OIL & GAS

Expect $45 WTI prices in the next 1 month

GLOBAL | RESOURCES | SECTOR NOTE

27 March 2015

- We have a price target of $45 WTI prices in the next one month
- Storage capacity at Cushing might be breached by early May if current runrate continues
- Market is currently ignoring the negative 25th March EIA data which points to continuous crude stock pileup
- Seasonal refining activity pickup in summer and inevitable slowdown in upstream production should push prices above our target $45 beyond May
- Wildcards: easing of sanctions on Iran, expansion of Sunni/Shia conflict

Oil price plummets

It has been a wild roller coaster ride for crude oil prices in the past 9 months. Oil prices nosedived more than 50% from last June, and we have only witnessed such dramatic price deterioration a few times in the past.

Fig 1: WTI price reactions to economic and geopolitical events

Source: Bloomberg, PSR

Not many expected such a drastic turn of prices 1 year ago. Street estimates for oil prices are wildly divided, ranging from even lower levels than current prices to $100 crude prices.

We remain bullish on long term oil prices as prices are unsustainably low currently but we estimate WTI crude to be in the $45 range in the next one month. Our investors and clients are highly interested in the outlook in the next one month and we will share with you our house views in our first of a series of oil & gas reports on the key indicators that matter right now which will swing market sentiments and oil prices.

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Oil prices currently affected more by supply side issues

More to oil than supply/demand. If oil prices were driven solely by pure demand and supply, everything would be simpler but this is only applicable in the long term in our view. Short term wise, oil markets are complex with several factors jolting prices away from fundamentals. Other factors like the strength of the USD, geopolitical risks, inventories, oil product markets and spare capacity all play a role in affecting oil prices.

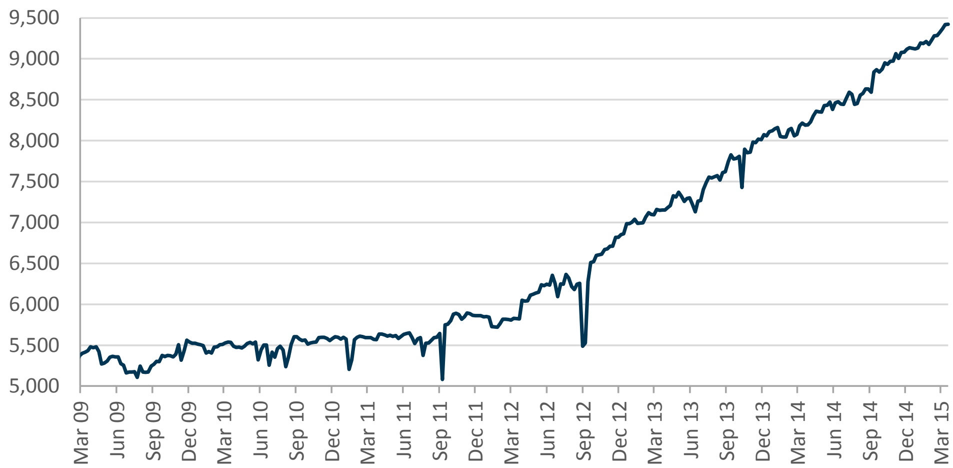
But low oil prices due primarily to supply. We believe record levels of crude oil production in US which resulted in buildup of excessive inventory is the reason affecting oil prices. Currently, our eyes are on the oversupply situation in US and how it will unfold in the next few months. We will discuss the immediate pressing issues that we have identified which hold our belief of $45 price level in the next one month and mitigating factors that might push prices over that level after this time frame.

Too much oil being pumped out in US with nowhere to go

Crude oil production in US has been on a steep upward trajectory with the boom of the shale oil industry. Imports are not slowing down as US refineries are set to process heavy sour oil. Shale oil is light sweet crude. Since crude oil produced in US cannot be exported due to a federal ban since the 1970s, oil has been stockpiled.

If we refer to the below chart on US crude production, oil production has almost doubled in the last 5 years with the last reported figure at 9.42MMbbl/day.

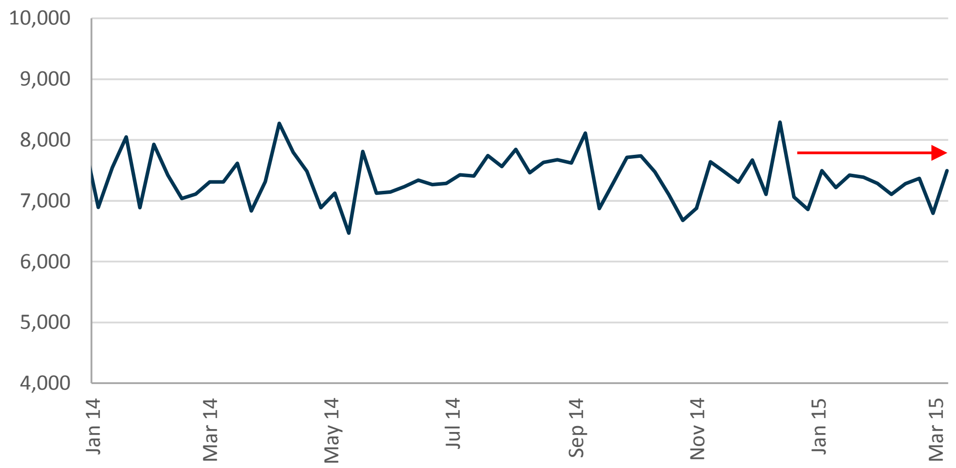
Fig 2: US crude output (MMbbl/day)



Source: EIA, PSR

Swing factor is domestic supply, not imports. Domestic crude oil production is the swing factor in the US. Imports have been fairly steady.

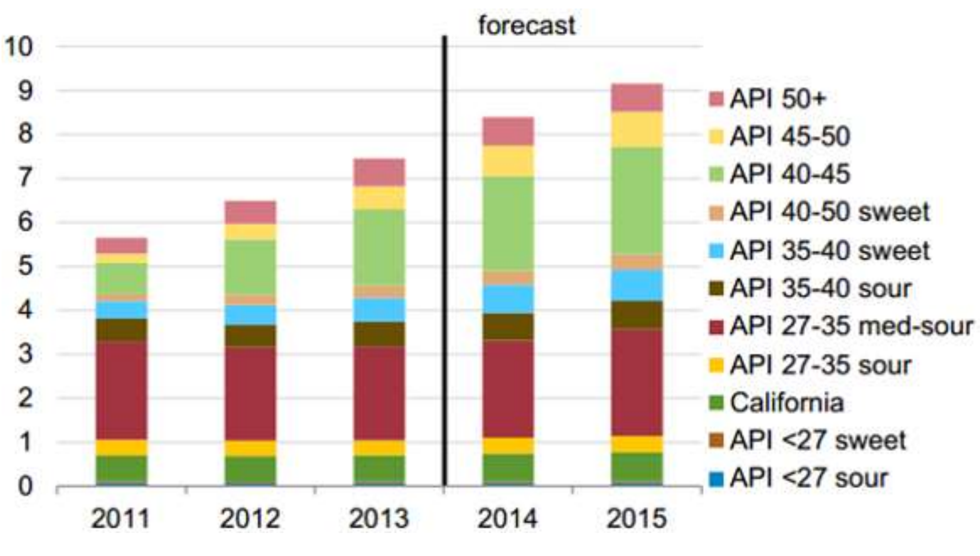
Fig 3: Weekly US crude imports (Mbbl/day)



