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Oil market weakness: why now and what next?

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Key issues

- Rising non-OPEC oil supplies the US' shale oil revolution has precipitated a surge in non-OPEC supplies that has weakened the call on OPEC oil; the big supply-side question is how will US oil production respond to lower oil prices.
- Weakening oil demand The growth rate of Chinese oil demand began to weaken in 2014, while OECD oil consumption growth went negative this year after three quarters of growth. Will there be a bounce-back in the growth rates of demand?
- The build-up in global oil stocks as a consequence of excess oil supplies, global commercial oil inventories have risen so far this year by 2.5 days of forward cover, or 286 million barrels, and Brent's forward curve is in firm contango.
- OPEC's reaction what will happen next depends to a large extent on how OPEC, the world's residual supplier, responds to the present bear market in oil. Saudi Arabia, the de facto leader of OPEC, has not been saying much ahead of the November 27th meeting.

Oil prices and incremental US oil output

Incremental US oil production and the price of WTI (or equivalent for the earlier years), 1966 to 2013



The US' oil industry has evolved in such a way as to respond to price incentives. When the price of oil was low in the 1960s and early 1970s, incremental production kept on declining until surging oil prices during the crises of the 1970s and early 1980s arrested the rate of decline. Weakening prices caused the rate of decrease of US output to accelerate once more until surging prices from 2002 onwards sent incremental US production soaring with a lag of around six years.

The US' shale oil resources and well costs

		Sources. LIA unu CGLS
	Technically recoverable	Well costs
	bn bbls	\$ million per well
Bakken	3.59	5.5 to 8.5
Eagle Ford	3.35	4 to 6
Avalon/Bone Springs	1.58	3 to 5
Monterey/Santos	15.42	5 to 7
Total and average	23.94	5.8

The Bakken's challenges

- Severe winter weather (-40 deg C) causes wells to be shut in; drilling is stopped and completions are halted.
- The cost of drilling has increased significantly; according to the N. Dakota Petr. Association the cost per well (\$5.6mn in 2009) has doubled.
- The time from spudding the well to production has also doubled.
- It is costly to bring the oil to refineries because the necessary infrastructure is lacking, adding up to \$15/bbl to the wellhead price.
- Sustainable oil prices are needed, along with take-away pipeline capacity.

Well productivity in the Eagle Ford Basin



Most of the US' tight oil is produced in two basins – the Williston in North Dakota and the Eagle Ford in Texas.

Tight oil's key problem is the rapid decline in well productivity (see figure above), which requires the repeated drilling of wells in order to maintain production. Technological progress has dramatically increased output per well, but the time taken for well productivity to halve has in turn halved between 2009 and 2014.

Impact of the US' tight oil revolution

The US' net imports of crude oil and products : January '11 to August '14



US oil consumption has been fairly static since the beginning of 2011, whereas US net imports of crude oil and products have declined dramatically over the same period. This has been entirely a consequence of the tight oil and gas revolution in the US, which has resulted in almost 4 mbpd of additional production of crude oil and NGLs, leading to an almost equal drop in net imports of crude and products since January 2011.

The Middle East and West Africa's oil pivot to Asia

Percentage shares of oil exports to the US, Europe and Asia-Pacific

		to US	to Europe	to Asia-Pac
from		%	%	%
Middle East	2013	10.3	10.6	76.1
	2005	11.8	15.9	66.6
North Africa	2013	8.3	67.5	15.9
	2005	17.8	63.8	5.9
West Africa	2013	14.2	32.8	44.6
	2005	44.6	16.0	32.2

Sources: BP and Drollas

The decline in US oil imports due to the tight oil revolution has affected mainly the oil trade with West Africa and to a lesser extent with N. Africa. Displaced light-sweet barrels that had been heading to the US from West Africa are now going east to China, India and the rest of the Asia-Pacific region. In 2005, 45% of West African oil exports went to the US and 32% to Asia-Pacific; by 2013 the share to the US had dropped to 14% and to Asia-Pacific had risen to 45%. Interestingly, the share of the Middle East's oil exports going to the US has hardly changed; instead, the share of its oil exports to Europe has declined by 5 percentage points.

The slowing down of oil demand growth



Percentage rates of growth, year-on-year

China, and more generally the non-OECD countries, have been the key drivers of oil demand growth. However, China's rate of growth of oil consumption has been weakening for the last couple of years, ratcheting down further in 2014 to the 2% p.a. level. As for the OECD group of countries, after recording somewhat anaemic growth in 2H13, oil demand is contracting once again this year.

The growing oil supply-demand gap

in millions of barrels per day, year-on-year



Since the end of last year global oil supplies have been growing at a faster rate than world oil demand, causing large global inventory builds that are now weighing heavily on the world oil market and are the principal reason why oil prices have fallen by well over 20% since June this year. OPEC, the world's residual supplier, will need to take swift and decisive action at its next meeting in Vienna (27th Nov-14) to prevent prices from sliding further.

Stock cover and the price of oil

Sources: Argus and Drollas 130 44 43.5 120 **Rising global** stock cover 43 110 42.5 100 42 Oil price weakness 41.5 90 41 80 Dated Brent price (\$/bbl, left axis) 40.5 Global commercial stock cover (days, right axis) 70 40 1Q12 2Q12 3Q12 4Q12 1Q13 2Q13 3Q13 4Q13 1Q14 2Q14 3Q14 4Q14

Dated Brent and alobal commercial inventory cover

In general, when stock cover is high, prices are low and vice versa, but the relationship between the two is not as straightforward as might first appear to be the case, because what determines oil prices is the disequilibrium between desired and actual stock cover and not the level of cover on its own. At times oil prices may not change much (e.g., during the period 3Q13 to 2Q14), despite a fall in the world's commercial inventory cover. However, the current price weakness is clearly the result of rising global stock cover.

OPEC's output versus the call on its oil



For over three decades now OPEC has been the world's de facto residual supplier of crude oil and as such the Organisation must always take cognisance of the world's need for its oil. There are two 'calls' on OPEC: the need for its oil without taking into account changes in global inventory requirements and the amount of oil required from OPEC after accounting for the market's need to stock or destock oil. The call with stocking is clearly more important, but when both calls are below OPEC's actual production levels then oil prices will decline.

Drastic action is needed by OPEC



To get Brent back up to the mid-\$90s by the end of 2015, OPEC needs to cut its production heavily and swiftly, reducing its output to average 28.5 mbpd in 1Q15 and 28 mbpd in 2Q15 (from 30.8 mbpd in Oct-14), holding it at 28 mbpd through next summer. Cutting its output to 29 mbpd next year is not enough, leaving Brent to head towards \$50/bbl around the turn of 2015 into 2016 and weakening further, stabilising eventually around \$40/bbl, which would be great news for consumers but catastrophic for the finances of the members of OPEC – and for that reason it is unlikely to happen.

Closing remarks

- Despite the ISIS-generated mayhem in Syria/Iraq and the recent turmoil in Libya, conditions in the oil market are very bearish.
- The global economy is weakening and oil demand growth is slowing.
- For oil production in the US shale plays to stop rising oil prices will need to fall to and stay below \$50/bbl.
- OPEC will need to act like a cartel once again to prevent oil prices from collapsing.
- On the other hand, the world economy could do right now with an extended period of low oil prices.
- Whether this will happen depends on whether Saudi Arabia prioritises the short or the long term.