The Big Drop: Causes and Consequences

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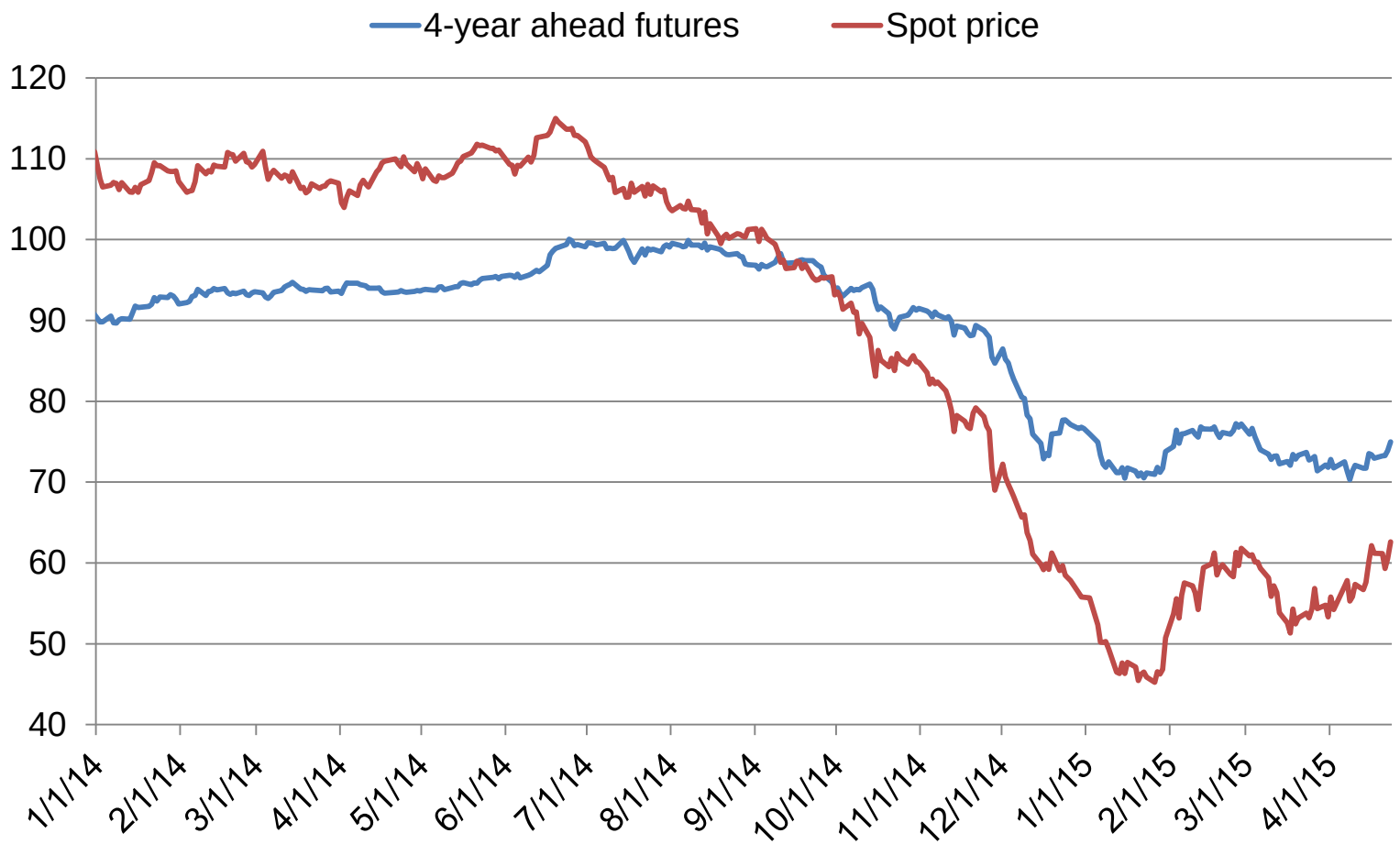
(Crude) oil prices have slumped

Brent
($ per barrel)



1. What causes?

Main lessons

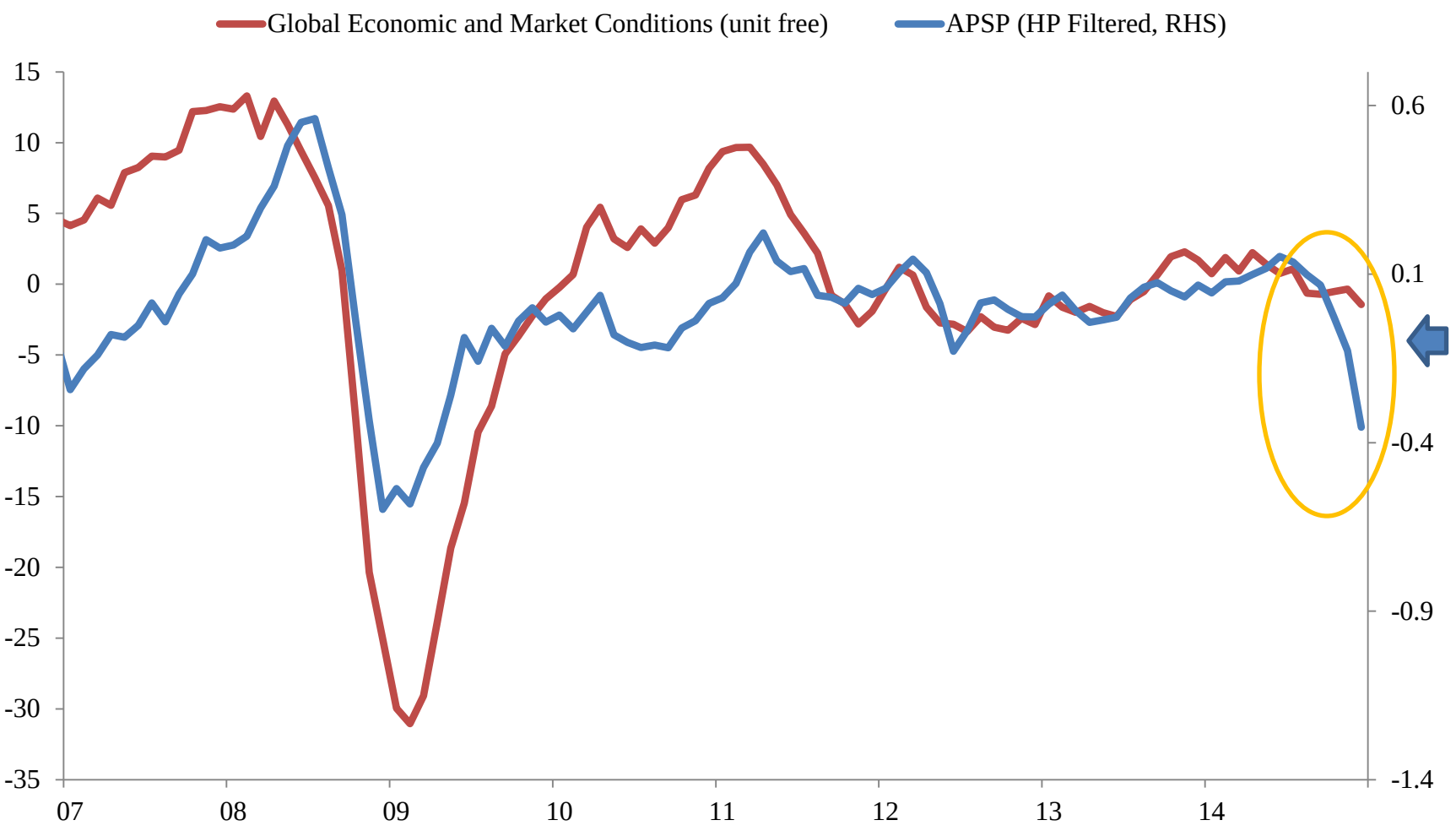
Consequences depend on causes

- Supply or demand
  - Supply driven decline >Positive
  - Oil specific demand > Positive
  - (Aggregate) Demand drive decline >Offsetting
- Persistence and dynamics affect consequence

Causes:

- Demand and supply have both played a role in the price drop, but supply a bigger role;
- Changed behavior of Saudi has changed expectations about supply dynamics;

Aggregate demand helped explain fluctuations in oil prices. Not this time.

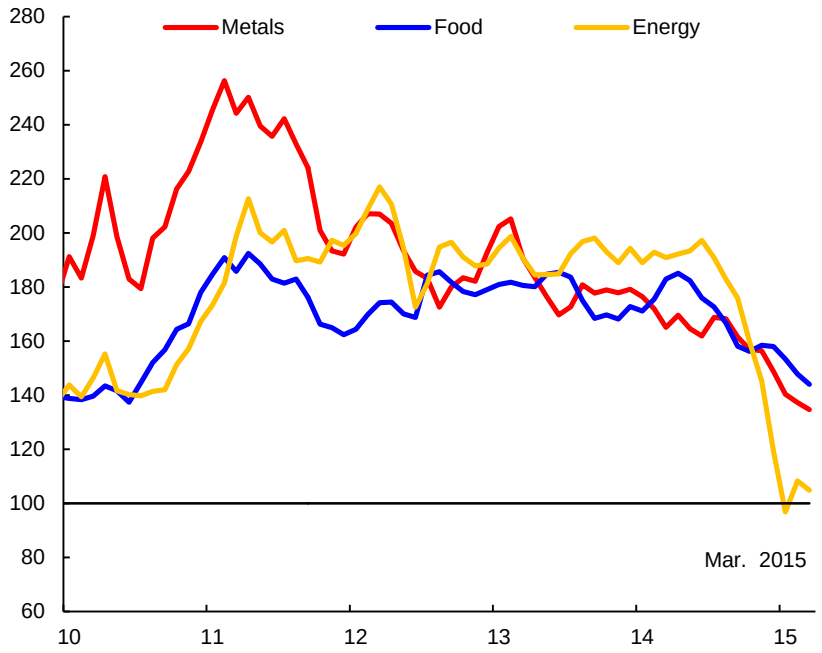


Other commodity prices have declined but much more gradually

- Metal prices typically track aggregate demand as well.
- The decline in metal prices is much less pronounced than for crude oil prices.

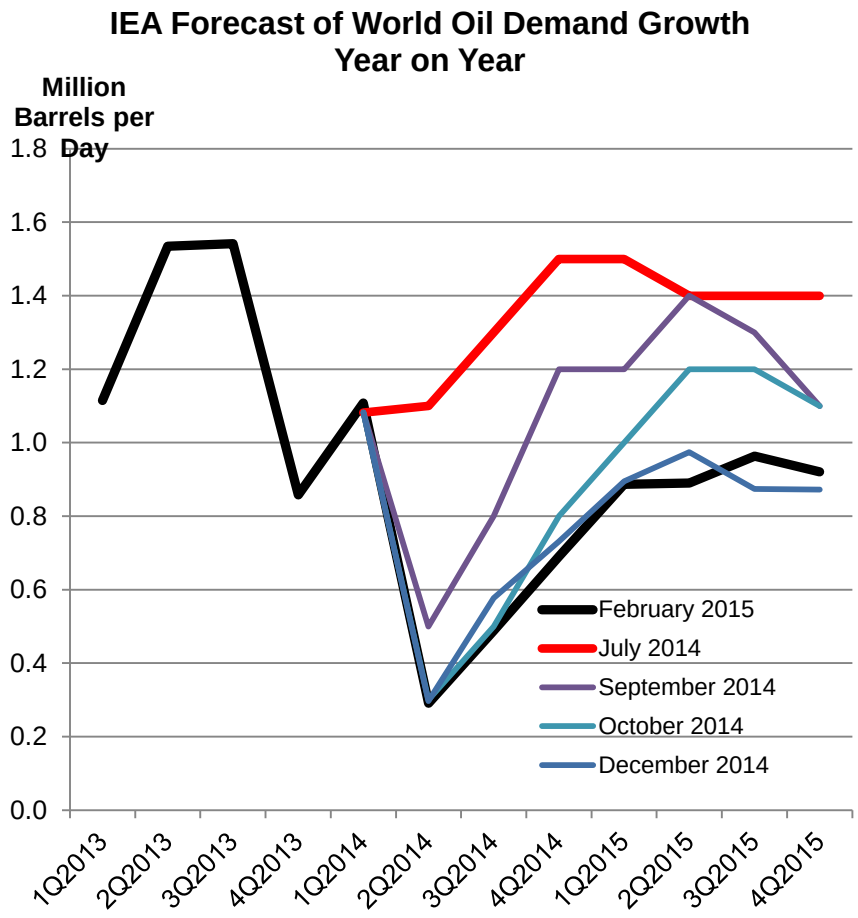
=> Supply factors behind the oil price slump?

IMF Commodity Price Indices
(2005=100)



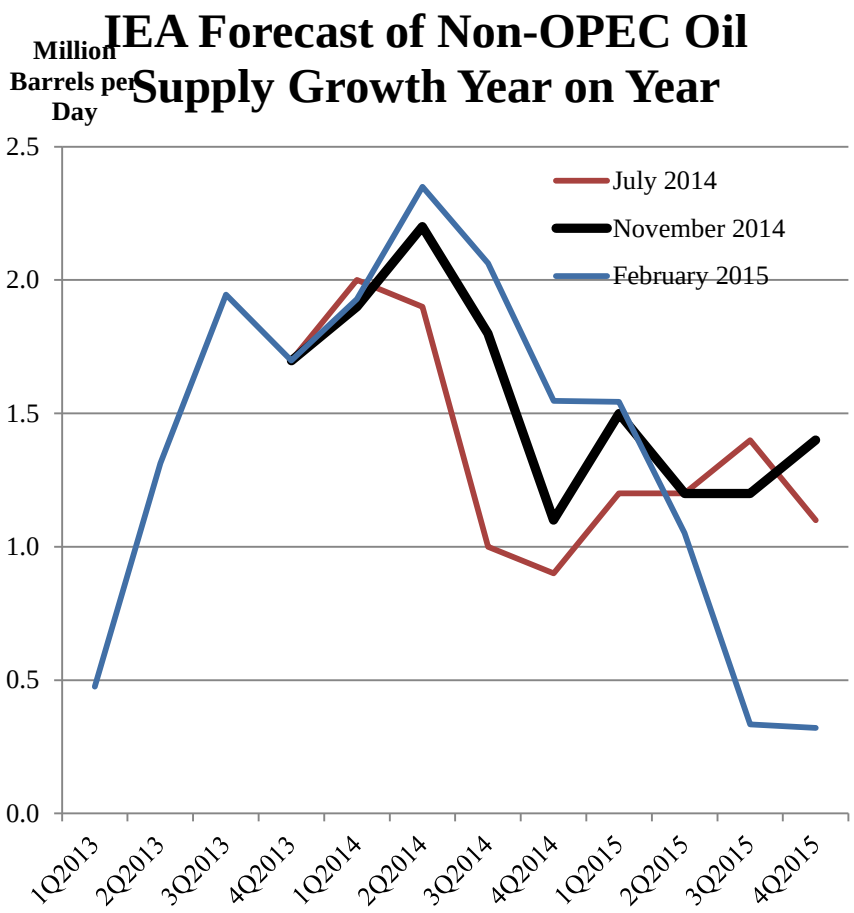
Source: IMF, Primary Commodity Price System.

Demand “Surprises”



- What were the changes in demand over the second half of 2014 and where do we stand now?
- Forecast errors (1mb/d) imply a 10-20% in the price decline.
- That is roughly 30% of price changes .

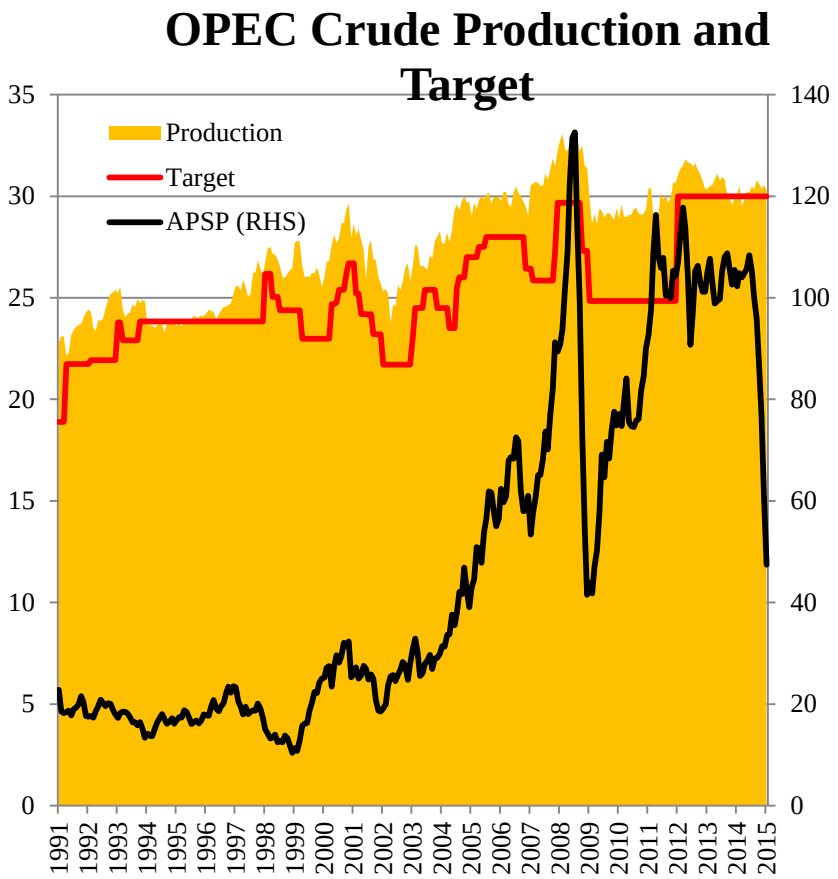
Supply “Surprises”



- Non-OPEC supply surprises are about 1 mb/d for 2014Q3 slightly less for Q4.
- OPEC supply surprise – Iraq and Libya

  0.5-1.5 mb/d ?
- Supply factors seem to have played a bigger role than demand.

OPEC Reaction (or lack thereof)



- OPEC typically adjusted to targets to stabilize prices.
- This time is different? But why?
- Learned lessons from 1980s?
- Erosion of cartel discipline?

OPEC/Saudi Arabia: Shifting Strategy?

	Production			Price
	Saudi Arabia	OPEC	World	Brent Crude Price
	Change in production, peak to trough, mbd 1/			*Peak to trough, $US 2/*
1980-86				
Absolute change	-8.1	-8.6	-4.5	41 to 10
Percent change	-78	-38	-8	-77
1997-99				
Absolute change	-1.2	-2.1	-3.4	25 to 10
Percent change	-13	-7	-5	-63
2008-09				
Absolute change	-1.6	-2.9	-2.8	146 to 37
Percent change	-17	-9	-4	-75
2014-15				
Absolute change	-0.4	-0.2	0.2	115 to 47
Percent change	-4	0	0	-60

Source: EIA except for 2014-15 (IEA)

1/ Based on monthly production volumes.

2/ Based on daily prices except for 1980-86 (monthly averages).

PROSPECTS AND CONSEQUENCES

Outlook and Consequences

Outlook: future supply behavior is key, but very uncertain

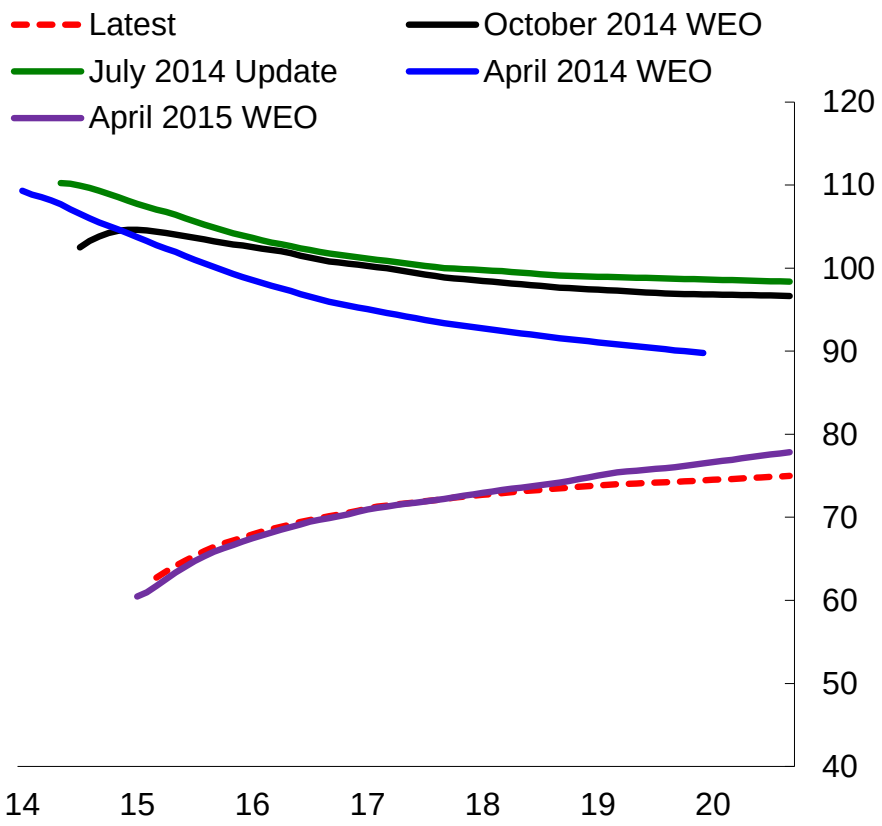
- **How will oil supply respond to lower prices?**
  - In past, response has been with a lag.
  - What happen if the efficiency gains are strong and investment drop further? Cobweb?
- What will Saudi/OPEC do?

Future demand: 1% growth forever?

- Downward shift of potential GDP growth
- Efficiency gains/ Energy policy

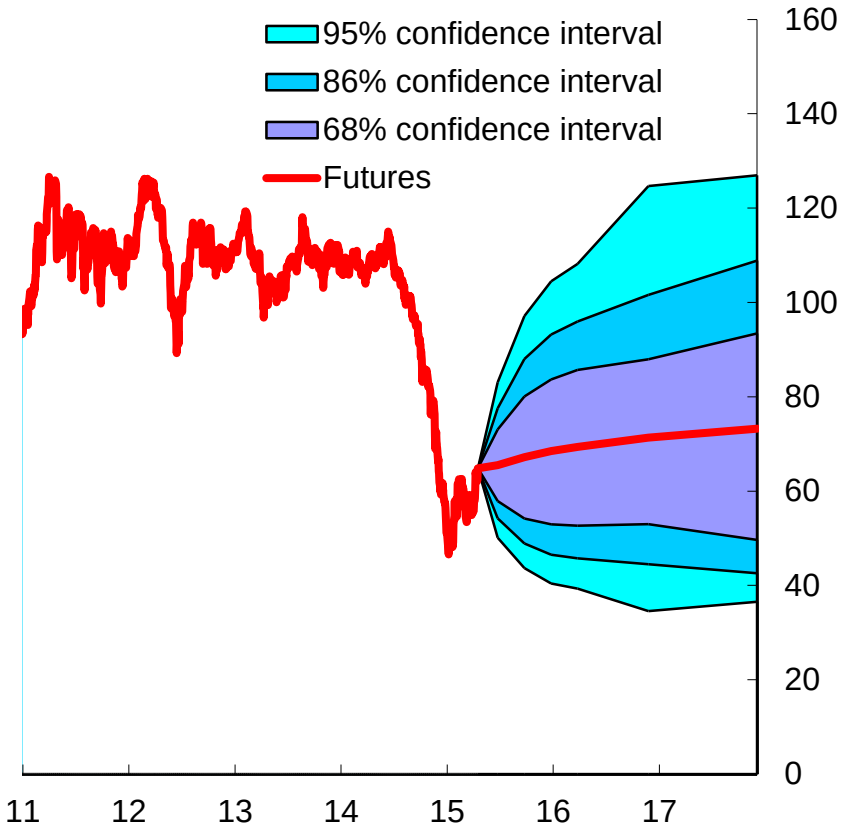
Contango and Increase in Uncertainty

Brent Futures Curves, April 2015
(U.S. dollar a barrel)



Source: Bloomberg L.P.

