

# Oil Markets: Whipsawed by Trump Wild Cards, Geopolitics, Fundamentals, and IMO 2020

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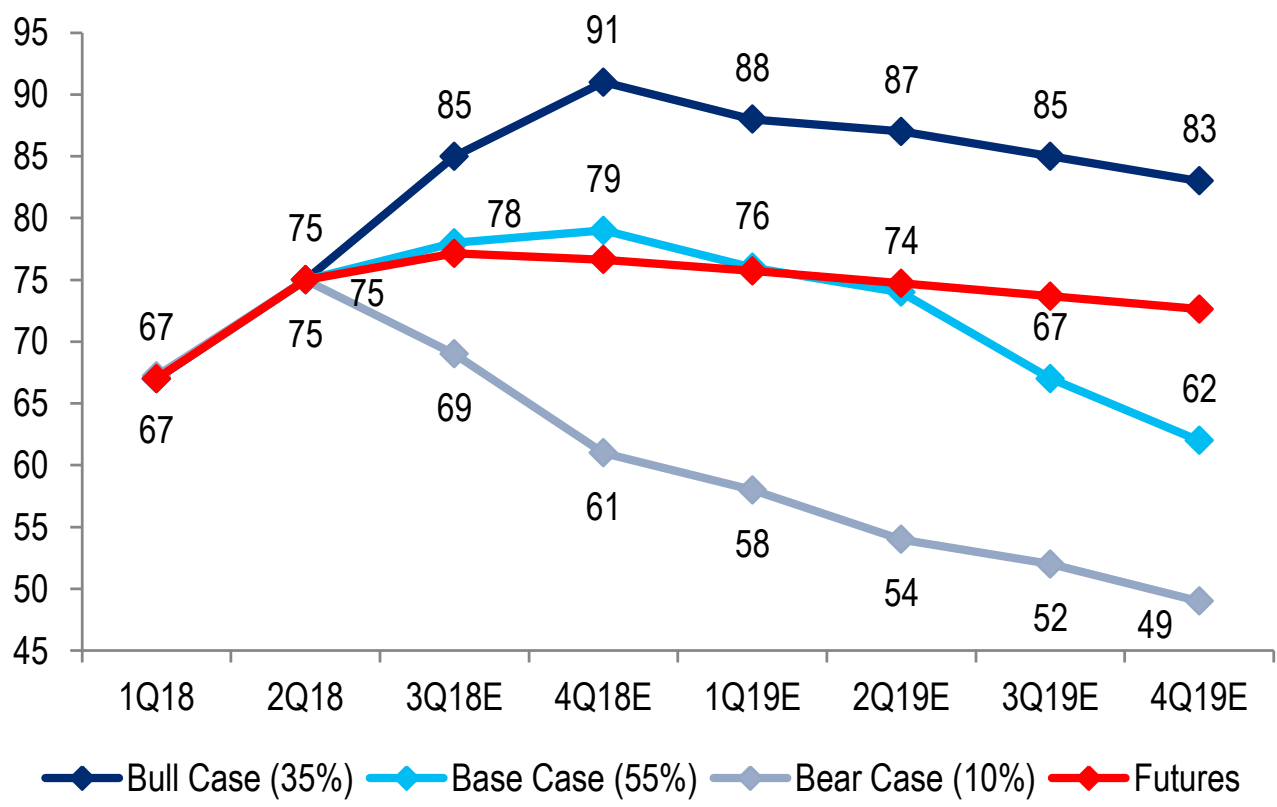
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**This presentation was approved for distribution on 31 August 2018; the disclosures in Appendix A1 are current as of the same date**

# Near-term price risks are skewed to the upside but longer-term to the downside



- All things being equal, non-OPEC supply growth should dampen prices through 2019, with inventories growing. Is OPEC+ up to the goal of buoying prices ?
- But with limited spare capacities and heightened geopolitical risks from Iran sanctions and potentially Iraq, Libya, Nigeria, and Venezuela, risks are skewed toward higher prices.
- Growing middle distillate demand globally, accompanying higher economic growth, plus IMO 2020 could push product prices higher, especially from end-2019 through 2020.

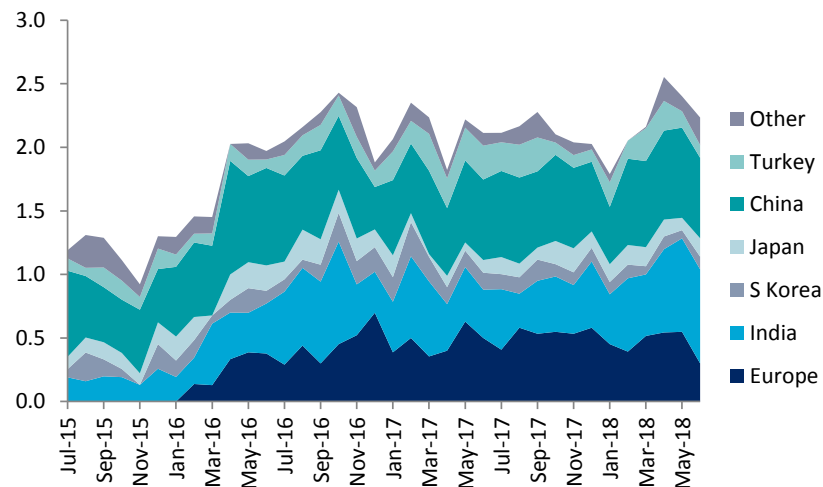
Source: Bloomberg, Citi Research estimates

# Is a supply gap emerging?

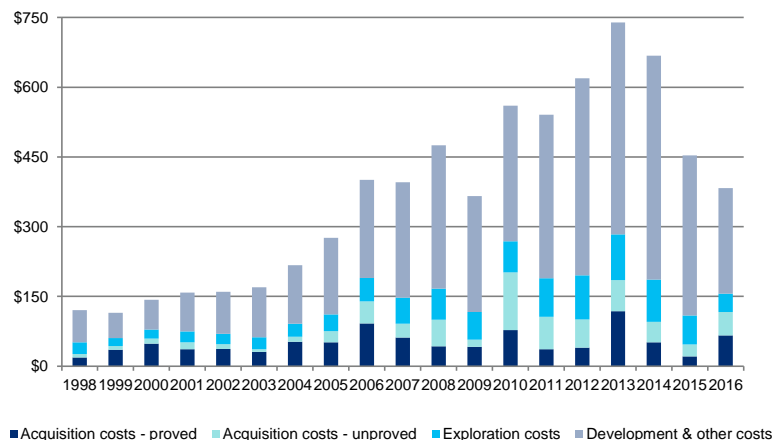
## OPEC+ spare capacity at June 2018 output? (k b/d)

|                         | June Output   | Production Capacity | Potential Spare | Effective Spare |
|-------------------------|---------------|---------------------|-----------------|-----------------|
| Saudi Arabia            | 10,489        | 12,250              | 1,761           | 511             |
| Iran                    | 3,810         | 3,810               | 0               | 0               |
| Iraq                    | 4,584         | 4,834               | 250             | 0               |
| Kuwait                  | 2,707         | 3,100               | 393             | 143             |
| UAE                     | 2,890         | 3,200               | 310             | 310             |
| Qatar                   | 622           | 622                 | 0               | 0               |
| Venezuela               | 1,321         | 1,321               | 0               | 0               |
| Nigeria                 | 1,511         | 1,711               | 200             | 0               |
| Libya                   | 650           | 1,000               | 350             | 0               |
| Algeria                 | 1,054         | 1,054               | 0               | 0               |
| Angola                  | 1,448         | 1,448               | 0               | 0               |
| Ecuador                 | 517           | 517                 | 0               | 0               |
| Congo (Brazzaville)     | 319           | 319                 | 0               | 0               |
| Equatorial Guinea       | 124           | 124                 | 0               | 0               |
| Gabon                   | 180           | 180                 | 0               | 0               |
| <b>Total Opec Crude</b> | <b>32,226</b> | <b>35,490</b>       | <b>3,264</b>    | <b>964</b>      |
| <b>Russia</b>           | <b>11,090</b> | <b>11,340</b>       | <b>250</b>      | <b>250</b>      |
| <b>Total Spare</b>      | <b>-</b>      | <b>-</b>            | <b>3,514</b>    | <b>1,214</b>    |

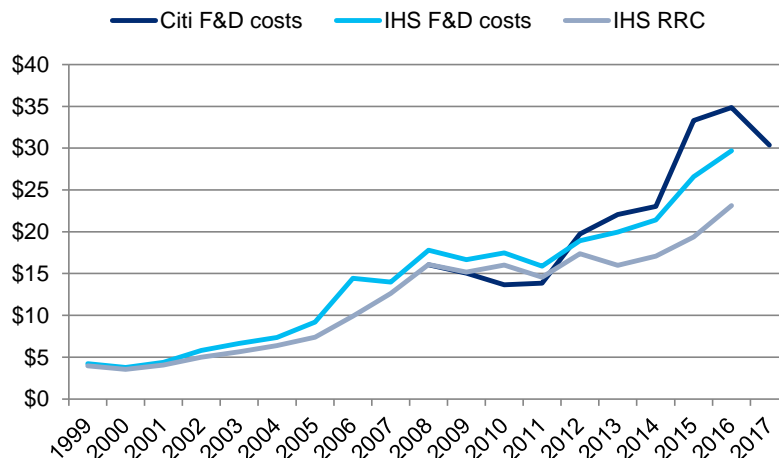
## Iranian oil exports by key importers countries (m b/d)



## Capex has been falling since the 2014 oil price crash but is recovering in 2018... (\$bn, complete data only to 2016)

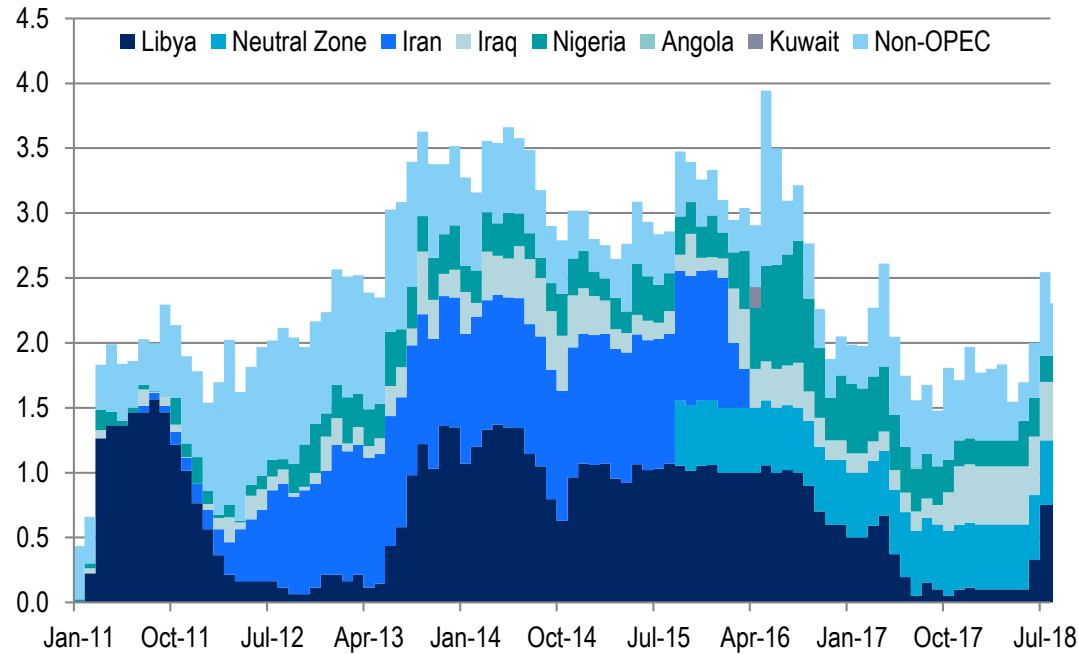


## ...and F&D and RRC costs are falling, efficiency of capex is rising, discoveries are accelerating (\$/boe)



# Even if not, supply disruption risks should keep markets volatile

## Global Oil Supply Disruptions (m b/d) and Petro-state Failure



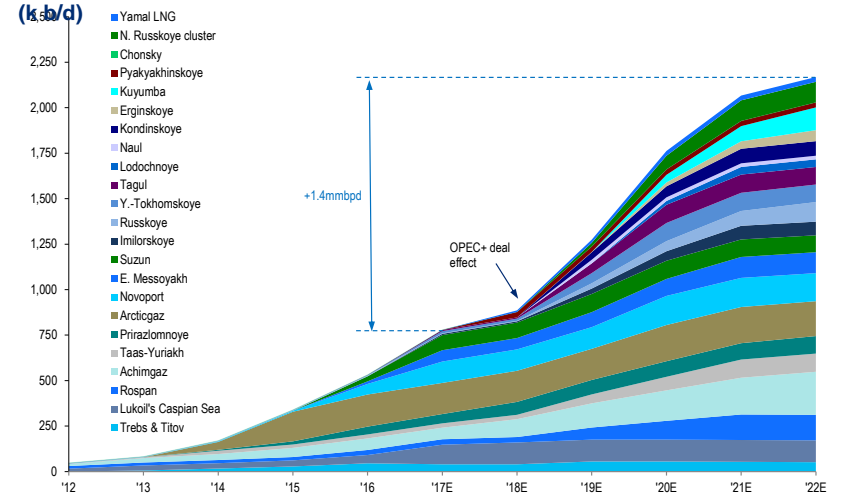
- Venezuela, Iran, and Iraq hold 49% of global reserves
- The OPEC growers – Saudi Arabia, UAE, Kuwait, Qatar
- The decliners – Venezuela, Angola, Iran
- The swingers – Nigeria, Libya, Iraq
- The rest – Algeria, Gabon, Equatorial Guinea, Ecuador

