

Longer-than-expected demand and supply rebalancing: absorbing the cumulative excess supply imply a longer period of lower oil prices

After moving upwards to 65\$/bl in 2015Q2, Brent prices collapses anew during last summer, contradicting our call for further price increases. The logics of market rebalancing is however under way, and our tools and analyses confirm that a price below 65\$/bl cannot be sustained over the medium-term. However, the delay in market rebalancing has created inventory levels that are now too high to allow for any significant short-term price increase, which is now pushed back to the middle of 2016. Prices are highly vulnerable to very temporary declines, possibly to 30\$/bl, but a move back to 60\$/bl is likely for 2016, and to a range of 60-70\$/bl in the second half of next year.

What went wrong with our price projections?

When oil prices collapsed last year, our tools and analysis strongly suggested that beyond the immediate short-term, prices should move back towards 70\$/bl during 2015H1 and towards 90\$/bl in the second part of the year, with the following reasoning:

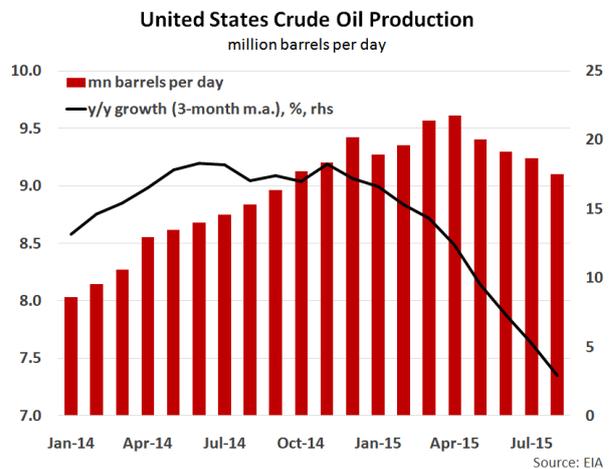
The particular context of a modest over-supply, self-fulfilling and convergent expectations for further decline in prices create a situation where prices can collapse "with no floor" until a producer clinches. A short-term move to 40 \$/bl cannot be ruled out. In parallel, US supply and demand elasticity to lower prices seems under-estimated, suggesting a faster and stronger re-balancing in supply - demand during the next few months. All our models converge in suggesting that 70 \$/bl should be the near-term floor for Brent prices, and our projection tools indicate a rise to 90-105\$/bl range for 2015H2. (Flash Comments #82, Dec.2014)

Our contrarian call proved correct initially with Brent prices increasing to 60-65\$/bl in 2015Q2... before they collapsed again to their lows of early 2015 during the summer. Where did we get it wrong that led to the large excess production of the last few months?

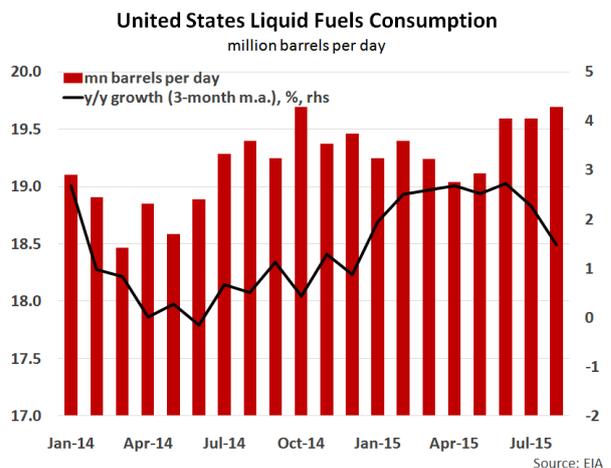
- The US supply adjustment was smaller than expected, as was the increase in US consumption of oil products

We probably underestimated the short-term ability of US producers to weather the sharp decline in crude prices in 2014H2: a combination of price hedges, cost cutting, efficiency improvement and "desperate volume increases" has led many independent US producers (notably in tight oil production) to actually increase production. Contrarily to our expectations, declines in oil production were noted in conventional fields, from New Mexico to Alaska, but not in tight oil basins.

With indeed a longer time-lag, US total production has however started to decline in May 2015, from a peak of 9.6 mn bl/d in April to 9.1 mn bl/d in August. This is however still 3.0% and 0.3 mn bl/d above the level in August 2014 just before the reversal in prices.