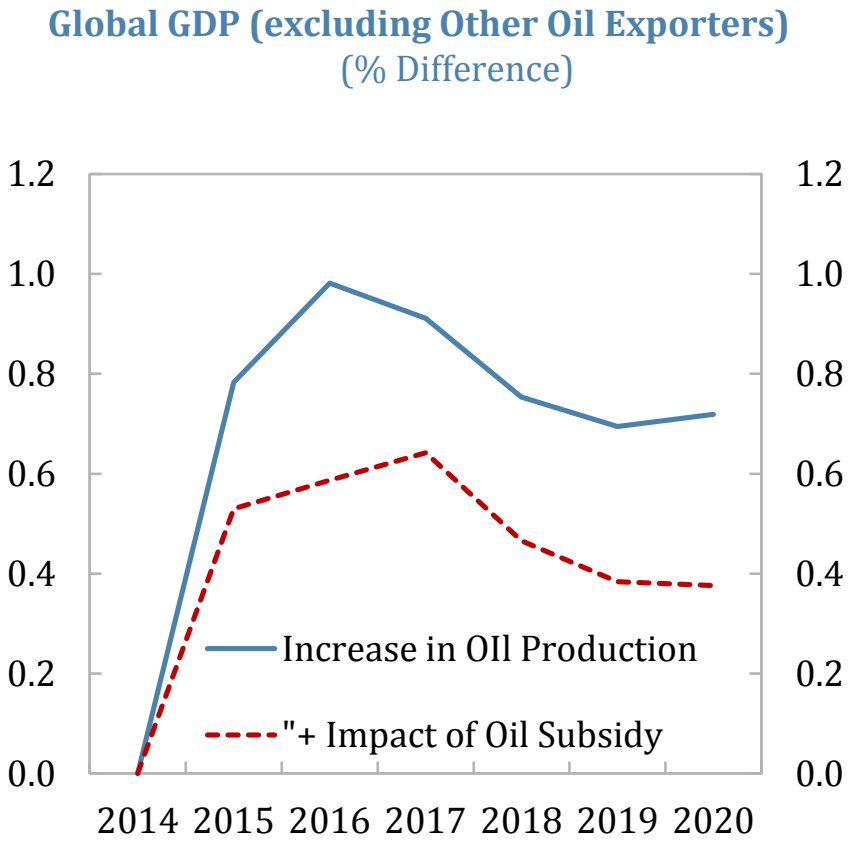
Brent Oil Price Prospects 1/
(U.S. dollars a barrel)



Sources: Bloomberg; and IMF staff calculations.
1/ Derived from prices of futures options on April 24, 2015.

Global Economy

- Net positive
  - Propensity
  - Reduced rent for oil producers
- Winner: net importers
  - Pass-through
  - Government, firms, households
- Loser: net exporters
  - Income loss
  - Oil Investments



Real Income Effect

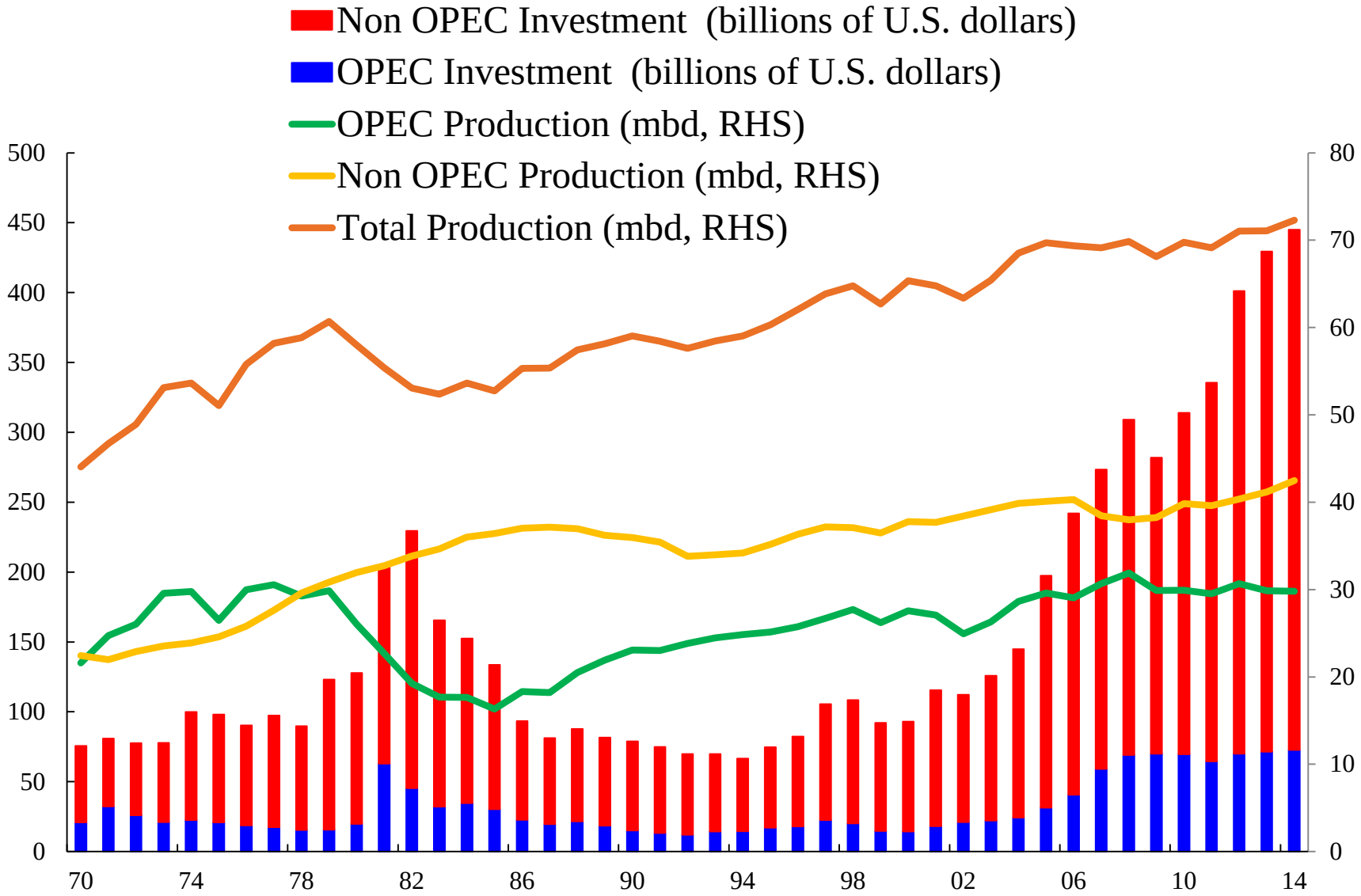
Oil Production, Consumption and Investment for Selected Countries (in percent of GDP)