# The Camel and the Bear – uncommon bedfellows; limits to common interests?

**OPEC and Russia's crude oil production**  
(m b/d, 2014-19E)

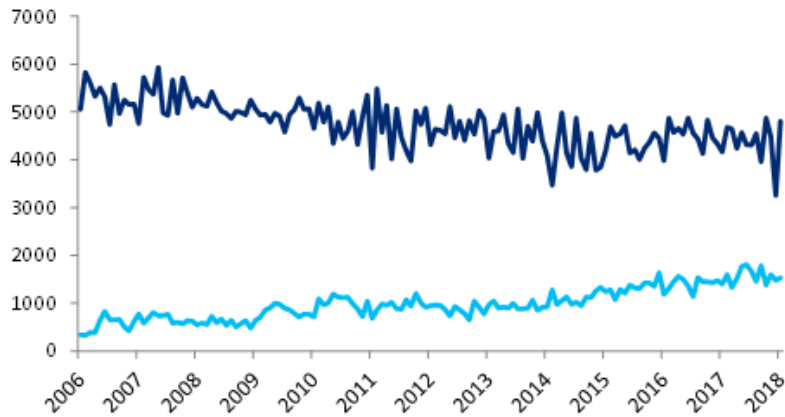


**Russia's greenfield list adds a ~1.4-m b/d tailwind to supply**  
(k b/d)



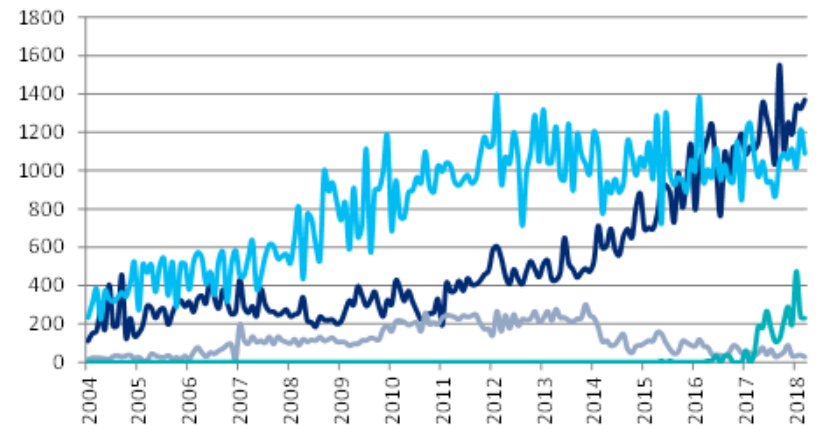
**Russian crude oil exports westward and eastward**  
(k b/d, 2006-18)

— Westward — Eastward



**China crude imports by selected countries**  
(k b/d, 2004-18)

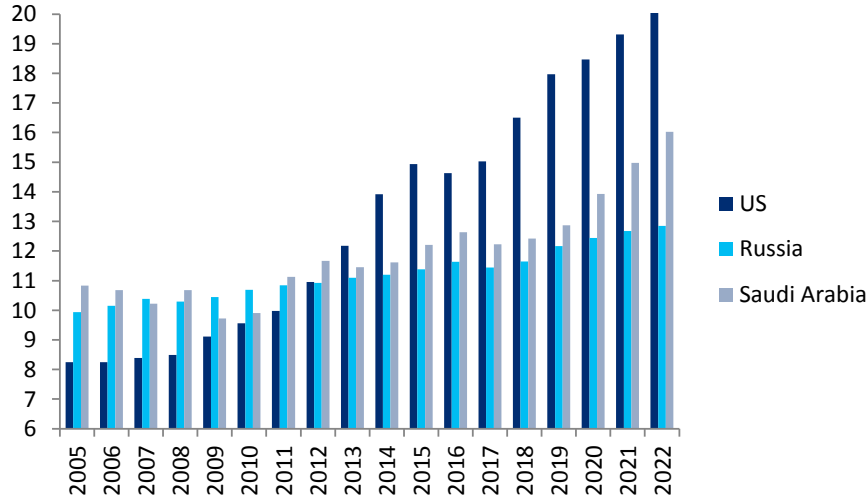
— Russia — Saudi Arabia — Kazakhstan — US



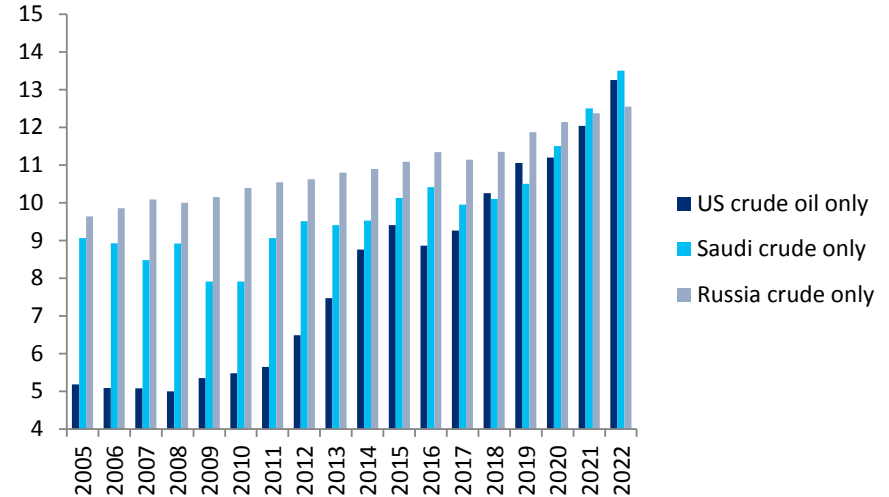
# The US, Saudi Arabia, and Russia are the Big Three of oil markets

The US, Saudi Arabia, and Russia—the Eagle, the Camel, and the Bear—are now the Big Three of oil markets, accounting for ~40-m b/d of the ~100-m b/d global liquid fuel market in 2018.