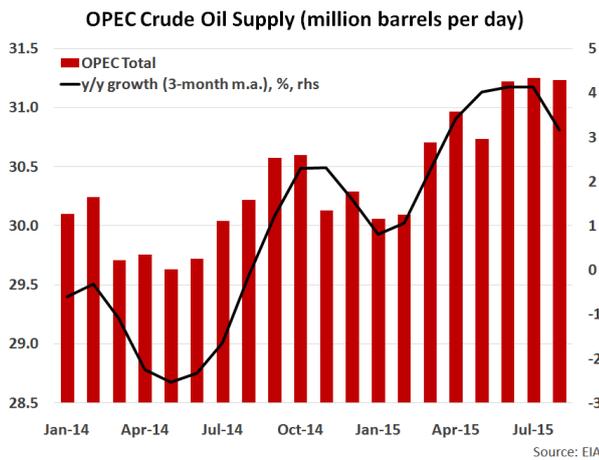


In parallel, the assumption was that the decline in oil prices happening at a moment of robust cyclical upswing in the US would translate into a fast acceleration in US energy consumption: as a matter of fact, US consumption declined up to April 2015, reverting the increase noted between April and October 2014 and leading to US April 2015 consumption 500,000 bl/d lower than a year before.



- OPEC's strategy was much more "offensive" than expected

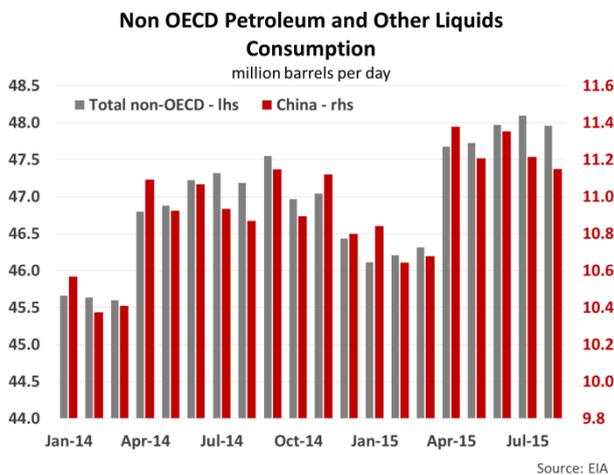
We believed (and still do) that the structural political instability in the Middle East is a price-supporting factor for oil, notwithstanding the lower US reliance on imported energy and therefore a lower "strategic premium". We acknowledged that Saudi's strategy of increasing supply was a double-aimed attempt at discouraging further investment in tight and other non-conventional oil production and weakening Iran's economic and political situation. We also underestimated the amount of oil exports that Iraq would be able to achieve.



The stronger emphasis we put last year on the fiscal-break even prices of oil for most Gulf producers made us believe that that OPEC's production would stabilize or even decline to its quota (30 mn bl/d, against actual production of 31.2 mn bl/d in August 2015, 1.0 mn bl/d above the level of August 2014).

- Non-OECD demand, notably from China, increased at a slower pace

Oil consumption in non-OECD countries follows a strong seasonal pattern, which we probably underestimated for the early part of the year, as shown in the following chart highlighting a 1.0 to 1.5 mn bl/d difference in aggregate consumption between the "high" months of April-November compared to December-March.

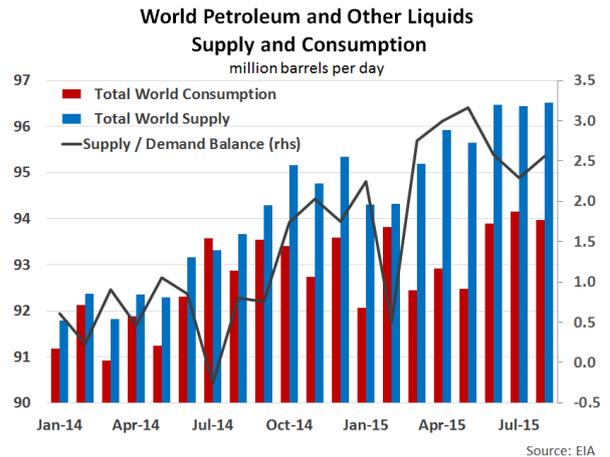


China's specific oil consumption (about 23% of total non-OECD consumption) follows a similar seasonal pattern; however, China's cyclical / structural slowdown in aggregate economic activity is translating into slightly declining oil consumption over the past 2 months, and this translated itself into a rough stabilization of non-OECD consumption, still however 1.6% and 0.8mn bl/d above the level seen one year ago.

The logic described earlier is however unfolding, though at a slower pace

Despite the projection mistake seen today, there should be little doubt that global oil supply and demand are progressively rebalancing, and such rebalancing will push prices up to a level where global consumption can be met through profitable oil production.

