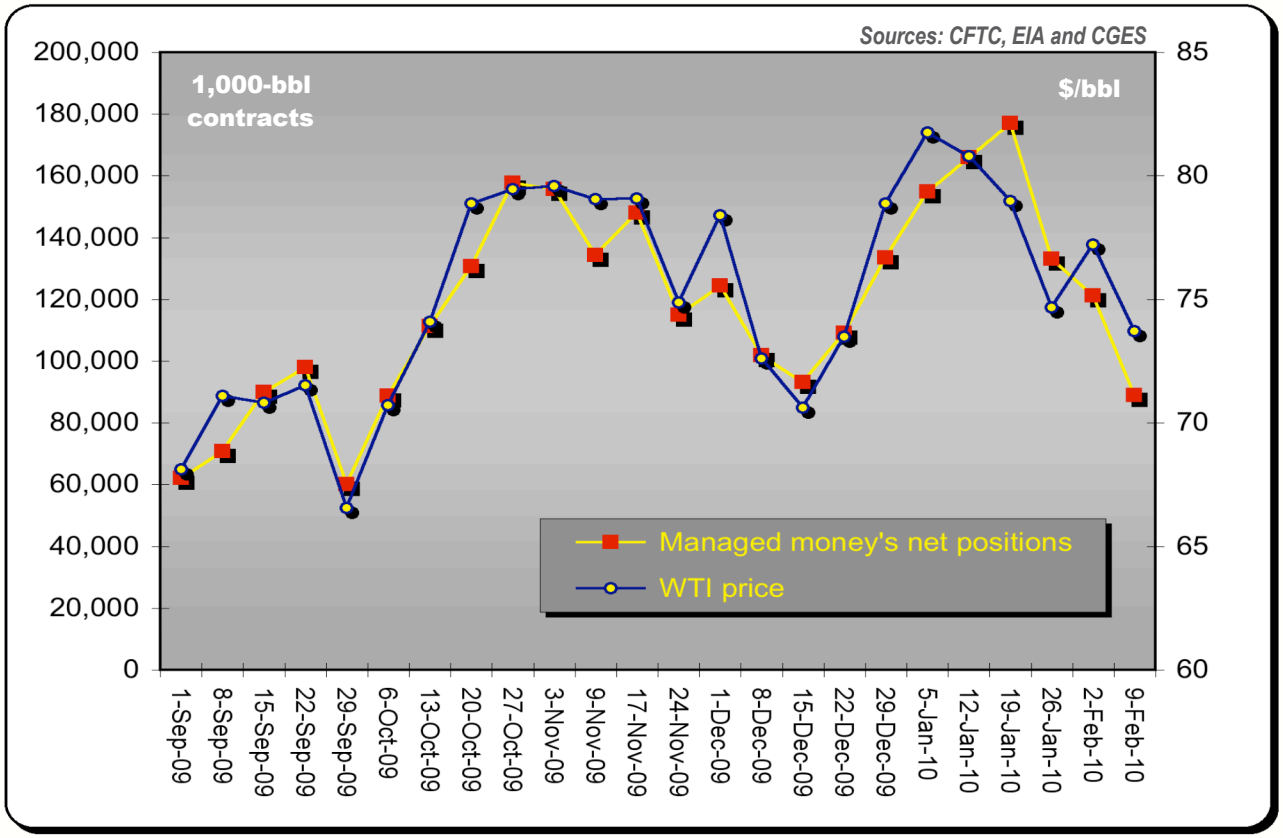
On the other hand, investors coming into Dollars from Euros or the Yen required higher returns (rising oil prices?) to compensate them for the weakening $ on repatriation of their investments. The risk-averse among them would have needed to hedge the currency risk as well as deal with the commodity price risk.

Has oil become a financial play? The S&P '500' index and front month WTI



The Standard & Poor's 500 index fell almost continuously between October 2007 and February 2009; however, from February '09 it has staged an impressive rally. As for WTI, it kept on rising from Oct '07 until the peak in early July '08; thereafter it has mirrored the movements of the S&P Index, suggesting that oil is more of a financial play these days than it was in 2007 and the first half of 2008.