**US, Saudi, Russian production of liquid fuels\***  
(m b/d, 2005-2022E)



**US, Saudi, Russian production of crude oil only**  
(m b/d, 2005-2022E)

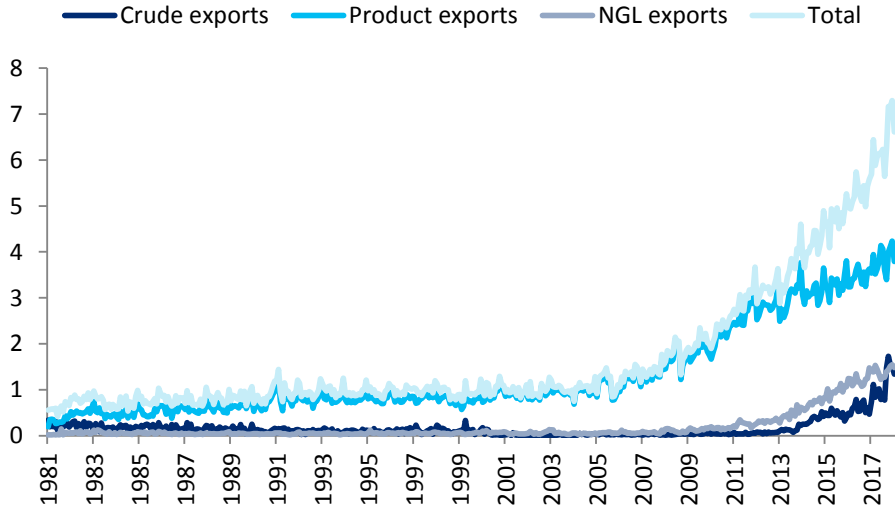


Source: IEA, EIA, JODI, Citi Research estimates \* Includes crude oil, petroleum products, NGLs, biofuels, refinery gains; Saudi projections are a high case, dependent on investment

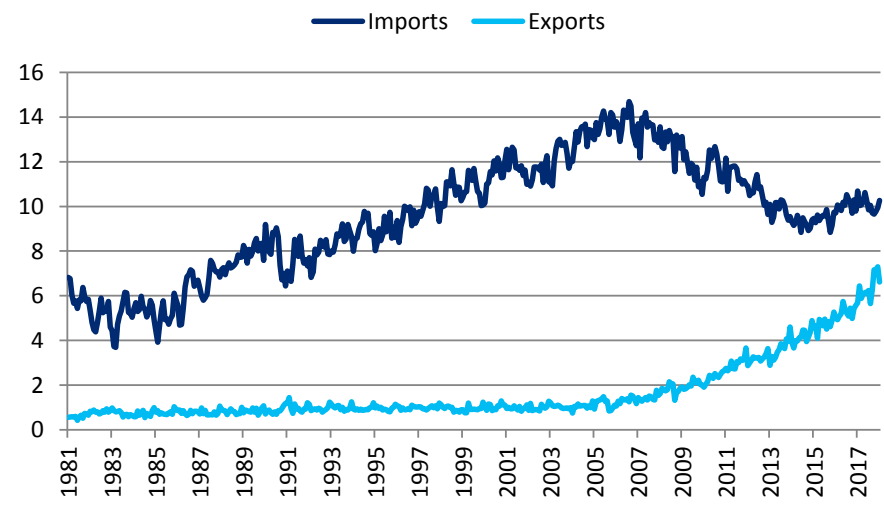
# The Rise of the Eagle, the Sultan of Swing

The US has gone from worrying about growing import dependence to seeking global market share as its crude oil, NGLs, and petroleum product exports surge. With short-cycle shale oil, the US is the new “Sultan of Swing.”

**US gross exports of crude, products, NGLs**  
(m b/d, 1981-2018)



**US gross imports and exports of crude, products, NGLs**  
(m b/d, 1981-2018)

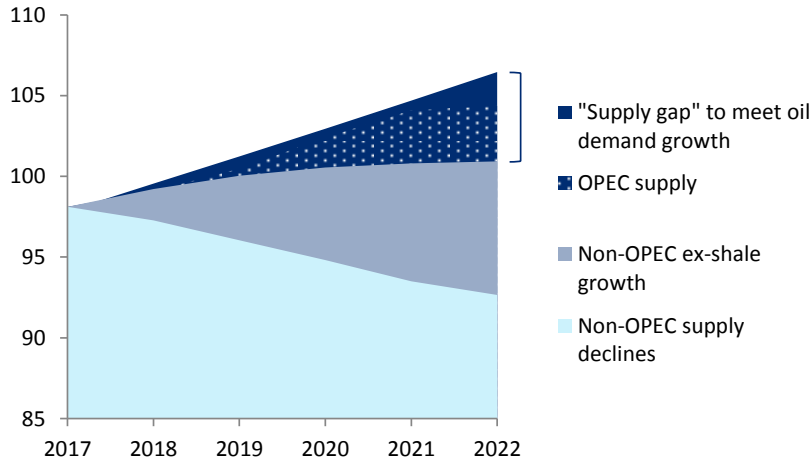


- Growth in US crude, NGLs, and product exports grew ~1.7-m b/d exit to exit in 2017 to 7.3-m b/d.
- In 2018, US liquids production is expected to grow ~1.5-2.0-m b/d, with exports following suit.
- The US has become a massive hydrocarbons hub for the world, focused on the Gulf Coast, and its position is set to grow as oil exports continue to rise; it is already exporting ~8-m b/d of crude and products, which should rise +5-7-m b/d by 2025.
- Add LNG and pipeline gas exports, where the US could supply 15-bcf/d by 2020, from 8-bcf/d in 2017.