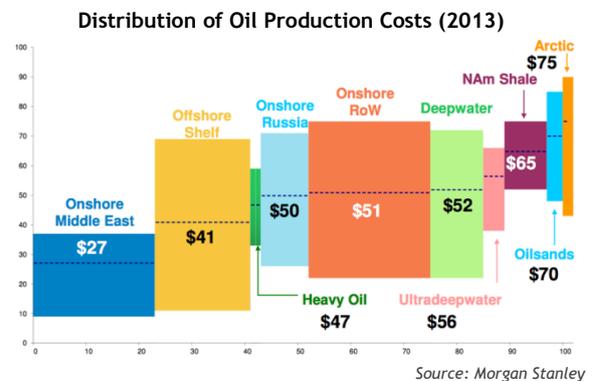
- Rebalancing taking place



Total world production stabilized since May 2015. US total oil production already declined by 500,000 bl/d over the past few months and we expect it to decline by a further 1 mnbl/d during the next 12 months as funding sources dry up for tight oil producers when they still have net negative operational cash flows. Our scenario suggests a further 3 mnbl/d rebalancing coming from increasing OECD demand and further contraction in output from non-shale producers.

- Price threshold for supply contraction

Here, we go back to the detailed analysis of average production costs. The one source we prefer to use is derived from research by Morgan Stanley (MS), where we have both the average and the dispersion of production costs in different types of oil production sources, and an indication of the size of production at different levels of cost for each source.



Starting from MS' work, we developed a specific quantitative instrument able to compute the production "lost" when prices move below a given

price threshold. To incorporate our remarks and comments on the US producers' ability to adjust, compress their cost and improve their efficiency, we assumed that the average production cost for North American shale oil was reduced by 20% from the 65\$/bl estimated by MS in 2013 to 52\$/bl today.

Using these assumptions, we find that the US tight oil production would adjust significantly (as already signaled by the drying up of funding for the independent US producers at a time when they run negative operational cash flows), but the high-cost part of traditional production as well as off-shore production on continental shelves would concentrate most of the volume adjustment (called respectively "on-shore RoW", i.e. rest of the world, in MS analysis, with a range of production prices from 22\$/bl to 75\$/bl, and "offshore shelf", with a range of 11\$/bl to 69\$/bl).

Our quantitative tool shows that a price permanently at 50\$/bl would cut aggregate production by 49mnbl/d (on a world total at 101.1 mnbl/d¹), which would very strongly suggest that this cannot be a balanced market price for long.

At an average Brent price of 65\$/bl, the unprofitable production is estimated at 15.2 mnbl/d, here again large enough to indicate that medium-term prices cannot stay at such levels.

Estimated unprofitable oil production under different Brent price assumptions

		Total production (mn bl/d)	Non-profitable production at \$50/b (mn bl/d) ^(e)	Non-profitable production at \$65/b (mn bl/d) ^(e)
Onshore East	Middle	22.8	-	-
Offshore Shelf		17.8	8.7	1.8
Heavy Oil		2.0	-	-
Onshore Russia		9.1	6.0	1.8
Onshore RoW		22.6	14.5	5.7
Deepwater		10.0	6.0	2.1
Ultradeepwater		3.9	3.0	0.2
Nam Shale		7.8	4.5	-
Oilsands		2.8	3.7	2.1
Arctic		2.2	2.5	1.6
Total		101.1	48.9	15.2

^(e)TAC ECONOMICS estimates

- Global macro outlook still leading to increased demand

Indeed, our broad macro scenarios of (1) persistent growth in US activity despite the forthcoming monetary tightening, (2) accelerating growth in the Eurozone, (3) soft landing in China and contained growth deceleration in other emerging markets,

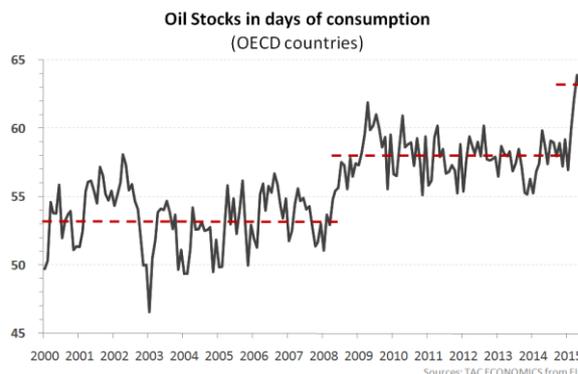
points to a modest but visible increase in oil demand worldwide.