Source: EIA, PSR

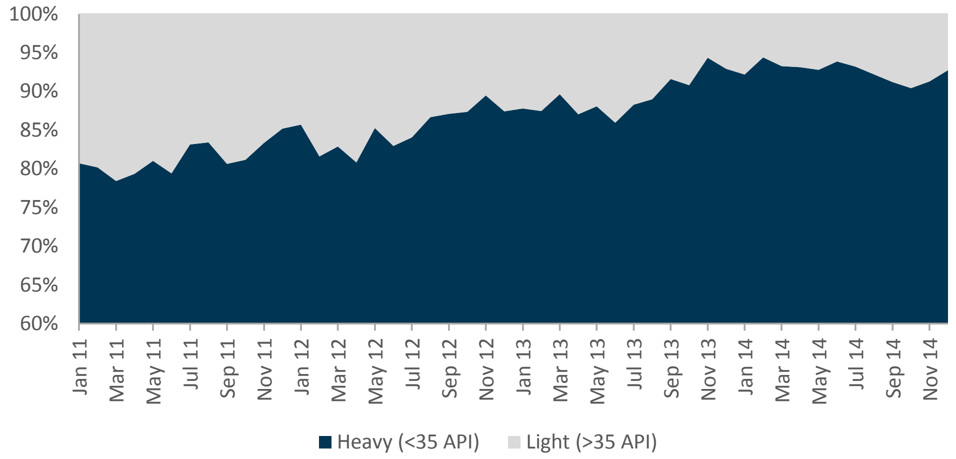
Refineries can't quickly switch to WTI. Imported crude and domestically produced oil differ in their API gravity and Sulphur content. US oil refineries specialize in processing heavier sour oil. According to EIA, US crude oil production has consisted primarily of lighter, sweet crude (measured by API gravity and sulphur content) from tight oil formations with ~96% of the 1.8 million bbl/d growth in production between 2011 and 2013 consisting of sweet grades with API gravity of >40.

Fig 4: US Domestic Crude production by type (MMbbl/day)



Source: EIA

Fig 5: Decreasing % of Light crude imports



Source: EIA, PSR

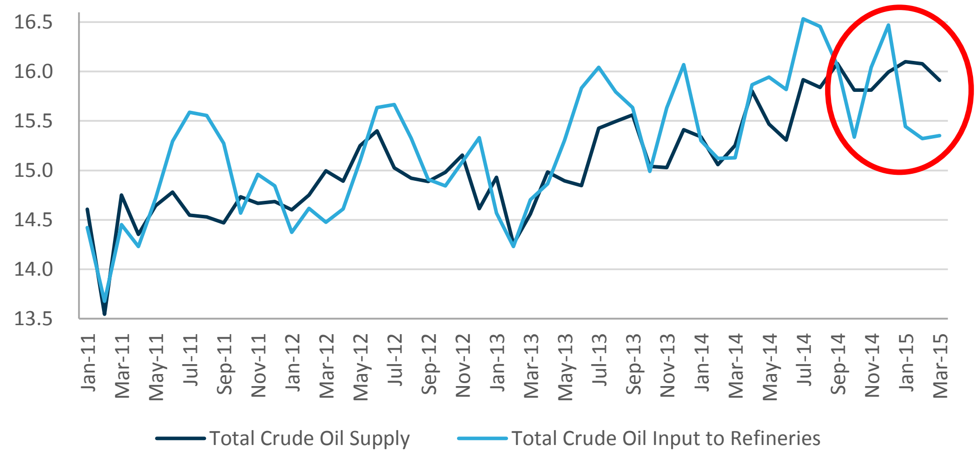
Put simply in layman terms, many domestic refiners are optimized to process the heavy, sour oil imported from areas like Saudi Arabia, Canada, Venezuela and Mexico. Per EIA, the US needs continued shifts in the refinery input mix which requires investments to relieve constraints caused by refining lighter crudes at refineries that were optimized for heavier crude.

Imports of lighter crude has already decreased over time but we think heavier crude imports are unlikely to change, which adds on to the increasing US stockpile.

Indeed, supply and demand balance was rocked off its pivot sometime in September last year as domestic production continued to come online.