# Medium-term oil: more a crowded market than a supply gap

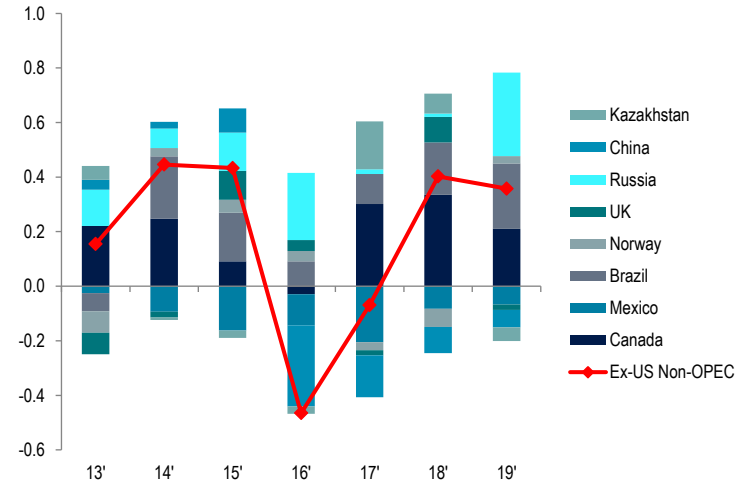
## Citi's 2017-2022E medium-term oil balances

"Supply gap" emerging looks well met by OPEC, non-OPEC, and shale over the next five years; market could be crowded



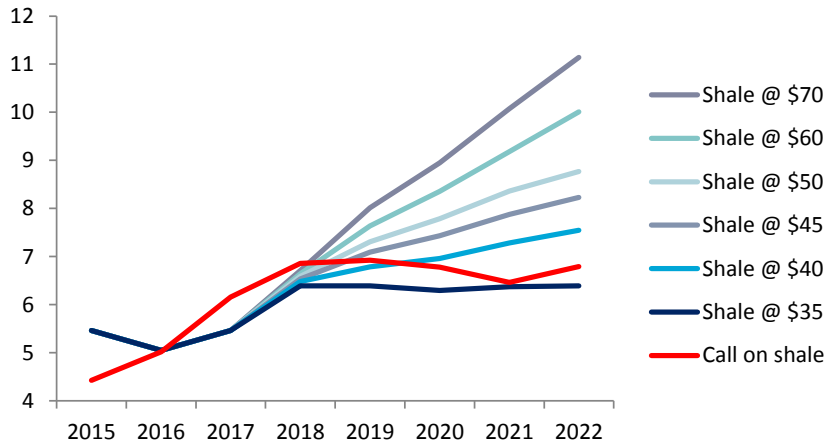
## Ex-US non-OPEC crude oil supply growth accelerating

(Year-on-year growth of annual average, 2013-2019, m b/d)



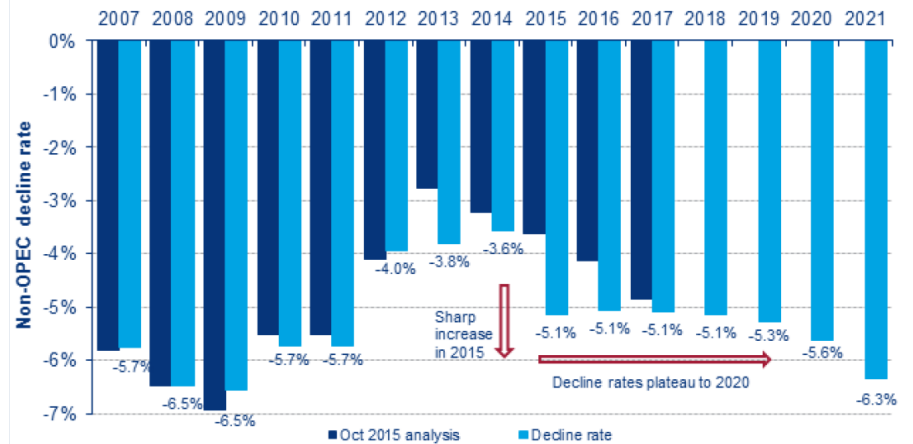
## Call on shale is limited, given crowded markets

OPEC expansions meet non-OPEC supply growth, leaving limited space for shale production growth, implying prices back in the \$40s (m b/d)



## Annual average non-OPEC decline rates (ex-shale)

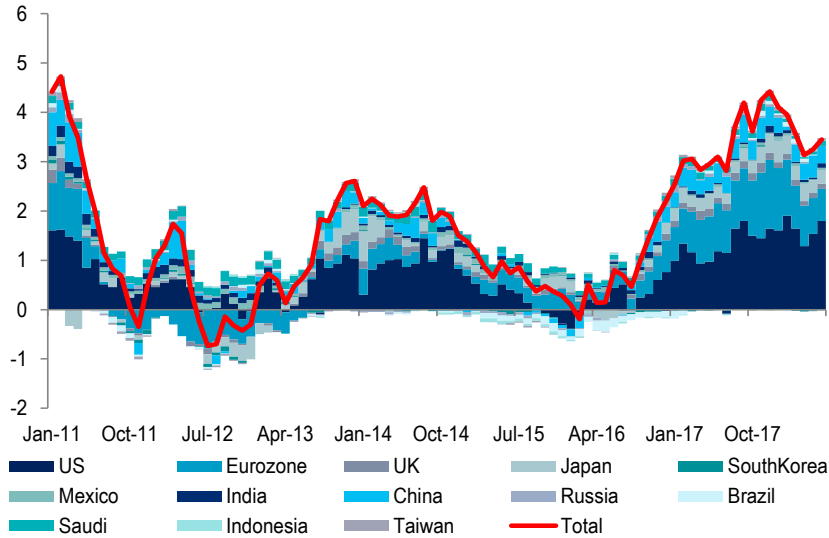
...have risen since 2014 but may hold steady this decade