- OPEC strategy

The fundamental "swing" factor would therefore be first and foremost OPEC's strategy and particularly the ultimate outcome of evolving Saudi-Iran relations. We worked in great details on the subject (including for assessing Iran's new perspective after the international agreement on the nuclear program) and the bottom line is that the current strategy of inundating the market will stop, probably sooner than expected (but our past mistake there makes us obviously more humble on the assumption). The rationale is the combination of fiscal break-even prices (105 \$/bl in Saudi Arabia and 130 \$/bl for Iran in 2015) and the historical observation of what is called "the geopolitics of oil". The first element indicates (1) that fiscal deficits would be so large that public debt in Saudi Arabia would reach "dangerous" levels as soon as mid-2017, and (2) that even the potential increase in Iranian export volume would not compensate for the difference between break-even and actual prices, meaning that overall oil income may be lower for Iran post-sanctions than 2 years ago before the sanctions actually bite. The second element shows that in all previous episodes of acute fall in oil prices, Saudi Arabia and Iran got to terms and pushed OPEC towards production restraint (e.g. in 1987-88 during the Iraq-Iran war...).

But the level of inventories will keep prices low during the rebalancing

The logics remain intact... but prices will not increase soon because the 6-9 month time-delay between the price collapse and the actual demand-supply adjustment has fed into inventories that need first to be absorbed.



Timing, price projections and risks to the outlook

With all these recent developments incorporated, we run the different sets of quantitative tools looking at future price development, and they again converge on three fundamental messages that are consistent with our analysis:

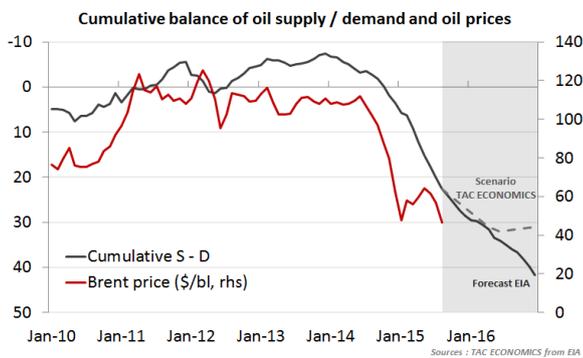
- The actual level of inventory and pace of the demand-supply rebalancing preclude a major upward move before the end of 2016;

¹Crude oil and lease condensate world production

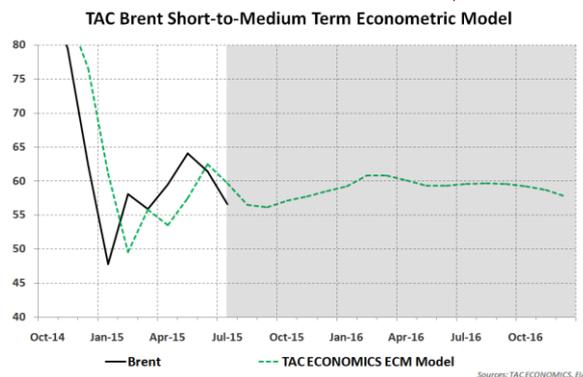
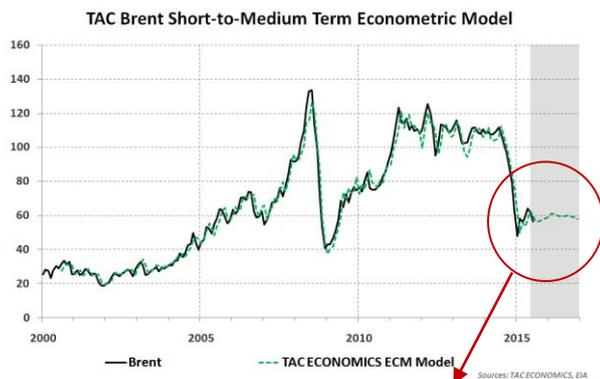
- Brent prices should find a balance closer to 60\$/bl during 2016 and probably move slightly higher at the end of next year;
- In the immediate short-term, there is no floor for prices as physical inventory capacity is almost exhausted; a temporary collapse to 30\$/bl cannot be excluded, but this would be a very short time.

The charts below show the results of three quantitative tools:

1-A simple visual observation on the relationship between cumulative inventories and the level of prices, suggesting the potential decline to 30\$/bl or even lower if distressed sales occur on a large scale between now and the end of 2015:



2-A medium-term Error Correction Model, which indicates a neutral level at 60\$/bl for most of 2016:



3- Our complex set of datamining techniques, suggesting a range of 30-60\$/bl up to the end of 2016Q1 and a progressive move upwards to 60-70\$/bl in 2016Q2 or Q3:

