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IEA-IEF-Opec Technical Meeting
Vienna
Peter Caddy
16 March 2017
London
Houston
Singapore
Moscow
Dubai
New York
Calgary
Santiago
Rio de Janeiro
Beijing
Shanghai
Tokyo
Sydney
Astana
Kiev
Cape Town
Riga
San Francisco
Washington
Market Reporting
Consulting
Events
illuminating the markets

What is volatility?

25-day Historic Volatility, Annualised

$$\sigma_{annual} = \sqrt{250} \cdot \left(\frac{1}{25} \sum_{n=1}^{25} \left[\log_e \left(\frac{S_n}{S_{n-1}} \right) \right]^2 - \left[\frac{1}{25} \sum_{n=1}^{25} \log_e \left(\frac{S_n}{S_{n-1}} \right) \right]^2 \right)^{\frac{1}{2}}$$

where S_n = price on day n

Sigma equals the standard deviation over 25 days of the logarithmic return of daily prices, multiplied by square root of 250

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What is volatility?

$$\sigma_{annual} = \sqrt{250} \cdot \left(\frac{1}{25} \sum_{n=1}^{25} \left[\log_e \left(\frac{S_n}{S_{n-1}} \right) \right]^2 - \left[\frac{1}{25} \sum_{n=1}^{25} \log_e \left(\frac{S_n}{S_{n-1}} \right) \right]^2 \right)^{\frac{1}{2}}$$

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Crude oil prices: volatile or range bound?

Half of 3 years ago

Equal 2 years ago

Twice 1 year ago

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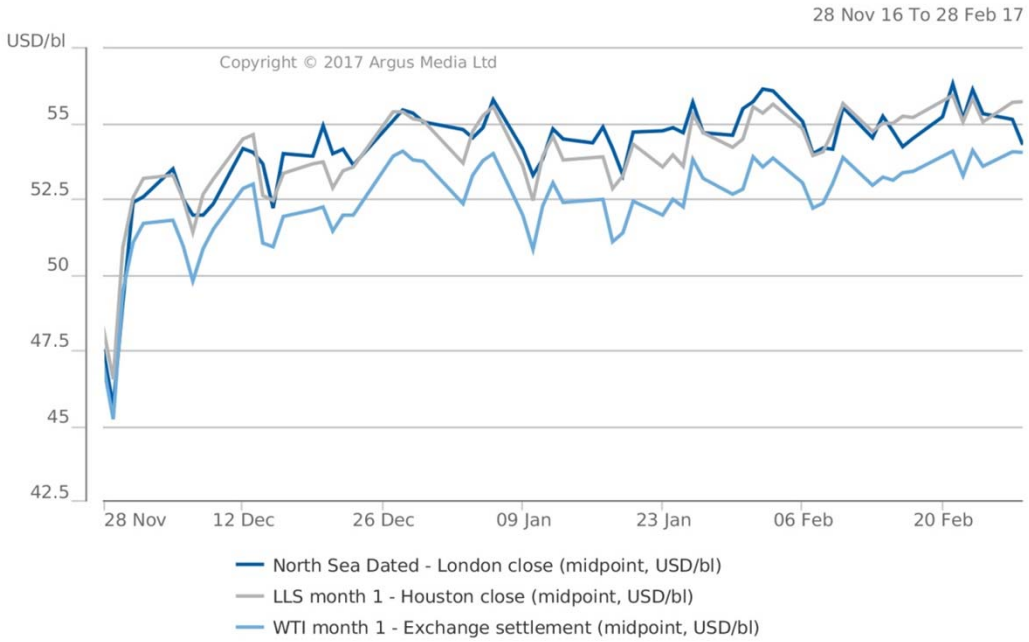
Stable or volatile?



In less than a $5/bl range

Despite changes in demand and supply

The buffer stocks are under the ground in Texas

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Ending the US export ban

Better infrastructure and the end of the US export ban has removed the WTI discount

Shift in futures volume to the US

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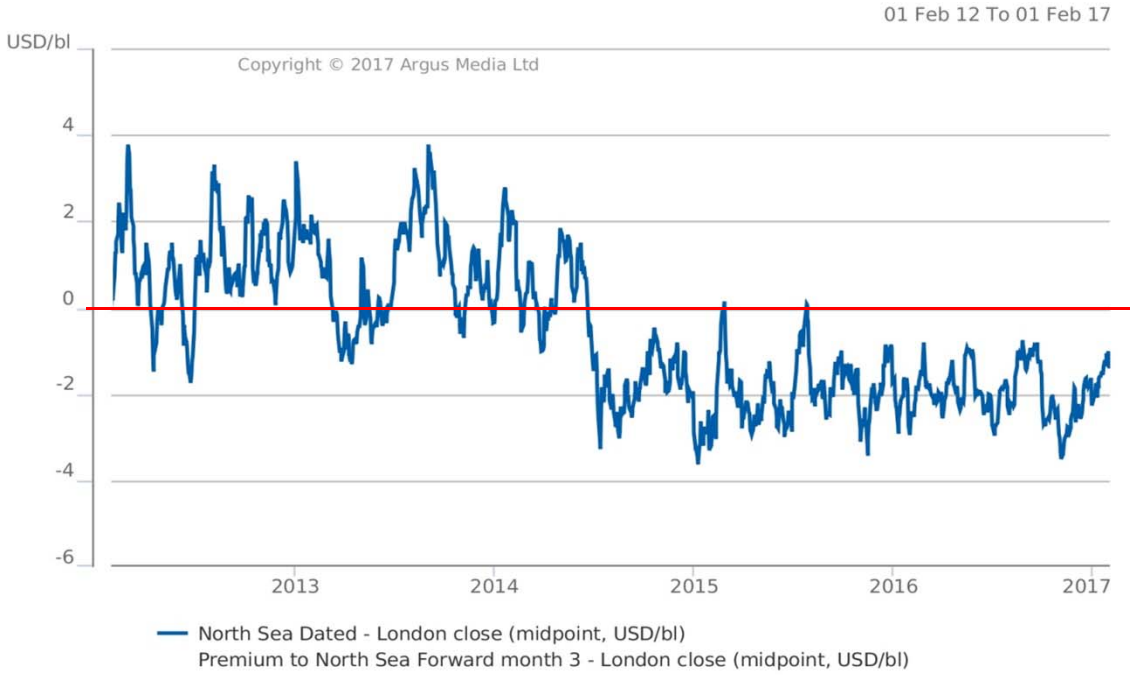
The switch into contango



Contangos indicate high inventory

High Inventory can put downward pressure on price

A contango can also encourage stockbuild

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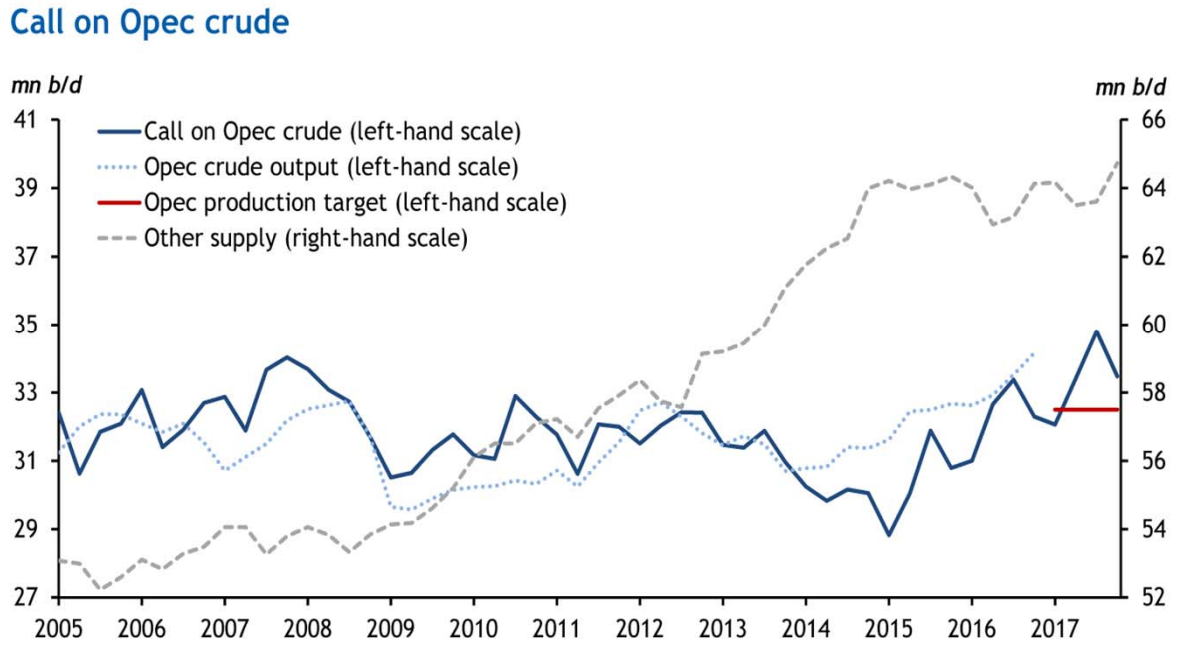
Supply has been good