US supply appears clearly ahead of demand and this has been adding to the domestic stockpile.

Fig 6: Total Crude Oil Supply vs Total Crude Oil Inputs to Refineries (MMbbl/day)

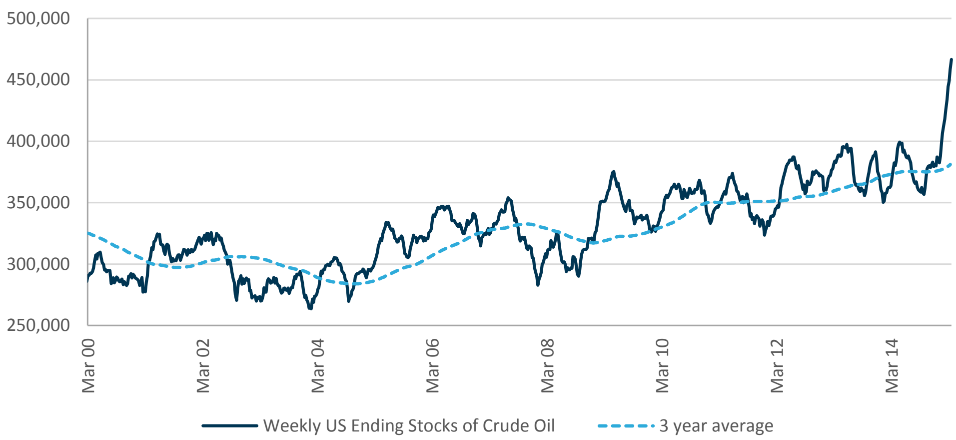


Source: EIA, PSR

Storage at Cushing might touch maximum capacity

EIA has updated in its weekly Petroleum Storage report that US crude inventories has again continued its relentless pileup, this time by +8.2MMbbl for the March 25th week (+9.6MMbbl in the previous week) to an unprecedented level of 467MMbbl, 85MMbbl above the 3 year average, emphasizing the inventory glut that we are seeing in US.

Fig 7: Weekly US Ending Stocks of Crude Oil excluding SPR (Mbbl)



Source: EIA, PSR

Zooming in, the market is now focused on the storage levels at Cushing, Oklahoma. Why so? Storage levels at Cushing are important because it is the delivery point for WTI crude oil and home to a network of crude oil pipelines and storage capacity. In turn, WTI is the benchmark for how all oil is priced in the United States.

Cushing has a working storage capacity of about 70.8MMbbl, representing >60% of all onshore crude oil storage capacity in the Midwest and about 19% of crude oil storage in US. At the last reported figure, inventory level reached 56.3MMbbl which is 79% full (vs 77% last week).

If we assume the current 10 week average run rate of 2.2MMbbl/week piling up at Cushing, maximum capacity could be hit by early May.

Fig 8: Weekly crude oil inventory and storage capacities at Cushing, Oklahoma

Source: EIA (13th March 2015 data)

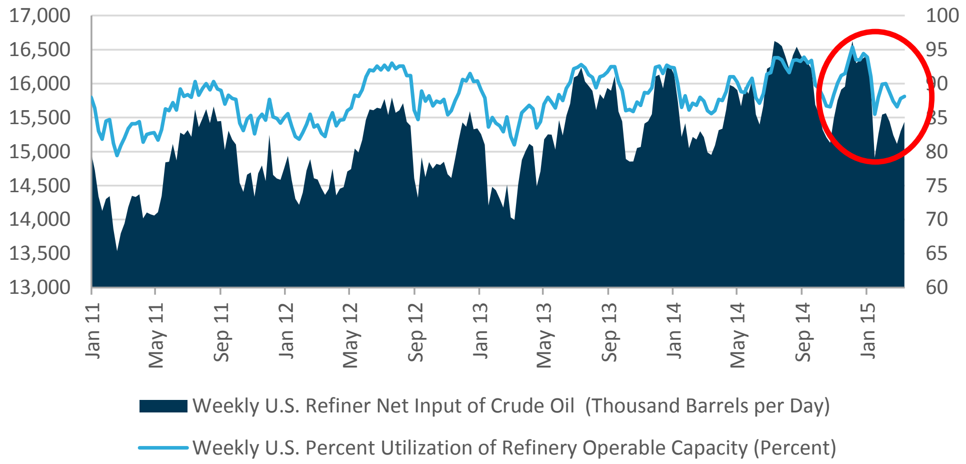
If maximum capacity were to be breached at Cushing, the immediate market reactions would certainly be acute. Excess oil would need to be stored in oil tankers, but the biggest impact would come from market sentiment worsening. We would not be surprised to see WTI trading below our one month target of $45 if this situation unfolds.