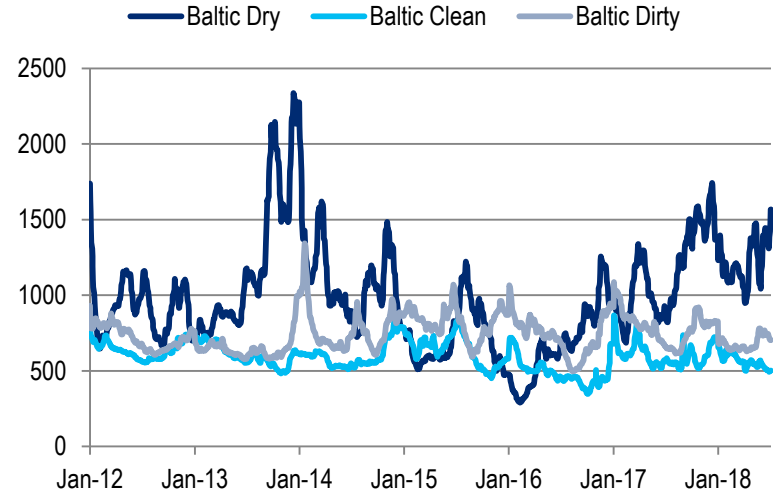


# IMO 2020 Prelude: Macro indicators support robust distillate demand growth

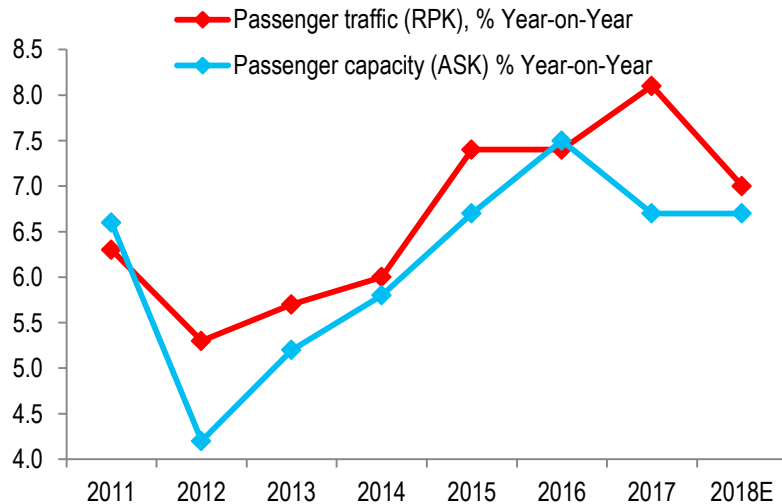
## Global Manufacturing PMI Weighted Index