Non-Opec supply has risen, led by US shale

Saudi strategy curtailed high cost growth

Opec supply constrained by agreement

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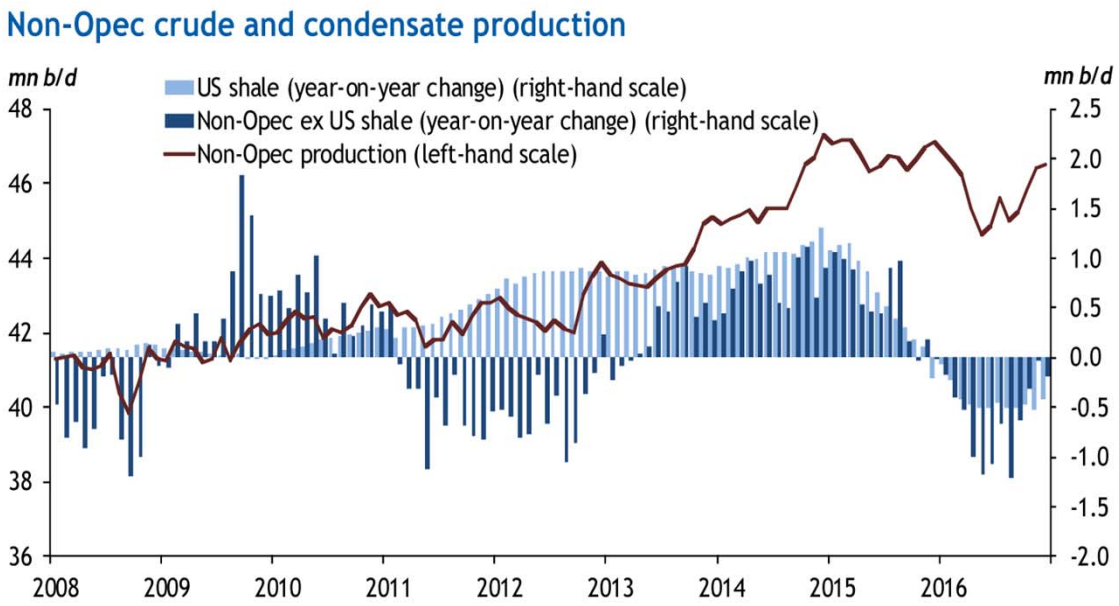
US is the swing producer



US shale production is price responsive

US shale bouncing back

The US is the swing producer balancing around price

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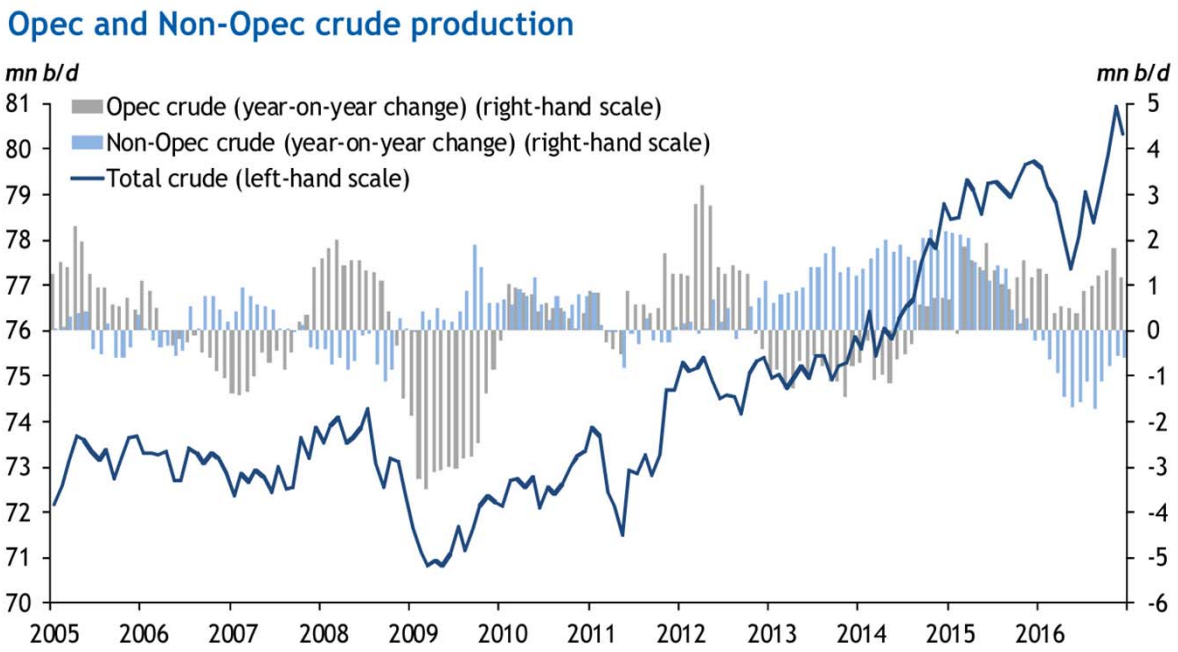
The market constantly balances



