Oil markets: Investment and Security challenges in a world in transition

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Market context:
We are now almost three years into a new price band

Source: NYMEX, ICE, BCG CEI
**Investment risks:** A supply hole may thus be emerging

Upstream investments fell by 44% in the 2 years from mid-2014.

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**Upstream capex growth is increasingly focused on North America**

- **Upstream capital ($B)**
  - Beginning of past 3 cyclical inflections yoy growth (%)
    - 2003: +10%
    - 2010: +11%
    - 2017: +9%

**Supply increases from new projects fall below demand growth post 2020**

- **New project volume growth (mmb/d)**
  - Assumes $54/b Brent

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Note: Project volumes exclude tight oil. 2017 upstream capex figures are estimates. Project volumes are based on $54/b.

Source: Rystad Energy Ucube, Barclays, IEA.

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Investment risks: The absolute and relative level of hydrocarbon investments has been falling since 2014

USD 2016 ($B)

~70%
~68%
69%
56%

Fossil fuel share of supply investment

Electricity networks
Nuclear
Renewables
Fossil fuel power generation
Fossil fuel supply

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Security challenges: Oil demand growth is strengthening
Driven by a shift to larger vehicles and stronger GDP growth in many consumers

Total annual oil demand growth, Quarter on Quarter

mmb/d

Source: IEA, BCG CEI
Security challenges:...but demand growth will be difficult to reverse in upturn

Anticipated Demand Growth Segmentation: 2015-2040

- Passenger vehicles: 92.5 mmb/d
- Freight: 3.4 mmb/d
- Petroleum: 5.0 mmb/d
- Other: 0.7 mmb/d
- Aviation: 3.5 mmb/d
- Steam: 0.7 mmb/d
- Maritime: 1.2 mmb/d
- Buildings: -1.6 mmb/d
- Power Gen: -2.5 mmb/d
- Total: 103.4 mmb/d

Growth is in areas where it is more difficult to find alternative fuels.
Security challenges: Shale is flexible to respond - but is it big enough?

Shale in context: A small part of global supply

- **Other Supply:** slow response time
- **OPEC:** The traditional balancer
- **Shale:** Rapid growth, but flexible volumes likely insufficient to be sole balancer
Summary and conclusions

We have now been in a structurally new oil price band for almost three years due to:

- Strong investments bringing new supplies on stream early in this downturn
- Inventories which have built far above historical averages
- Relatively few supply outages compared with the recent past
- The perception of flexible supplies available from the US

However, demand growth is now clearly strengthening

- Often in areas where oil substitution is challenging, such as Aviation and Petchems

...and as the market rebalances, the Supply outlook is more uncertain and, potentially, volatile

- Production discipline and natural declines are bringing markets and inventories into balance
- Underinvestment may be leading to a serious supply hole post-2020
- ...and the ability of shale to fill the gap is unclear

We now see three imperatives for AMER countries to prosper in this new environment

1. Maintain regional competitiveness by locking in the cost reductions of the last 3 years
2. Shape policy and process to enable faster, shorter-cycle investments better suited to today’s market
3. Ensure that fiscal policies are aligned with the new market