	Production	Consumption	Investment
Norway	11.1	1.8	4.5
Japan	0.0	3.7	0.0
Netherlands	0.1	4.2	0.0
United States	1.6	4.5	0.7
China	1.7	4.5	0.4
Canada	7.2	5.1	2.7
Qatar	14.4	5.2	0.4
Russia	18.9	6.3	1.7
United Arab Emirates	27.3	7.6	2.1
Kuwait	57.4	11.1	1.6
Thailand	1.5	12.4	0.4
Turkmenistan	17.1	13.2	2.1
Venezuela	43.0	14.1	2.8
Saudi Arabia	49.5	16.4	0.5
Iran	28.4	20.6	1.7

Sources: BP Statistical Review of World Energy; Rystad Energy research and analysis; and IMF staff calculations.

OIL SECTOR

OPEC and Non OPEC Oil Production and

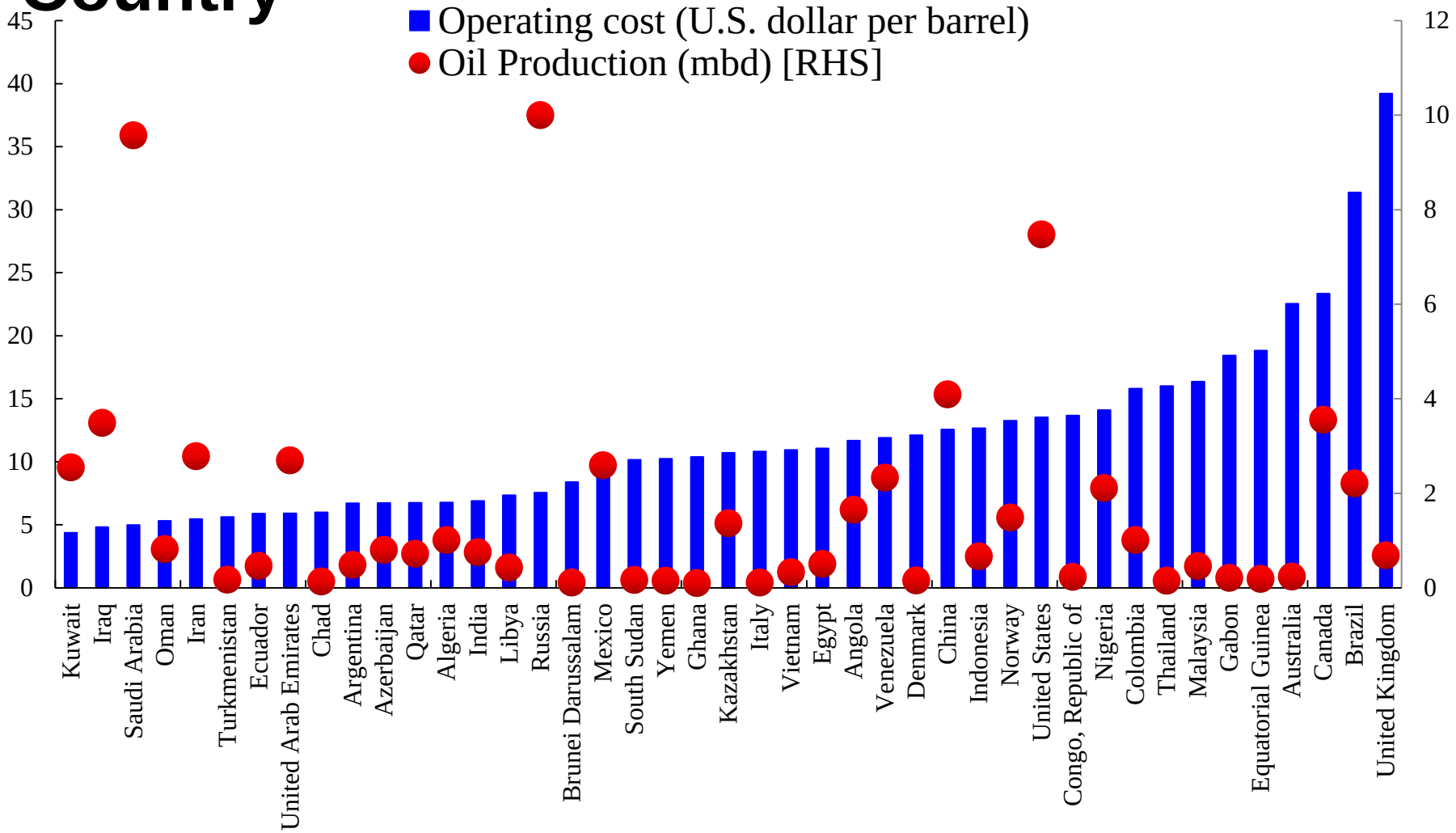


Source: Rystad Energy research and analysis.