Prices rise: supply increases

Supply increases: prices fall

Prices fall: demand increases

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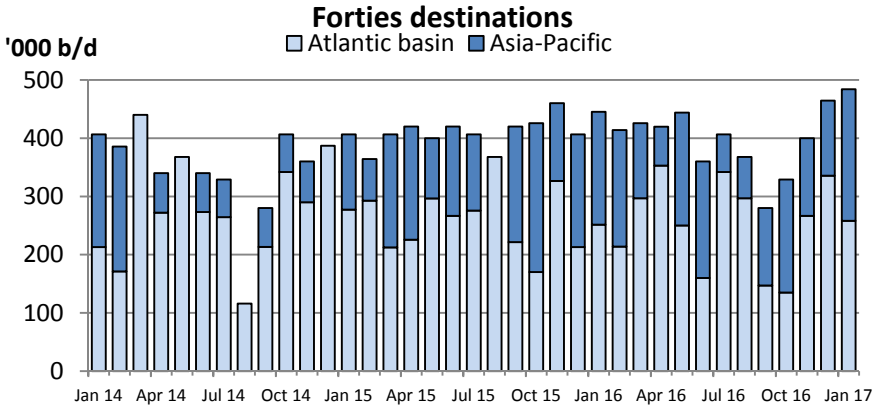
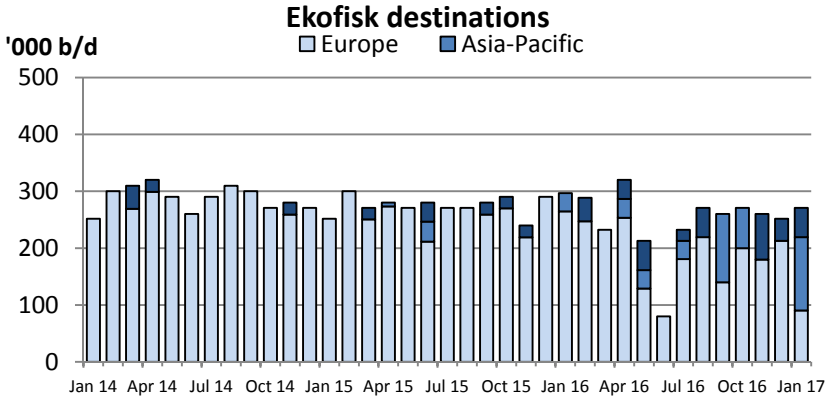
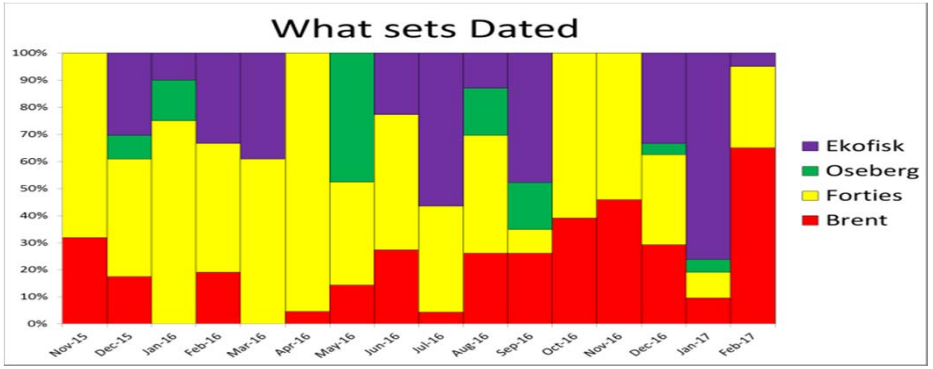
What crude sets the North Sea price?







Is a market where the price doesn't fluctuate but where the price setting grade fluctuates, stable or volatile?

illuminating the markets

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Recent Oil Market Volatility

- Price volatility?
- Financial volatility?
- Price relationship volatility?
- Supply volatility?
- Demand volatility?
- The market is always in flux and is always balancing. Does it balance through price or through supply?

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Recent Oil Market Volatility

- Price volatility?
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- Supply volatility?
- Demand volatility?
- The market is always in flux and is always balancing. Does it balance through price or through supply?

- The market is only stable if prices are not!

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