

23rd National Energy Conference

The outlook for oil – 2019 and 2020

Dr Leo P. Drollas

*Independent Energy
Consultant*

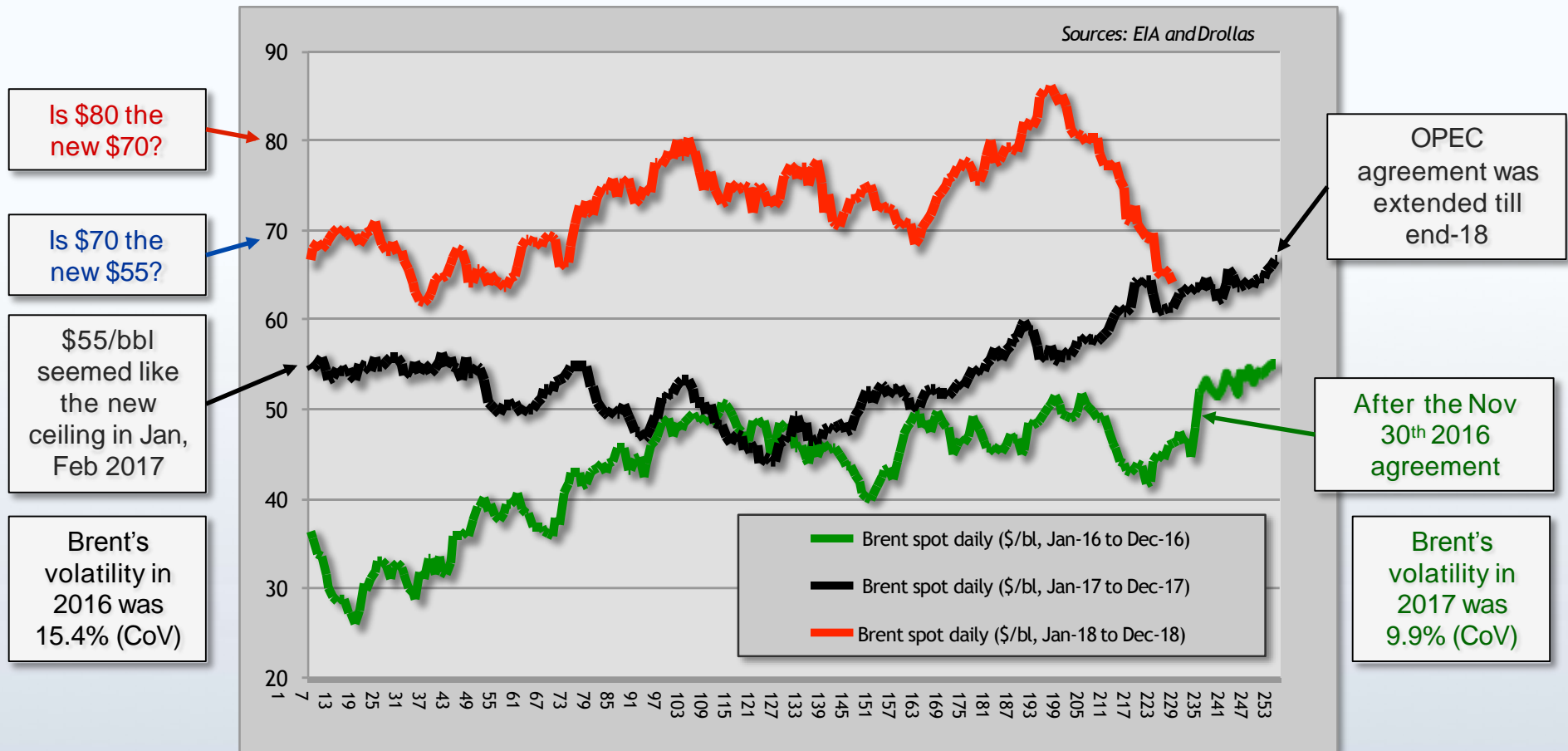
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Key issues

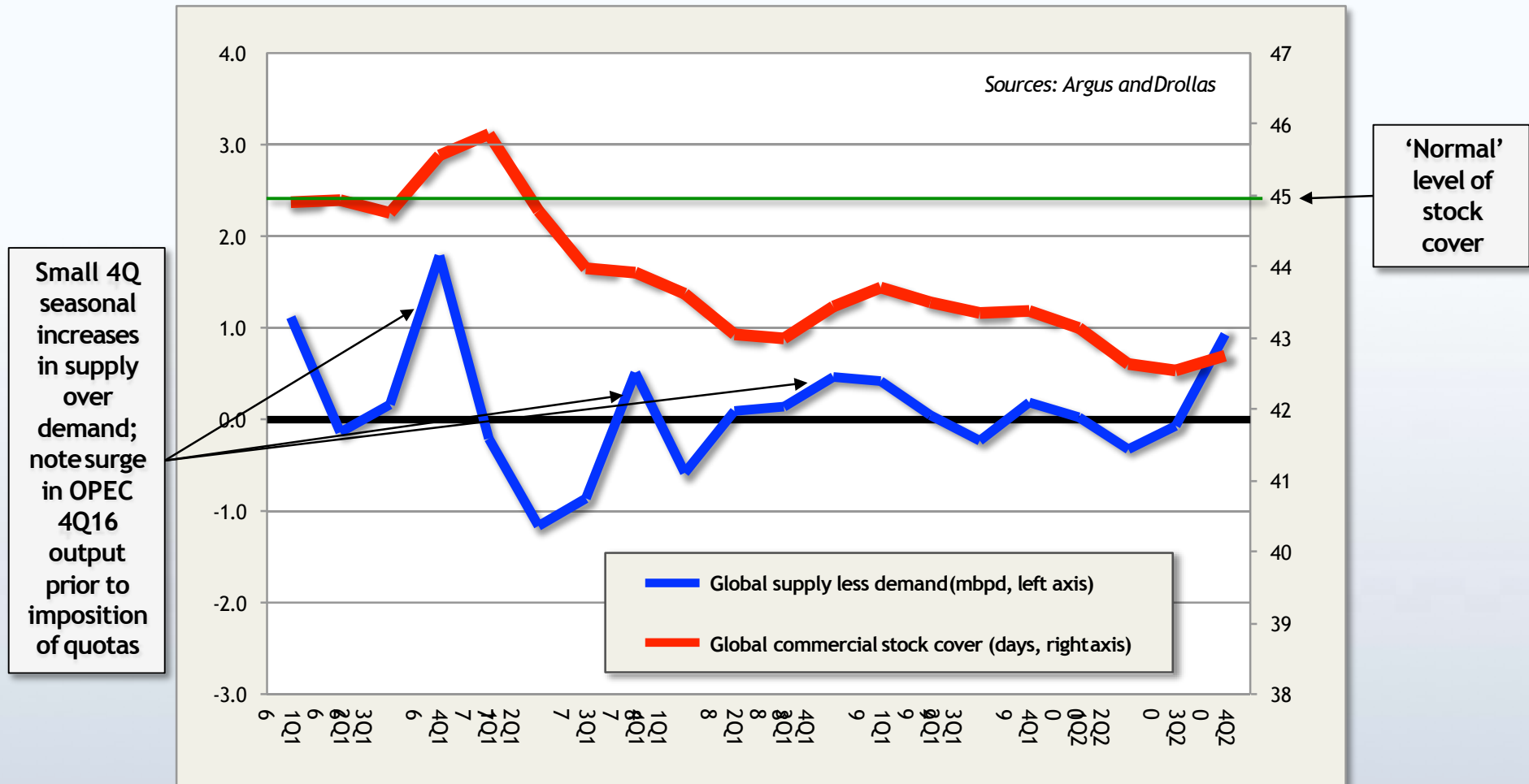
- ◆ There has been a sudden fall in the oil price, Brent dropping well below \$70/bbl in response to rising commercial stock cover, especially in the US. Will this weakness continue and for how long?
- ◆ Saudi Arabia is once again leading discussions about curtailing oil production. Its finances have not yet recovered fully, despite much higher oil prices, leaving the Kingdom in need of measures to shore up these prices. Will it find enough support though?
- ◆ US oil production has accelerated once more, having received a strong impetus from higher oil prices over the last few years. Can the US' oil output surge be sustained?
- ◆ The global economic outlook is darkening (China's slowdown, the US' trade wars, the US Fed's tightening monetary policy, the Brexit endgame and the EU's sluggish growth), which will slow up oil demand growth, but by how much?
- ◆ The IMO's worldwide ban on high sulphur fuel oil from January 1st 2020 is the elephant in the room that the market does not yet seem to acknowledge. Will it boost oil demand as much as some expect?