Fundamentals appear quite challenged: production growth, worry over storage capacity at Cushing, import levels still holding up all points to more downward pressures on oil prices. However, we believe oil prices will move beyond our bearish $45 target after May once excess supply balance is be taken off the market.

Refining activities to start picking up

Oil refinery input is a proxy of end-demand that we can look at to see when excess inventory situation will improve.

Fig 9: Refiner Net Input (Mbbl/day) vs Refinery Utilization (%)



Source: EIA, PSR

As we can observe from the figure above, oil refinery activity has fallen over the last 9 months. This is despite significantly cheaper oil prices and larger supply of crude.

This can be attributed to both planned refinery maintenance season and a series of strikes at 12 refineries which accounts for 1/5 of US crude oil refining capacity. However, we strongly believe that there are 2 reasons that US oil refinery activities will pick up and alleviate the stockpile buildup.

1) Tentative deals are reported to be reached between the union and oil companies which will bring back close to 1/5 of the US crude oil refining capacity

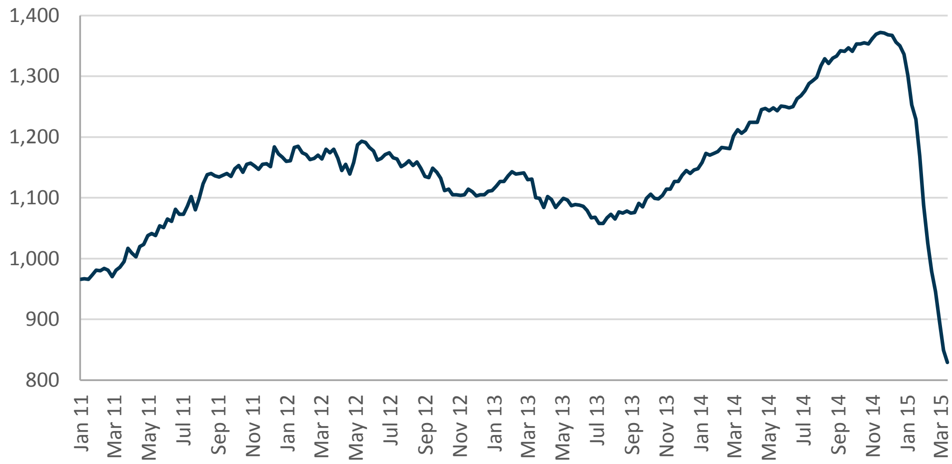
2) US driving season is around the corner (summer). US drivers typically drive their cars during the holiday period, leading to a boost in gasoline consumption which means increased refining activity and demand for crude inputs. The start of the US summer season is typically taken to begin on Memorial Day which is the last weekend in May.

This coincides nicely with our earlier estimation of Cushing storage capacity being breached in early May as refinery activity typically picks up in mid-April to early May, which means this is a strong relief point for circumventing maximum capacity.

Supply destruction coming

Companies have been idling drilling rigs at a record pace in light of declining oil prices. Rig counts have decreased from 1,372 in November to 829 in the last reported figures, a 40% drop. Yet oil production levels are still going strong.

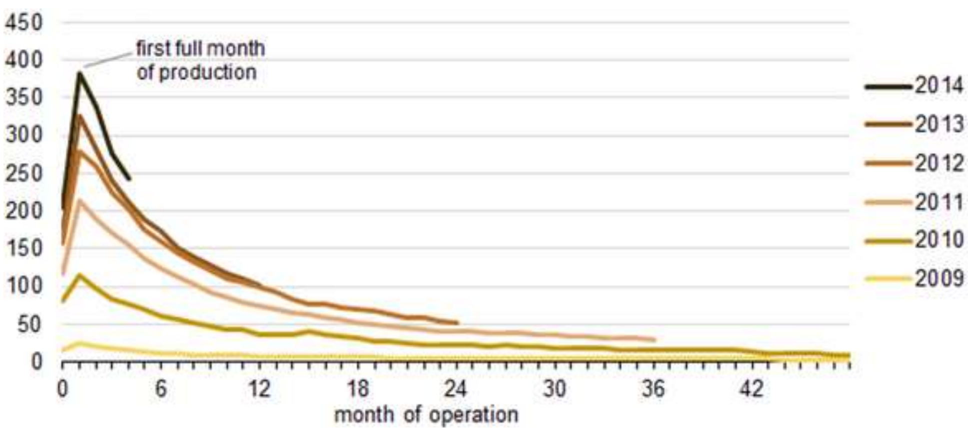
Fig 10: US Horizontal Rig Count



Source: Baker Hughes, PSR

Why is that so? Oil wells, once they are drilled, have a low "lift" cost. That is, the cost of drilling is a sunk cost, so one will produce crude oil because it is still profitable to do so. Thankfully, most shale plays are characterized by their steep decline production curve (chart below).

Fig 11: Average oil production per well during first 48 months of operation (bbl/day)



Source: EIA

Initial high flow rates decline on an average rate of >70% in the first year and gradually tails off to low daily production rates for a long period of time.

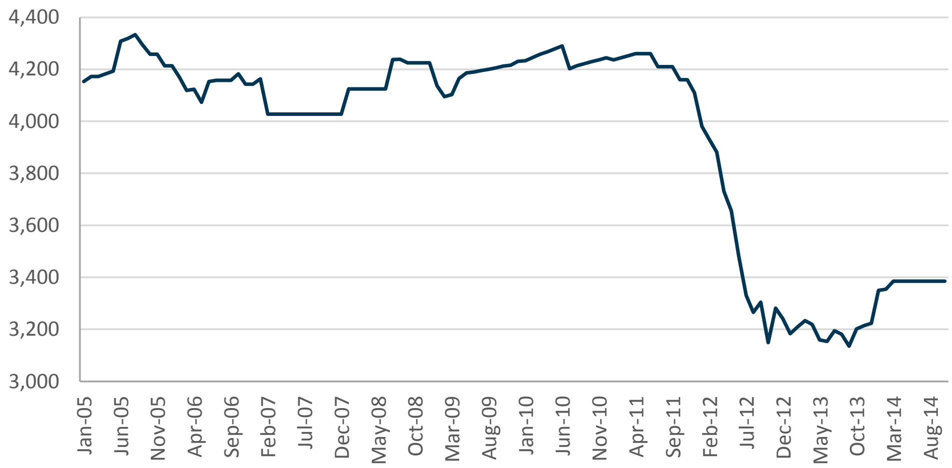
We believe that the decrease in rig counts will eventually lead to reduction in crude produced, but there will be a lag time. If insufficient new wells are drilled to produce at incrementally higher amounts than the decline we mentioned above for existing wells, it is an eventuality that production volumes might decline if oil prices remain low, not withholding the so called "fracklog (unfracked drilled wells)" that might come back online should oil prices return to favourable levels.

While each well has its own specific break-even price of oil, US oil can be characterized as "high cost" oil, where country-wide upstream activity tails off sharply at below US$70/bbl.