Managed money net open interest positions on NYMEX and WTI prices



Since September '09, the US Commodity Futures Trading Commission has been publishing its disaggregated Commitment of Traders report, which separates its former category of non-commercials (large-scale speculators) into 'managed money' and 'other reportables'. Managed money operators include commodity pool operators, commodity trading advisors and hedge funds. Notice the high correlation (actually, 95%) between the WTI price and the managed money's net open interest positions for the period from the 1st of September 2009 till the 9th of February 2010.

The transmission mechanism

How do rising futures prices along the forward curve affect the spot price of oil?

If the contango in the oil market is sufficiently large to support a cash-and-carry hedge, there is a clear-cut financial incentive to buy oil in the spot market and simultaneously sell it forward. The desire to get hold of physical oil raises the spot price and the selling of oil forward reduces the futures prices, reducing the contango.

A fresh wave of upward price expectations will push up the forward curve and start the cash-and-carry hedge cycle all over again. When the market is backwardated there is a financial disincentive to store oil, because oil can be sold spot and bought back forward, locking in a financial gain.

Predicting spot WTI prices

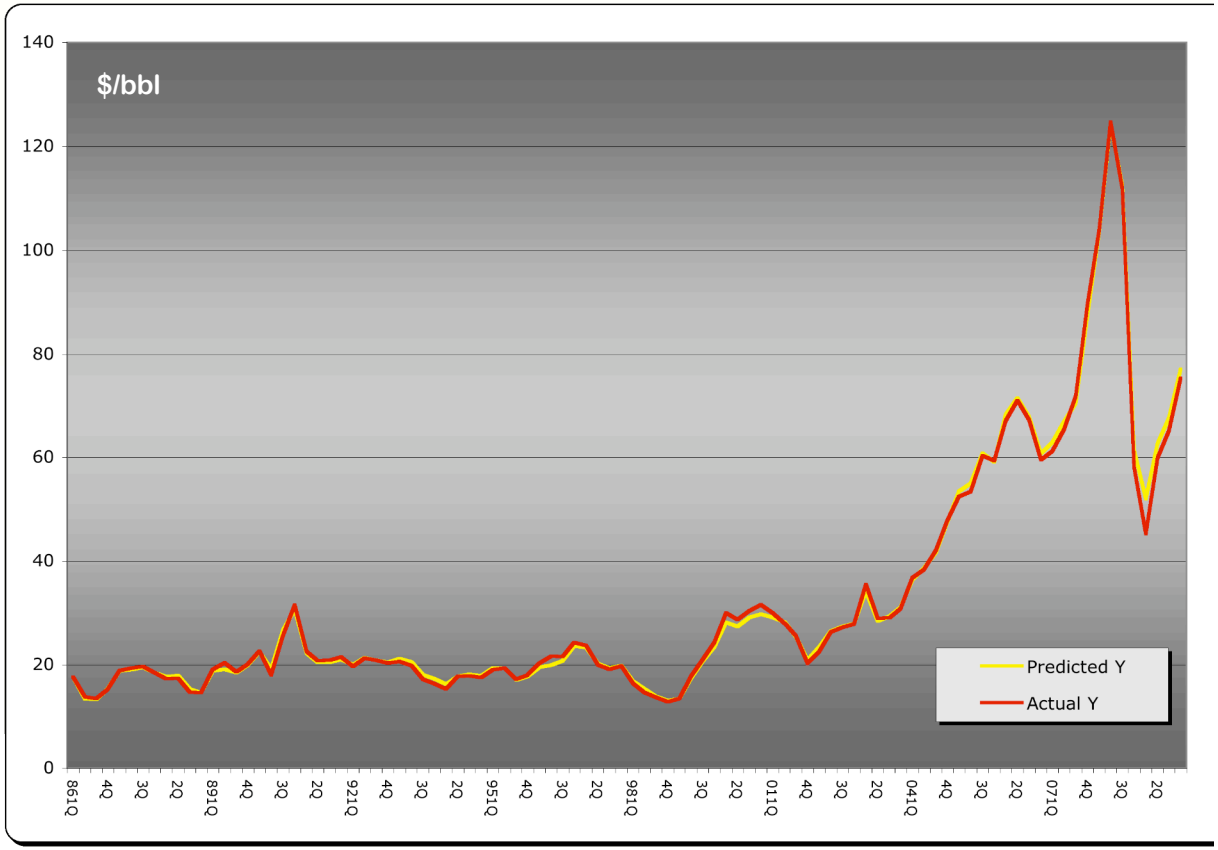
The model is based on inventory disequilibrium: that is, the oil price adjusts to the discrepancy between desired and actual stocks.

The largest effect on the spot price of oil is cash-and-carry hedging, largely driven by the futures price in relation to the spot price and the cost of carry.

Oil consumption and the level of stocks are also significant, but spare oil production capacity does not seem to be an important consideration.

Note that all variables are seasonally adjusted.

Actual vs predicted over the period 1Q86-4Q09, based on a model estimated over the period 1Q86-4Q08; i.e., prediction for 2009 is outside the sample.



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Arriving at the minimum oil price needed by Saudi Arabia, based on expected expenditures and income in 2010

	$ bn	$ bn
General expenditure	141.0	122.6
Debt interest	3.5	3.1
Capital expenditure	20.0	21.0
Total expenditure	164.5	146.7
Non-oil income	15.3	14.0
Investment income	3.5	3.9
Oil revenues* (CGES estimates)	142.3	116.8
Total income	161.1	134.7
Surplus/Deficit	- 3.4	- 12.0

2009 actuals

- With Saudi output at 8.3 mbpd (the expected 2010 average), the minimum OPEC basket price required to cover expected Saudi general expenditure in 2010, less non-oil and investment income, is $61/bbl.
- To cover general and capital expenditure plus debt interest (less non-oil and investment income) the price needed is $71/bbl. To cover total expenditure and debt interest, plus a contingency reserve of $5bn, the Kingdom needs $74/bbl. The CGES expects the OPEC basket price to average $72/bbl this year.

* Incuding $15 bn from NGL exports.

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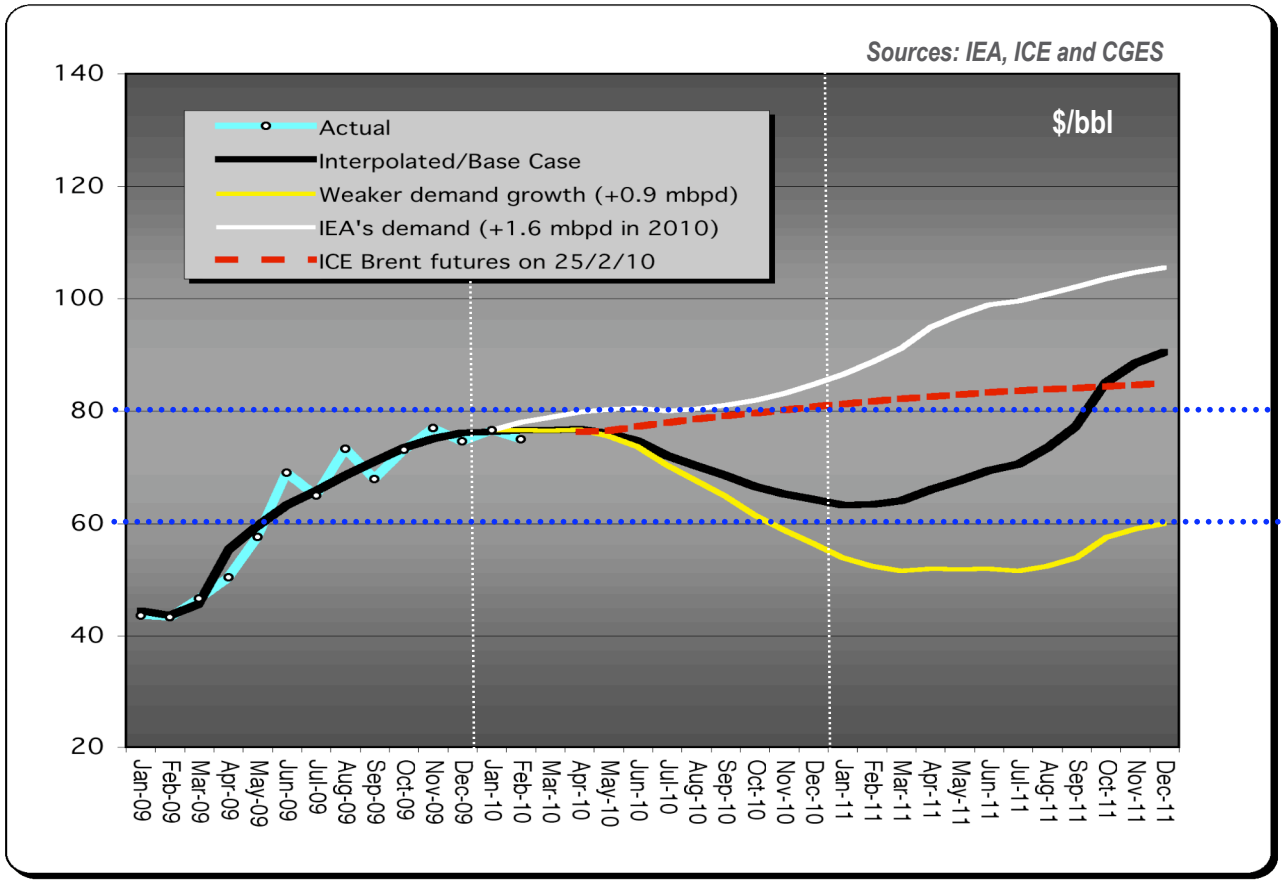
DATED BRENT PRICE SCENARIOS : 2010 AND 2011



Action needed by OPEC

What happens to the oil price this year and next will depend on three factors — how strong the economic recovery will be, how will this affect the demand for oil and how will OPEC respond to the changing economic circumstances. In the base case OPEC's output stays around current levels with minor adjustments; however, we have assumed that Saudi Arabia will lead OPEC into cuts should the price drop below $60/bbl and into output leakages should the price trend upwards.

Incremental oil demand and supply 2010 - 2020

	mbpd
Global oil demand	+ 10.3
of which China …	2.3
Non-OPEC supplies	- 2.2
Biofuels	+ 0.4
OPEC NGLs	+ 2.1
Need for OPEC crude oil	+ 10.0
OPEC's crude oil capacity	+ 12.1
of which Iraq …	7.5

INCREASES IN OPEC'S CAPACITY : 2010-2020

Saudi Arabia	1.0
Iran	0.5
Kuwait	0.5
UAE	0.4
Nigeria	1.3
Venezuela	0.8
Others	0.2
TOTAL	4.6

Additional capacity delivered by service contracts in 10 years, mbpd

Rumaila	1.85
Zubair	0.93
West Qurna I	1.84
Kirkuk	0.41
Majnoon	1.30
Halfaya	0.70
West Qurna II	0.50
IRAQ's TOTAL	7.53

Final remarks

- The oil price peak of $147/bbl in July 2008 is unlikely to be seen again for the foreseeable future; however, nor will the price settle below $50/bbl. It will probably be quite volatile in a $20/bbl range around a long-term level of $70/bbl (with a percentage coefficient of variation of around 25%).
- OPEC will try to keep prices above $70/bbl; the outcome will depend on the amount of spare oil production capacity available and the fiscal needs of the oil-producing states.
- In the longer term, oil demand growth is likely to be on the low side due to OPEC's preoccupation with high oil prices, concern about the environment and technological change.
- Accommodating Iraq's capacity expansion will be a huge challenge for OPEC. On the price upside, dealing with Iran's nuclear ambitions will be very difficult.
- The world's oil resources are ample; getting them out of the ground is the problem. Key questions : **(a)** is there the desire to do so, **(b)** will there be enough investment by OPEC and the oil companies and **(c)** will there be political stability?

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