Comparing daily Brent prices in 2016, 2017 and 2018



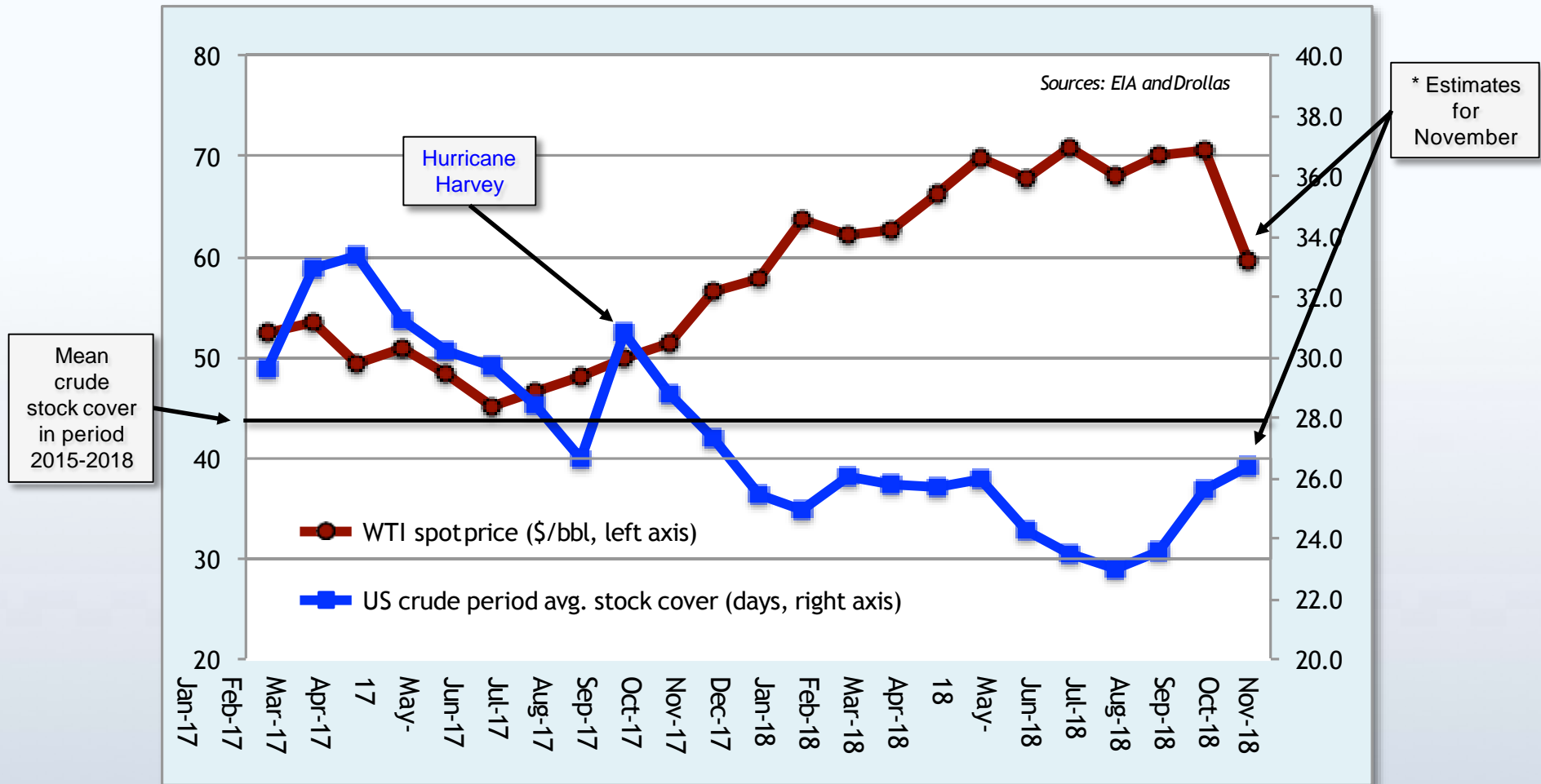
- OPEC's Nov-16 agreement was the key event of recent years, setting the oil price on a rising trajectory from the low \$40s to the \$55/bbl level.
- In Nov-17, OPEC extended its output pact till the end of 2018 and the market responded by pushing Brent to \$70/bbl. It weakened subsequently, but then rose to exceed \$80/bbl, under pressure from geopolitical considerations (US sanctions on Iran).
- Saudi Arabia and Russia loosened their output strings from June 2018 onwards; Brent is now in the mid-\$60s due to stock cover increases and fears about global economic growth.

Global balances and commercial stock cover [1Q16 - 4Q20]



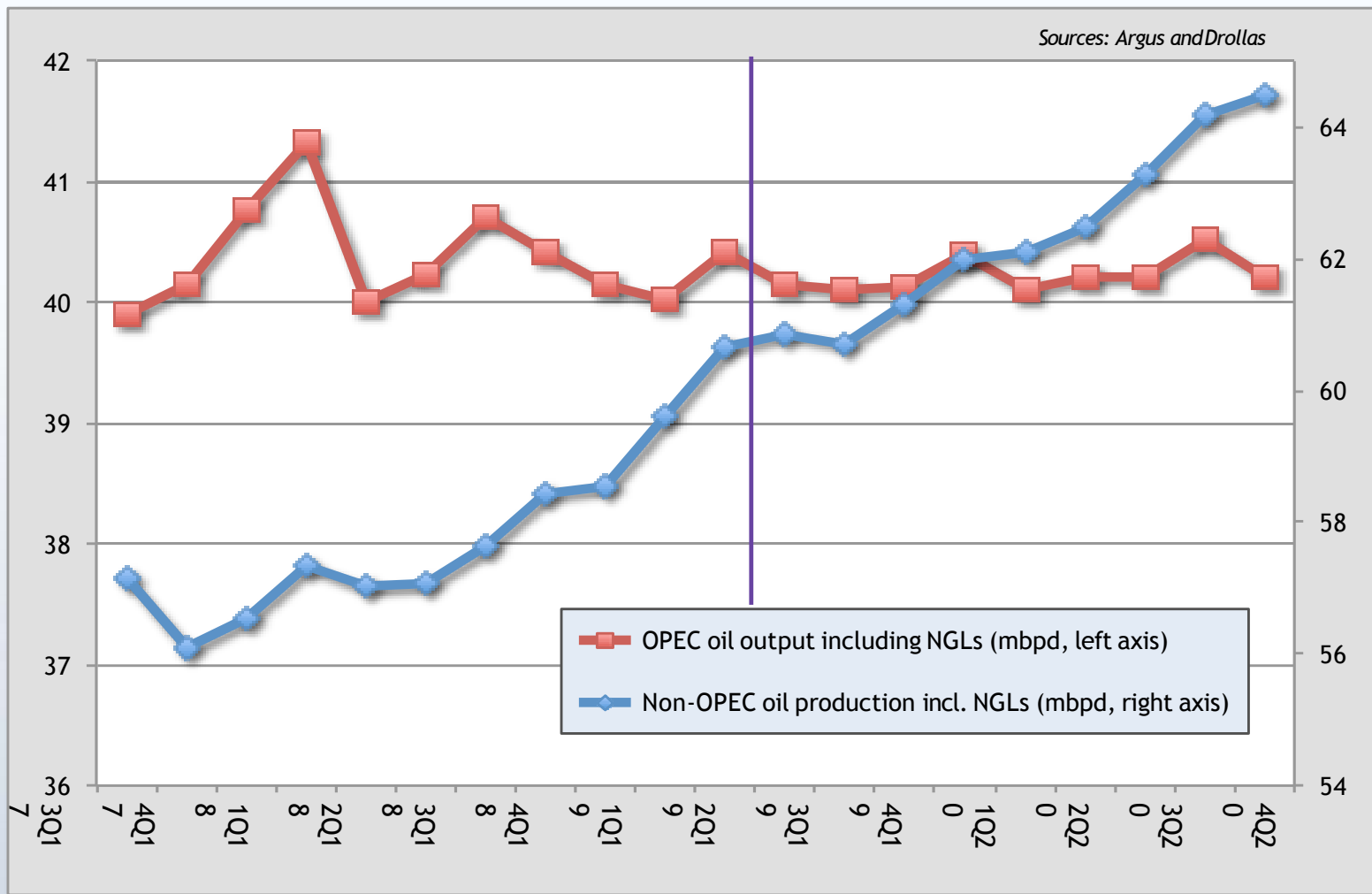
OPEC's output curtailing pact with Russia and others in late November 2016 managed at last to bring global commercial oil stock cover down below the 'normal' 45-day level. Stock cover has been rising in 4Q18, which will continue in 1Q19, but will decline thereafter, especially under the influence of the IMO ban on high sulphur fuel oil.