Wildcards: Politics

Outside of the US, eyes are now on the progress of nuclear negotiations between Iran and world powers where a potential lift/reduction in sanctions could see an influx of a few hundred thousand barrels of oil a day into the already perceived oversupplied market. However, this is largely contingent upon Iran accepting accountability on their nuclear program.

Fig 12: Iran oil production (Mbbl/day)



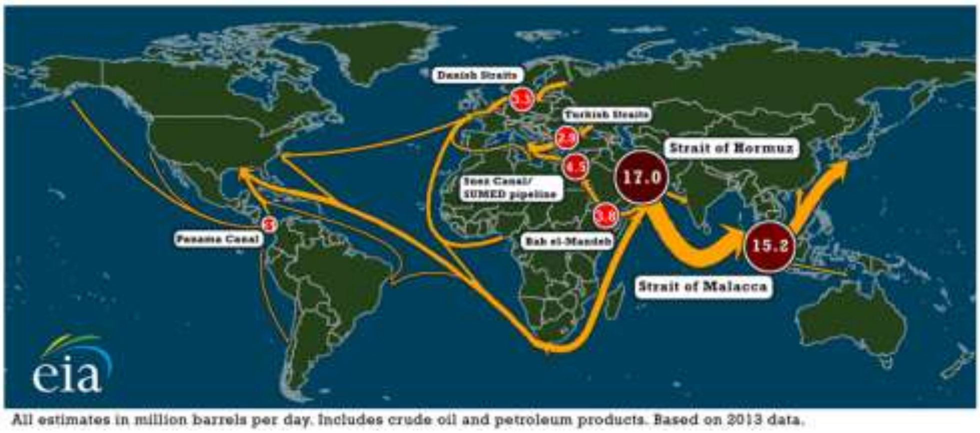
Source: EIA

This at first glance is clearly a key depressant for Brent prices. Iran's oil minister has also indicated that if international sanctions are lifted, 1MMbbl/day would be added to the country's crude oil production and exports in several months.

However, we think that with the layers of sanctions around Iran, we might not see significant progress from the negotiations by the end of March. We also need to consider Saudi Arabia's determined defending of its market share by refusing to cut production since last year. With the production ceiling of 30MMbbl/day of OPEC, Saudi and other members have been producing more since the sanctions. Now to carve up more of the pie for Iran should sanctions be lifted, we believe Iranian crude will not be welcomed in OPEC and resistance may be put up by Saudi Arabia.

We are also of the view that Saudi Arabia is motivated in quashing oil prices to take a blow at Iran's economy, to curb its ambition of becoming a regional power through its nuclear power plants and placing itself in a threatening position to Saudi Arabia in the ongoing conflict between the Sunnis and the Shiites in the Middle East. Saudi Arabia and Sunni allies have also reportedly launched air strikes against Shiite elements in Yemen on 26th March. There is now worry over whether the Bab el-Mandab chokepoint near Yemen might cause transportation disruption to supply. We do not think that disruption will materially affect global supplies as only 3.8MMbbl/day is estimated to pass through the chokepoint, representing ~4% of global daily supply. However, a broader Sunni/Shia conflict is a potential risk.

Fig 13: Daily transit volumes through world maritime oil chokepoints



Source: EIA

Key focus points and risks

- We believe we will be seeing $45 WTI prices in the next one month
- Storage capacity at Cushing might be breached by early May if current runrate continues. Market is currently ignoring the 25th March EIA data which points to continuous crude stock pileup, no slowdown in production and imports holding up. These are negative data points that will drive prices down from the current level
- Refining activity pickup in summer and inevitable slowdown in production will push prices above our target $45 after May
- Lifting of Iran sanctions are unlikely and Yemen airstrikes do not appear to be material factors now, but could potentially broaden into important developments
- Key risks to our target would be lower than expected crude inventory buildup, slowdown in imports and escalation of conflicts in the Middle East. And as always, crude oil is heavily influenced by sentiment.

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