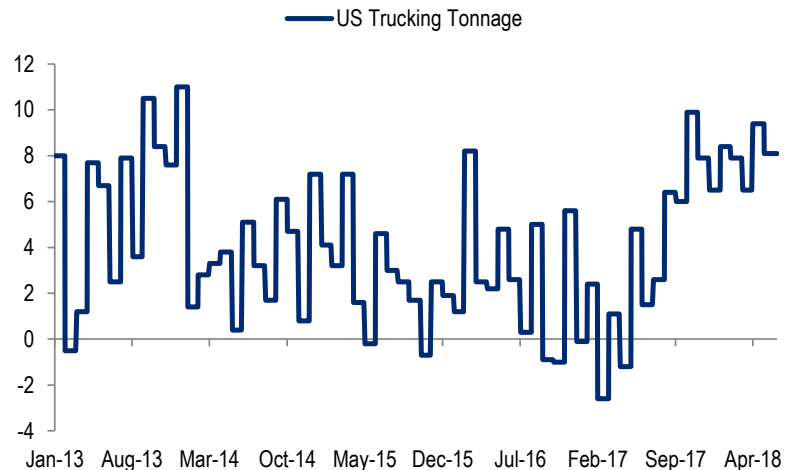
## Global Baltic Indices



## IATA Global Passenger Traffic – Jun-18 Update



## US Trucking Tonnage Y/Y Growth (%)



Source: Markit, ISM, World Bank, Baltic Index, IATA, ATA, Citi Research

# Key marine bunker fuel market scenarios and 2020 prices

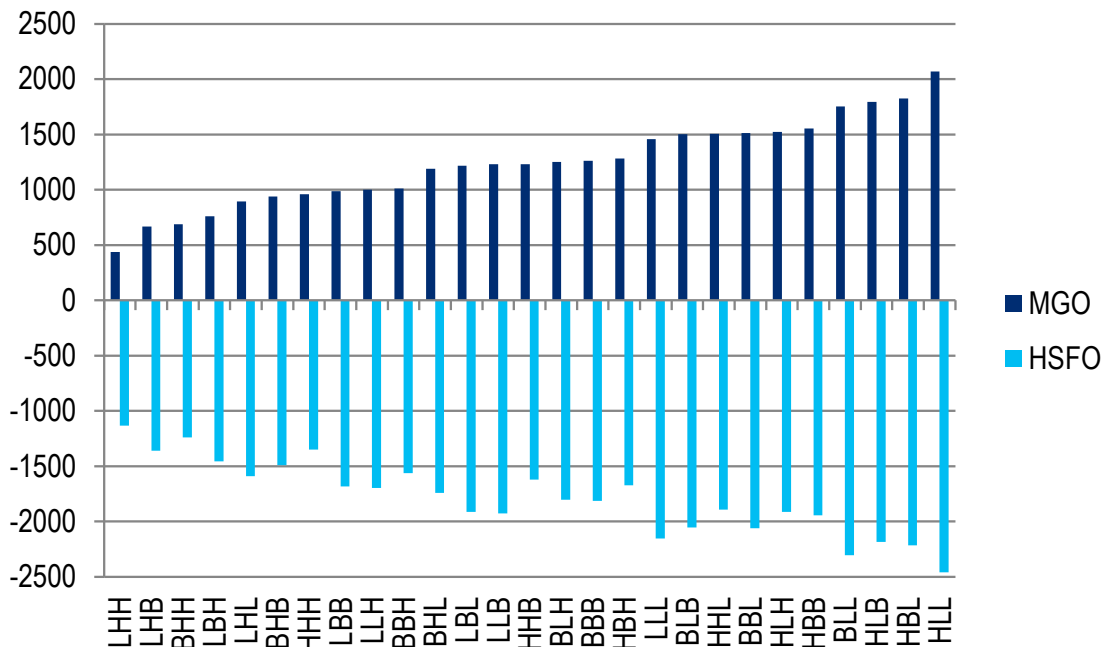
**2020 snapshot—global marine bunker fuel market scenarios and illustrative prices and cracks (base, bull, bear) with the IMO sulfur spec change, versus estimated baseline without IMO sulfur spec change**

(m b/d, \$/bbl)

|                  | MGO (m b/d) |              | HSFO (m b/d) |              | Diesel (\$/bbl) |           | HSFO (\$/bbl) |            | Brent (\$/bbl) |
|------------------|-------------|--------------|--------------|--------------|-----------------|-----------|---------------|------------|----------------|
|                  | Demand      | vs. baseline | Demand       | vs. baseline | Price           | Crack     | Price         | Crack      |                |
| <i>Baseline</i>  | 1.4         |              | 3.3          |              | 63              | 8         | 43            | -12        | 55             |
| <b>Base case</b> | <b>2.6</b>  | <b>1.3</b>   | <b>1.5</b>   | <b>-1.8</b>  | <b>85</b>       | <b>30</b> | <b>25</b>     | <b>-30</b> | <b>55</b>      |
| Bull case        | 3.4         | 2.1          | 1.3          | -2.1         | 95              | 40        | 15            | -40        | 55             |
| Bear case        | 1.8         | 0.4          | 2.2          | -1.1         | 65              | 10        | 45            | -10        | 55             |

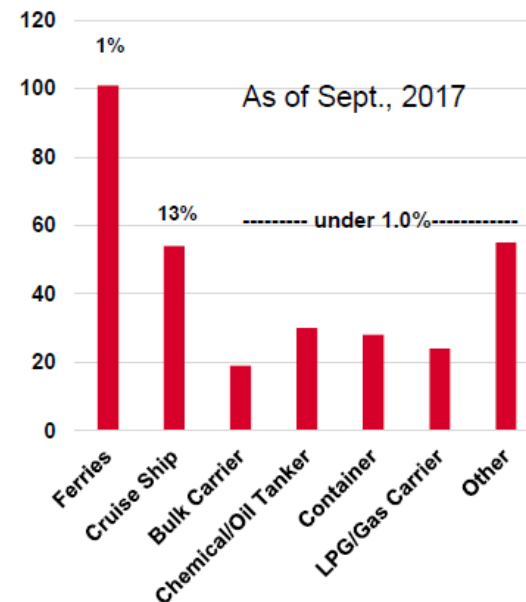
## Scenario analysis: boost to MGO demand and drop in HSFO demand\*

(k b/d, 2020 base case with IMO sulfur spec change, versus 2020 baseline without IMO sulfur spec change)



## Scrubbers installed or on order

(number of vessels, % of fleet of that vessel type)



Source: S&P Platts, Citi Research \* Based on scenarios for (1) bunker market demand growth, (2) scrubber installation, (3) non-compliance; for these three factors considered, each had a base ("B"), low ("L"), and high ("H") case; for example, high bunker market demand growth, low scrubber installation scenario, and base-case non-compliance is "HLB"

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