Monthly US crude oil stock cover [Jan-17 to Nov-18*]



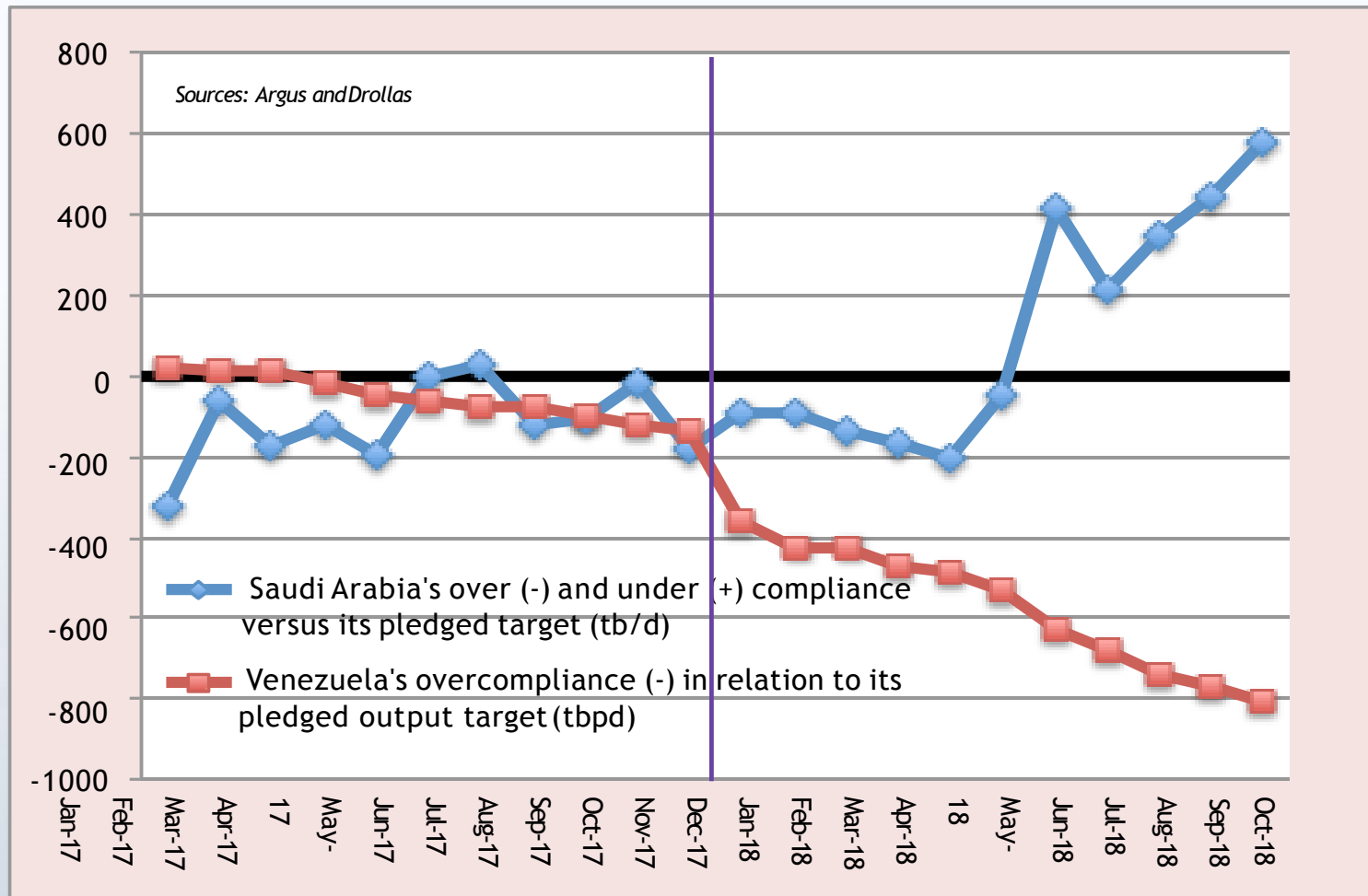
The US is the only country that collects accurate data on commercial stocks of crude oil on a weekly basis, which is why this metric is widely followed and has a significant bearing on movements in the price of oil – especially WTI. In general, the lower the stock cover, the higher the price of crude oil, all other things being equal. Lag effects and influences on WTI from the international market for oil, exemplified by movements in the price of Brent, need also to be taken into consideration.

