Key Message

- Crude and refined products are the largest traded commodities in the world by volume and value
- US production is growing & the US is increasingly playing a large role as a Global Trader
- The Market has evolved and dynamics are changing rapidly especially in recent years
- Financial players are changing the trading environment from a traditional fundamental supply & demand focus to more opportunistic and short-term event driven trading
Who are the Traders

Physical Trader

Moving Physical Commodity

Financial Trader

Speculative Trading
Commodities in the Supply Chain

Exploration & Production

- Truck
- Pipeline
- Rail
- Barge
- Tanker

Crude Oil

Storage / Terminaling

Refining

Refined Products

Storage / Terminaling

Truck

Pipeline

Rail

Barge

Tanker

End Market

Trading and Hedging

Trading and Hedging
Global Crude Oil & Liquids Production

Crude Oil & Liquids production

Source: EIA
Crude Oil Import to the US

US Crude Oil Import

1,000 bbls per day

14% decline since 2010

Source: EIA
Crude Oil Export from the US

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<th>Year</th>
<th>Canada</th>
<th>China</th>
<th>UK</th>
<th>The Netherlands</th>
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</table>

Source: EIA

1,000 bbls per day

US Crude Oil Exports

Over 2mln bbls pd by June 2018

140% increase in 2 years
Refined Products Export from the US

US Refined Products (liquid) Exports

1,000 bbls per day

- Other Liquids (excl. LNGs)
- Renewables (incl. Ethanol)
- Jet Fuel
- Gasoline
- Distillate
- Total Export

Source: EIA

130% increase in 10 years
80% increase in 7 years

Source: EIA
US as the Global Trading Partner 10 years Ago
Imports / Exports from selected key regions

Source: EIA
US as the Global Trading Partner Today

Imports / Exports from selected key regions

- Crude imports
- Crude imports (larger volumes)
- Refined products imports
- Crude exports
- Refined Products exports

Source: EIA
Contango vs Backwardation

WTI 6-months Forward Curve

Contango

Price collapse
Booming US shale production
Weak demand

Backwardation

Hurricane Harvey
Pipeline disruption
Production cut

6 months Spread (Oct 18 vs Apr 19)
WTI Oct 18
WTI-Brent Spread

$ per bbl

WTI Nov 18
Brent Nov 18
Spread

Pipeline disruption
Hurricane Harvey
Export ban lifted
Final Remarks

- The markets are changing rapidly with growing demand and production diversity
- Open global markets stimulate more trading activities
- The trading strategies are adapting to various market structures