A comparison of OPEC and non-OPEC oil production



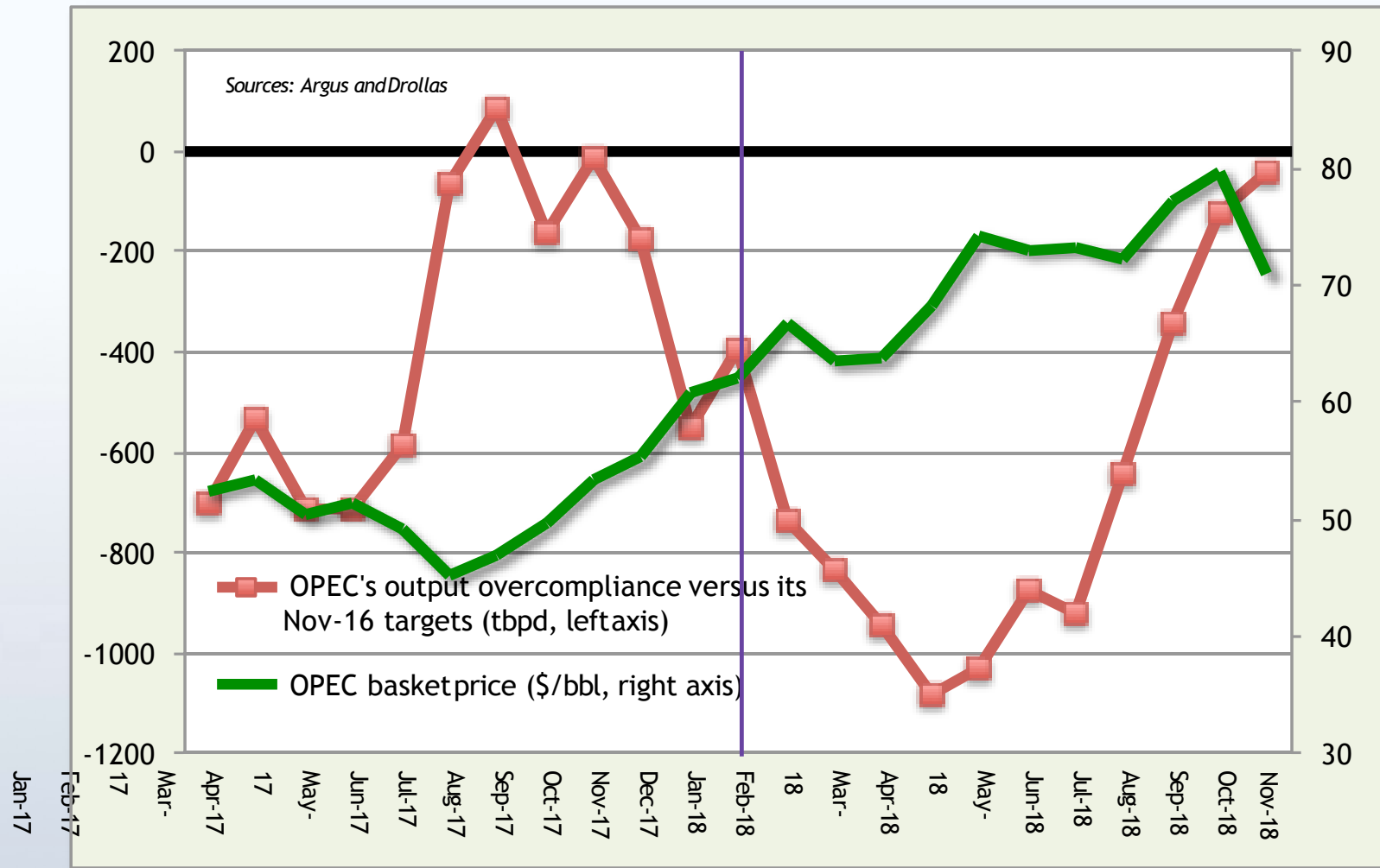
Low oil prices during 2015 and 2016 brought about stagnation in non-OPEC oil production, but the subsequent recovery in oil prices caused non-OPEC output to surge. This surge is likely to continue, requiring OPEC to restrain its production in order to keep prices above \$60/bbl.

The Saudis were late in responding to the lost Venezuelan output



Venezuela usually pays scant attention to OPEC agreements. This time it over-complied to the Nov-16 pact, especially after Nov-17, but not intentionally, for its economy has imploded and its oil production has collapsed. Saudi Arabia, for its part, did little to compensate for the lost Venezuelan barrels until Jun-18, i.e. quite late in the day.

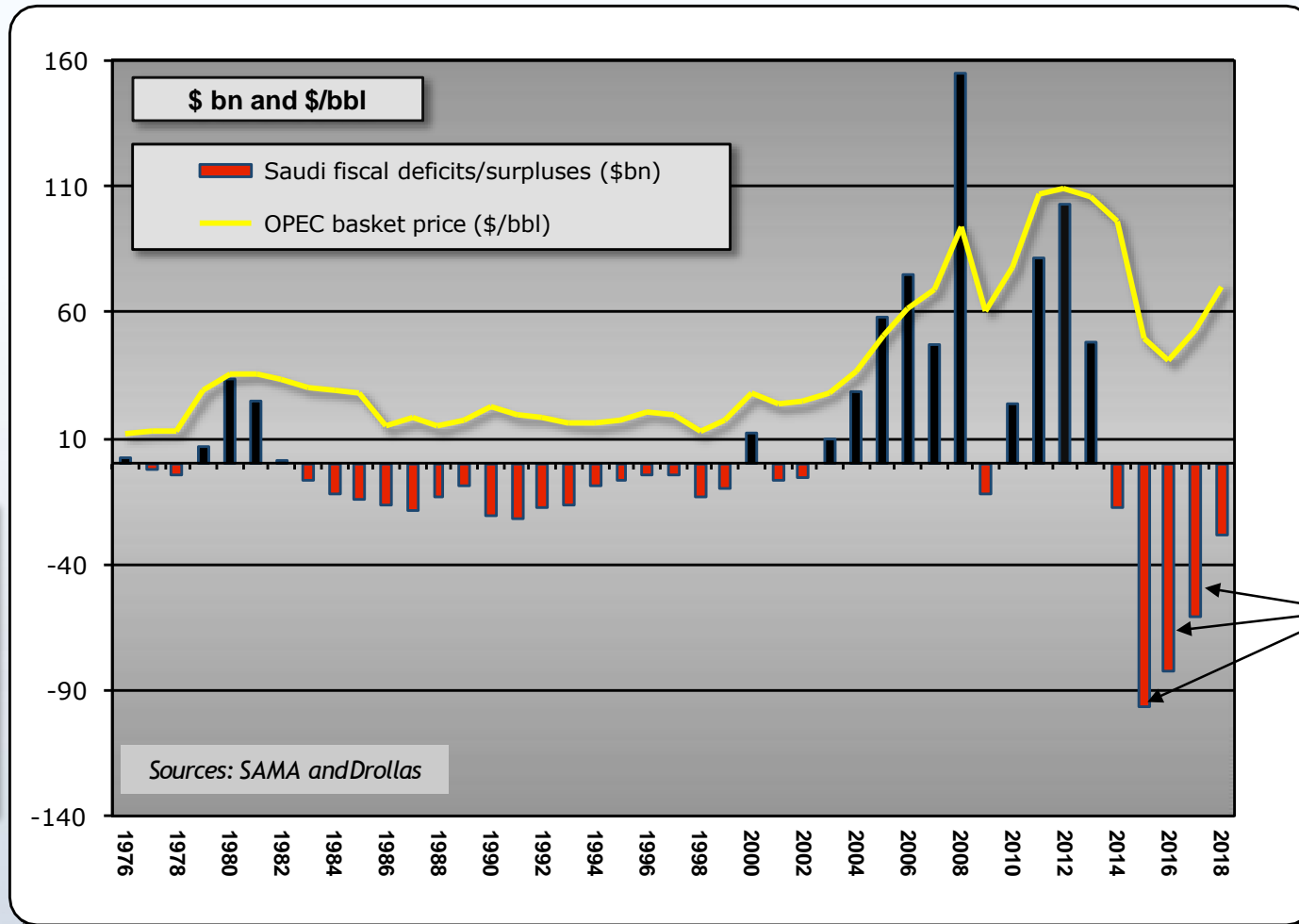
OPEC's over-compliance vs the Nov-16 targets and the price of oil



OPEC's Nov-16 agreement was instrumental in raising oil prices from mid-2017 onwards, especially when over-compliance with the pact increased drastically due to Venezuela's economic implosion. Led by Saudi Arabia, over-compliance has now all but ceased, weakening oil prices and raising questions about whether OPEC needs to curtail output once again.

Saudi Arabia's fiscal deficits are likely to remain

Saudi Arabia's fiscal balances from 1976 to 2017 with an estimate for 2018

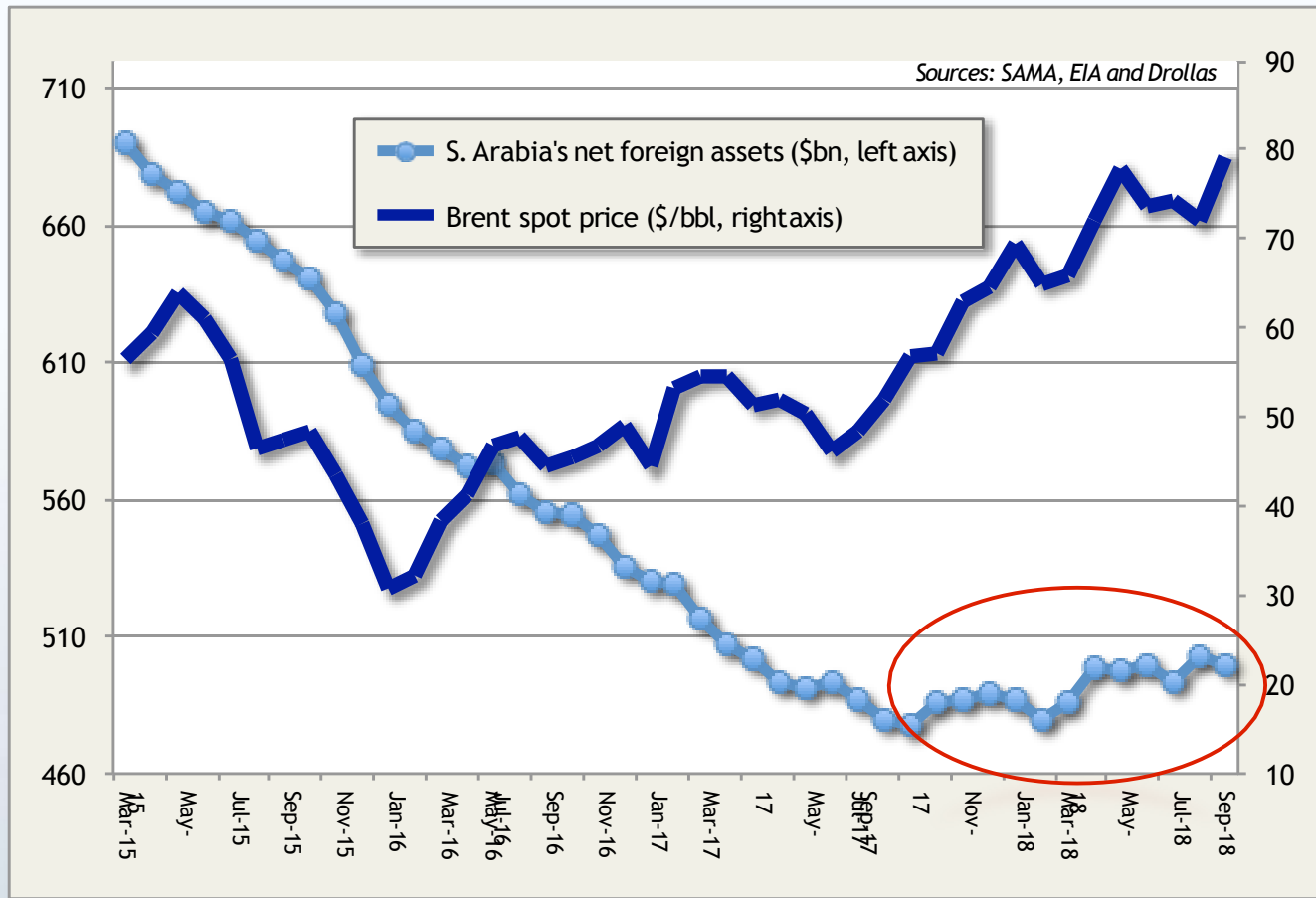


* Spending in 2017 exceeded the budgeted amount by 4%; the same is expected in 2018.

Largest Saudi fiscal deficits ever in 2015, 2016 and 2017

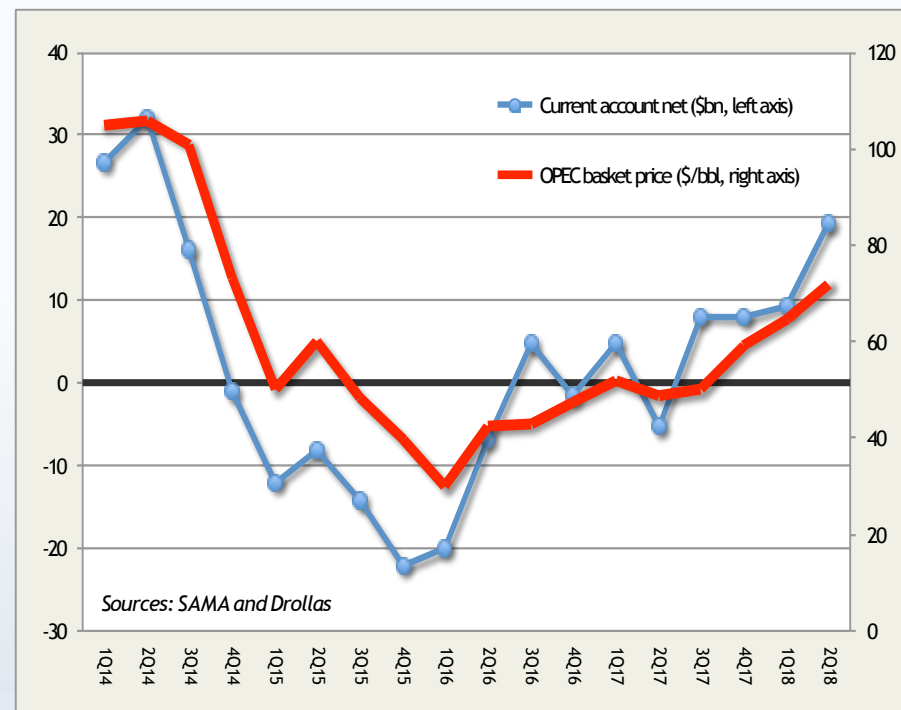
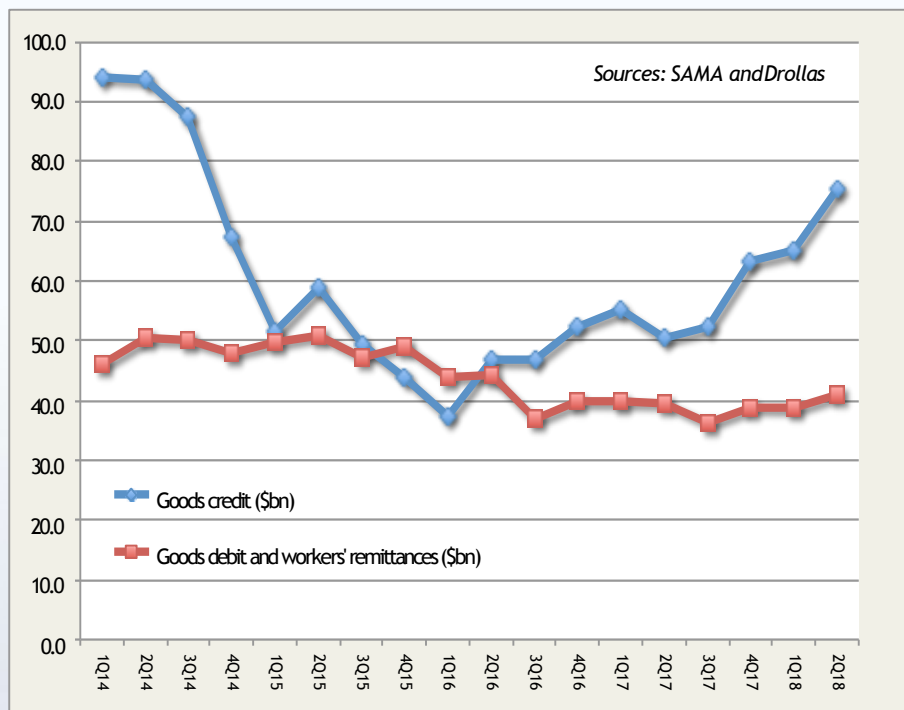
Saudi Arabia's experiment in Nov-14 of letting the price of oil find its own level, in an effort to reverse US shale oil's progress, resulted in its largest fiscal deficits going back to 1976. The Kingdom's deficit in 2017 was lower than in 2016 by \$21bn and is expected to decline further in 2018, despite likely spending increases*, because of much higher oil prices. Deficit elimination requires the OPEC basket to go above \$80/bbl and stay there.

S. Arabia's net foreign assets from Mar-15 to Sep-18



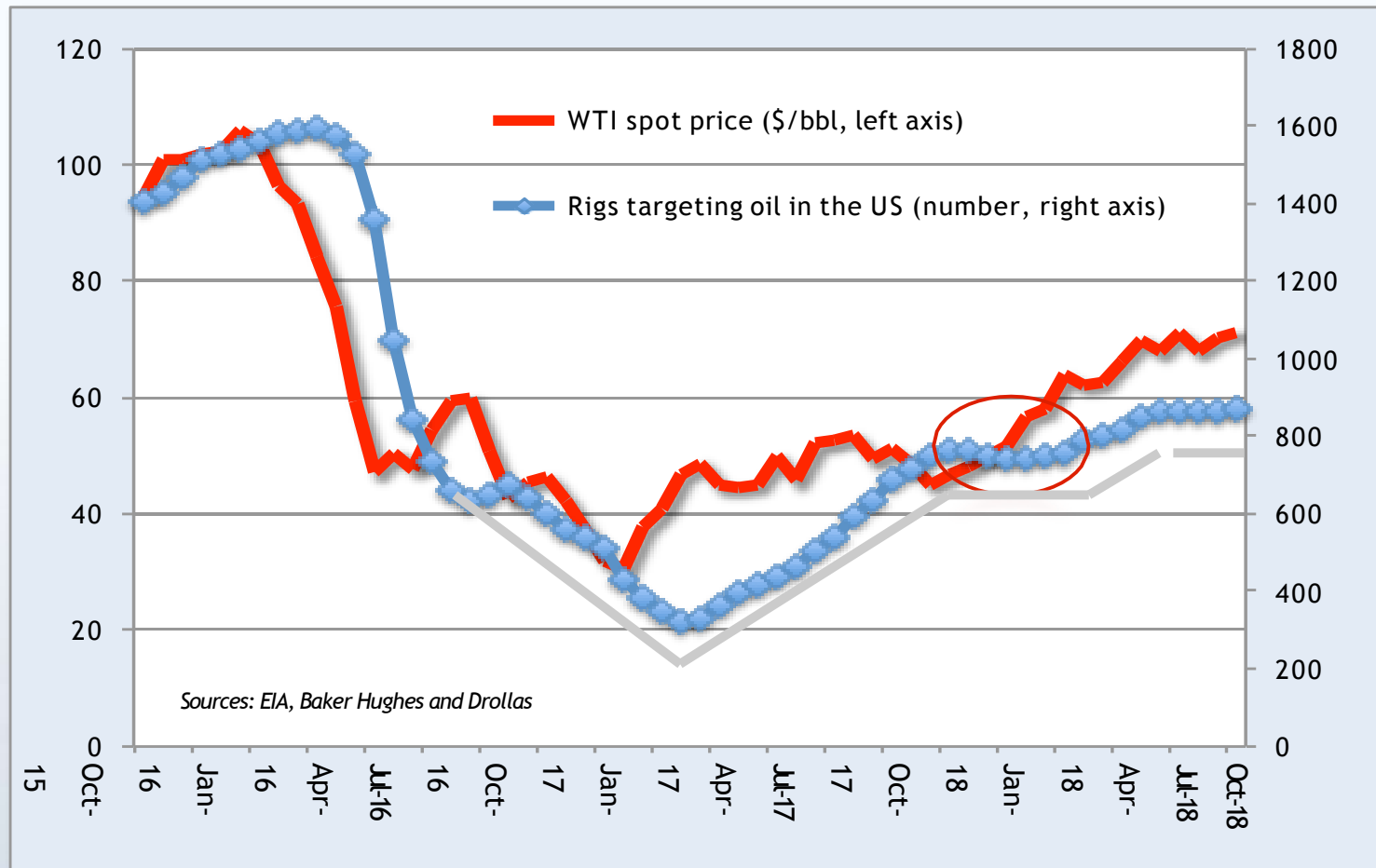
The Saudi government financed its huge fiscal deficits in 2015 and 2016 [\$97bn and \$83bn respectively] mainly by running down its foreign assets. Saudi Arabia's net foreign assets declined by \$224bn in the period end-2014 to Sep-2018, at an average rate of \$5.1bn per month. Since Jan-18 there has been an increase in net assets averaging \$1.2bn per month. The oil price surge since June 2017 has arrested the long downward move in the Kingdom's net foreign asset holdings.

Saudi Arabia's current account 1Q14 – 2Q18



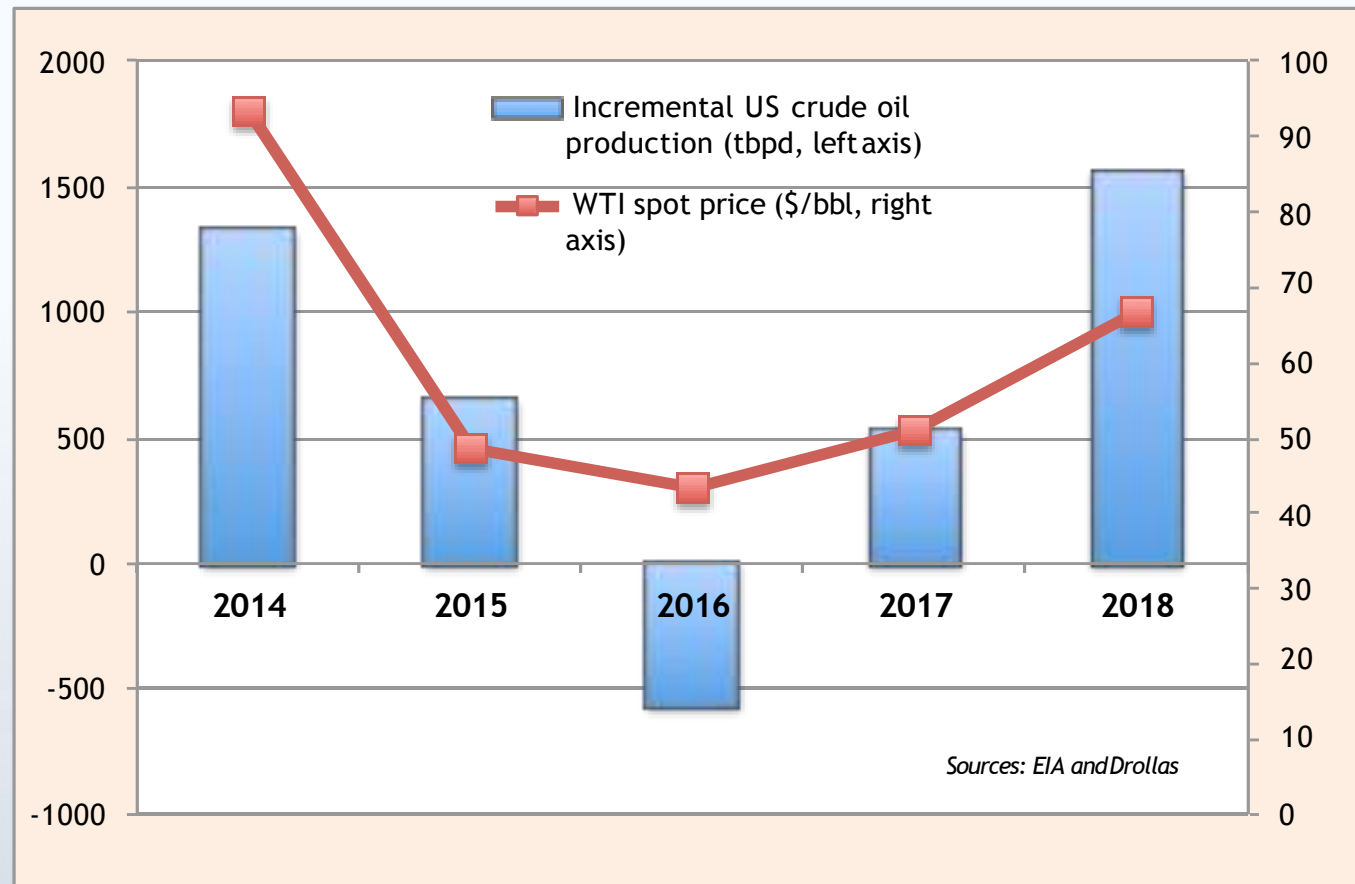
- For all of 2015 and the first half of 2016 Saudi Arabia's current account of its balance of payments was in deficit, reaching a peak in excess of -\$20bn per quarter in the winter of 2015/16. It returned to a modest surplus averaging \$3.8bn per quarter in 2017 and is \$14bn so far in 2018. The correlation between the Saudi current account and the OPEC basket price is 84%.
- Two negative items of the current account amount to about -\$40bn a quarter — imported goods and services and workers' remittances. These items are unlikely to decline much further unless the structure of the Saudi economy changes drastically, which is unlikely to happen soon despite the Saudi Crown Prince's valiant efforts with his *Vision 2030*.

Rigs targeting oil in the US and WTI spot : Jan-14 to Oct-18



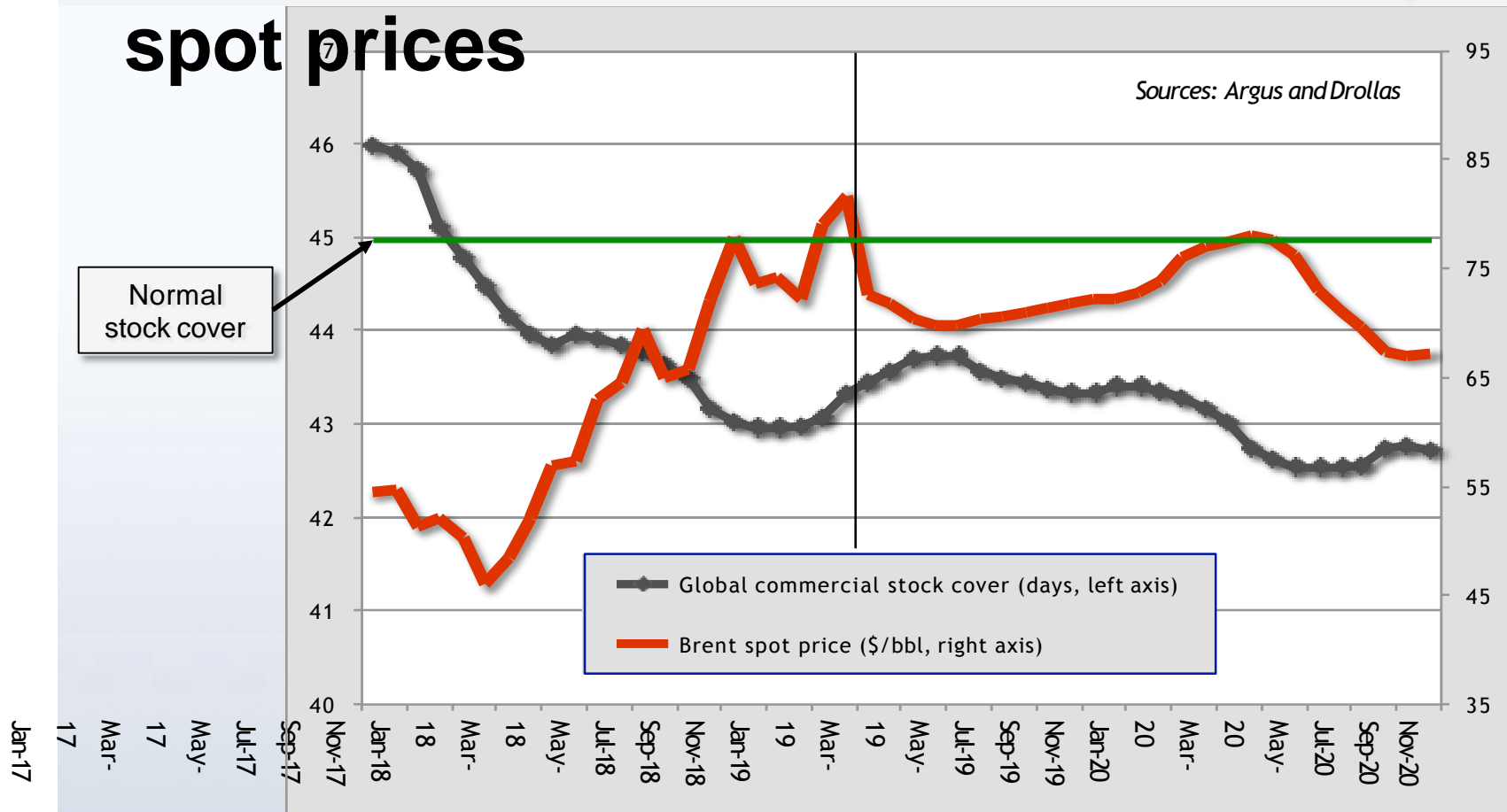
Rigs targeting oil in the US have risen steadily since the low point of 320 reached in May 2016, hitting 864 in August 2018. The price of oil's revival from the depths reached in Feb-16 has given the US upstream sector the impetus to hire rigs and re-energise its operations. However, price weakness between Feb-17 and Jun-17 led to a slight decline (3% from Jul-17's peak to Nov-17) in the number of rigs targeting oil (see the circled area). Rigs aiming at oil are on the increase again, following the oil price's recovery, and oil production should therefore continue to rise, also because of the very high number of drilled-but-uncompleted (DUCs) wells in the US' seven shale plays. Note that 840 rigs in Mar-15 were associated with 9.6 mbpd, but 870 with 11.5 mbpd now.

Incremental US crude oil output and WTI : 2014 - 2018



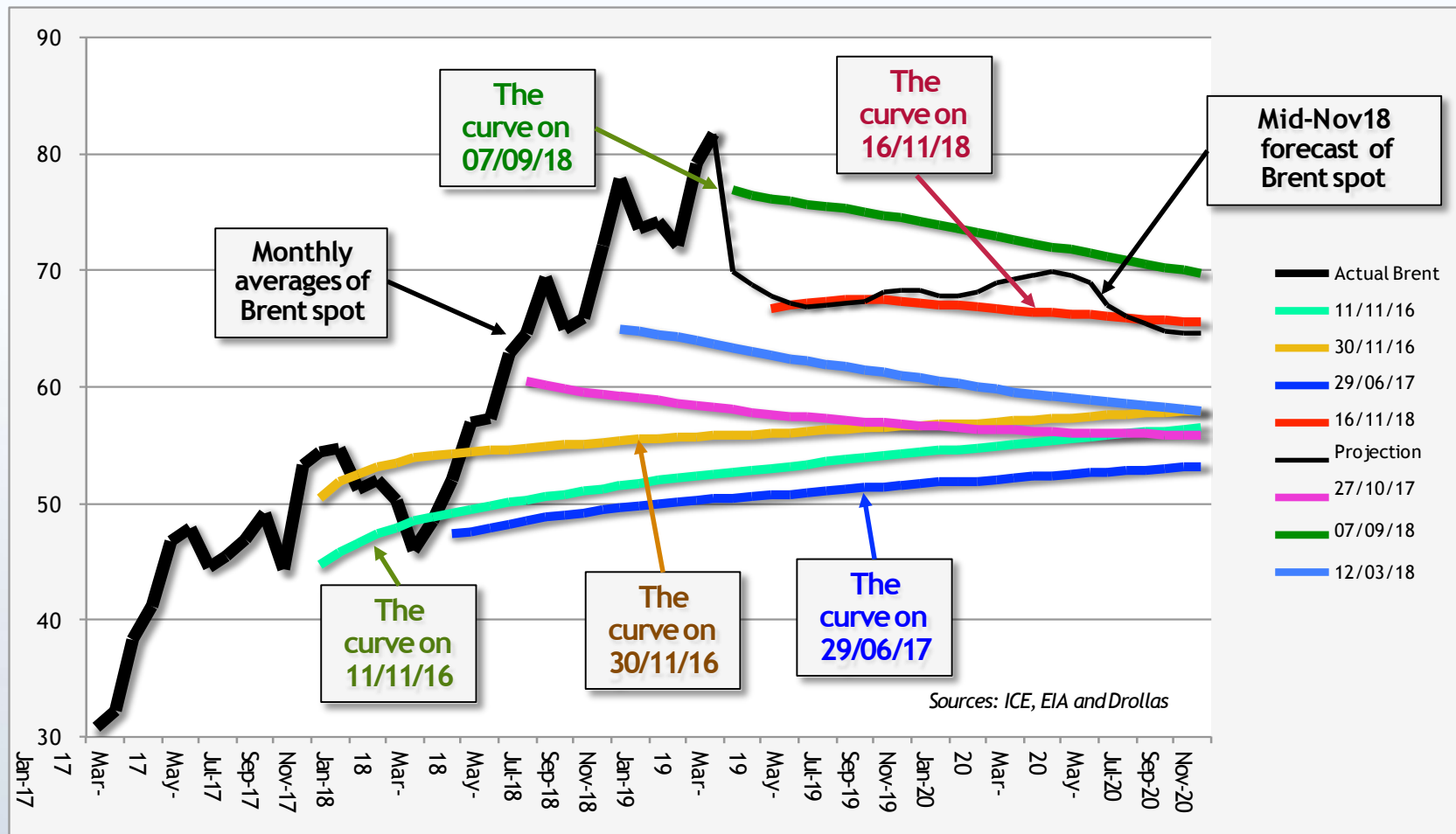
- As expected, incremental US crude oil production is influenced by oil prices.
- The US upstream sector managed to increase output in 2018 by more than in 2014, when oil prices were \$27/bbl higher.
- This was achieved by curtailing costs by 30% and boosting the efficiency of operations, mainly in the shale plays and especially in the Permian Basin.
- Hedging at opportune moments can help to maintain cash flows at desired levels.

Global commercial stock cover and Brent spot prices



Stock cover is the main short-term determinant of oil prices. Rising cover is usually associated with falling prices and vice versa. However, this is not always the case, because what drives oil prices is the disequilibrium between actual and desired inventory cover. Desired cover depends on the need for oil to meet customers' requirements, but also on expectations, which are reflected in the forward curve. Global commercial cover has been declining since Feb-17 and is now 2 days' worth below normal levels. Cover is expected to rise till Apr-19 and then decline, due largely to the impact of IMO 2020 in 2H19 and 1H20.

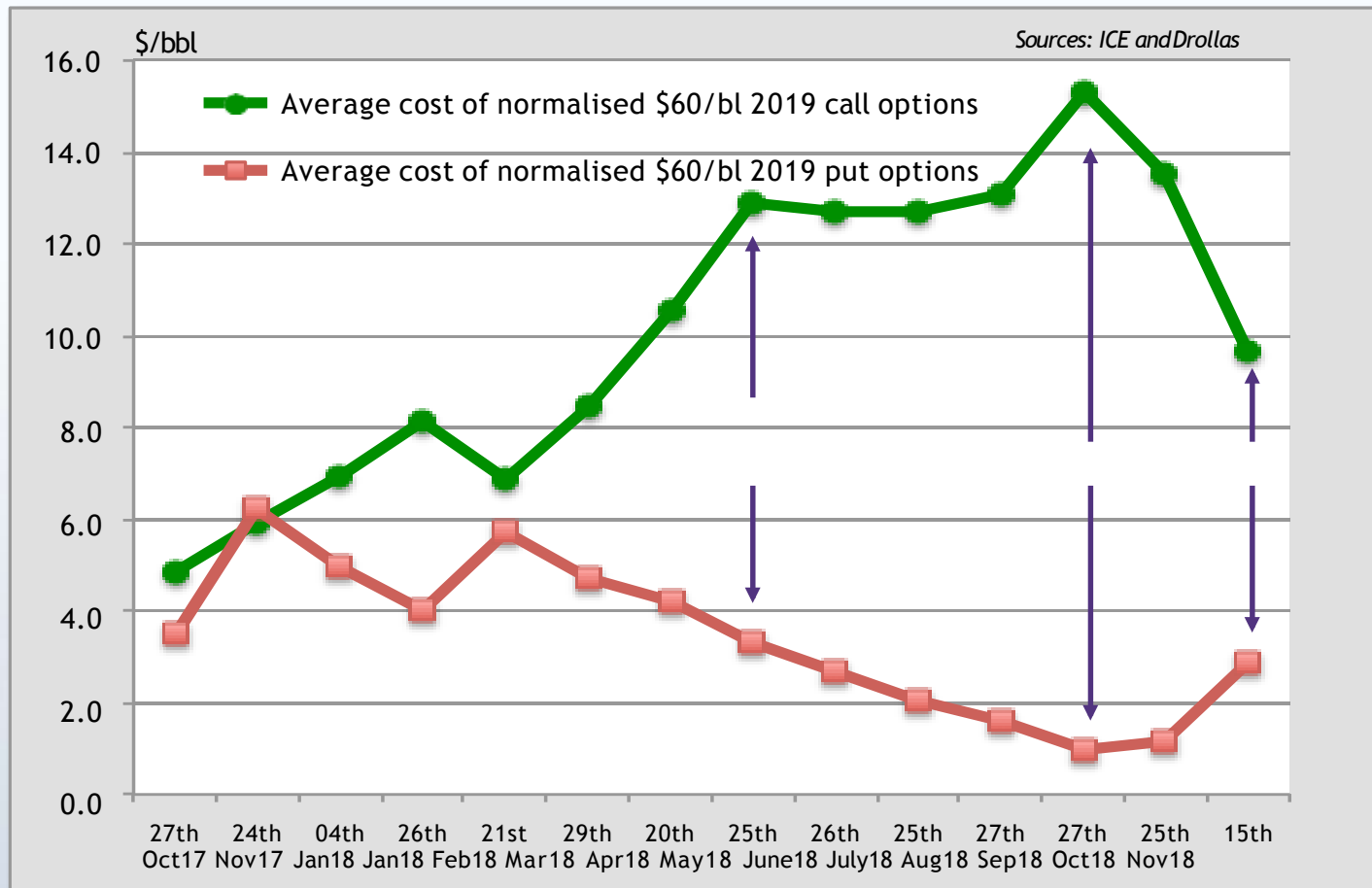
Brent forward curves - a good predictor of oil prices?



In general, futures prices are not a good predictor of spot prices, for they are market-clearing prices based on expectations about the future that take into account only knowledge about the oil market on a particular day. However, the true state of the market at any instant cannot possibly be known with a reasonable degree of accuracy, implying that forecasting is a dark art rather than a science.

Normalised costs per bbl of \$60 Brent options in 2019

The options costs are adjusted for the different monthly futures prices versus the strike price of \$60/bbl



The averaged normalised costs of \$60/bbl Brent call options in 2019 remain much more expensive than the normalised costs of Brent put options with the same strike price. However, note that the cost of \$60/bbl calls, after rising substantially from March '18 onwards, dropped heavily between the end of Oct-18 and mid-November. Bullish sentiment in the options market regarding 2019, although still prevalent, weakened considerably just recently along with the spot price.

The perils of prediction ...

“ With the depletion of fossil fuels I think it very likely that automobiles powered by internal combustion engines will be with us for at most a few decades longer. ”

– Astronomer Carl Sagan in *‘Broca’s Brain: the romance of science’* [1974]