Investment and Production in Oil Sector

- Investment activity declines quickly in response to oil price decline.
- Oil production gradually decline over time in response to oil investment.
- The current future prices indicate stagnant oil production.

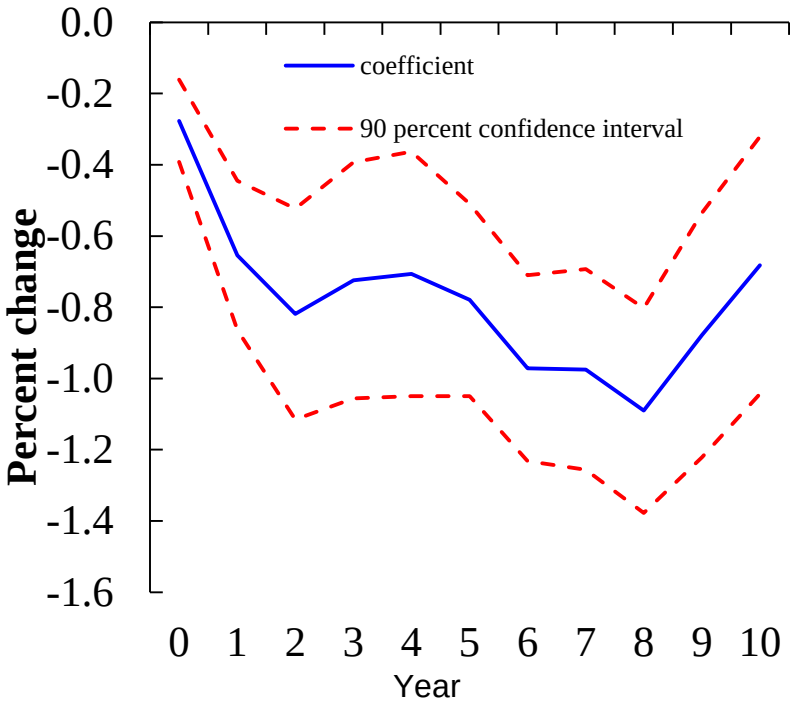
Oil Production and Operating Cost by Country



Source: Rystad Energy research and analysis.

Investment Declines Quickly but Production Slow

Response of Oil Investment to Oil Prices



Source: IMF staff estimates.
Notes: The chart show the deviation of oil investment from trend in response to the change of oil prices. The computed cumulative response is based on the regression of the logarithm of the first difference in oil investment onto the distributed lags (10) of the logarithm of the first difference in oil prices after controlling for country fixed effects.

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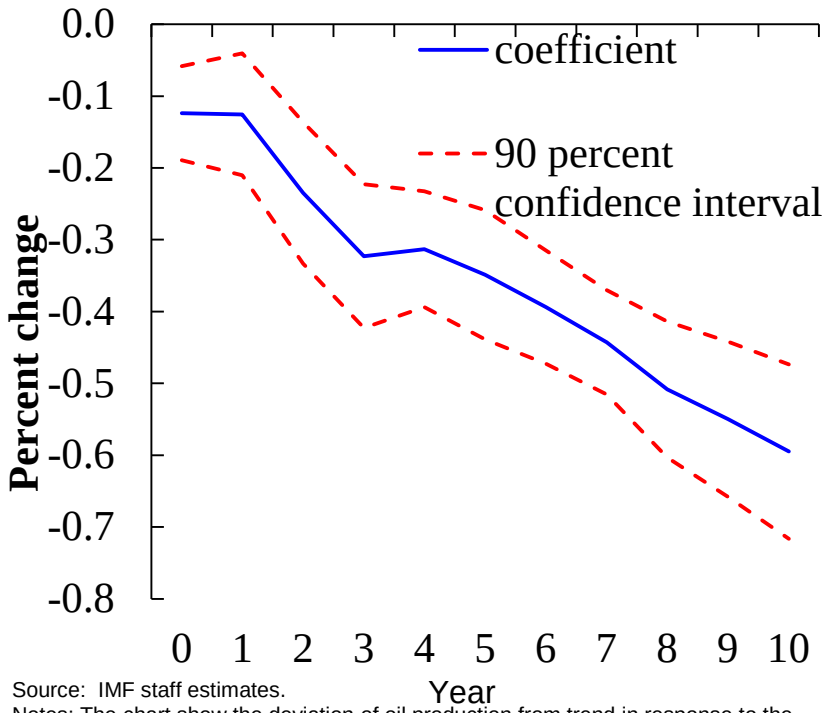

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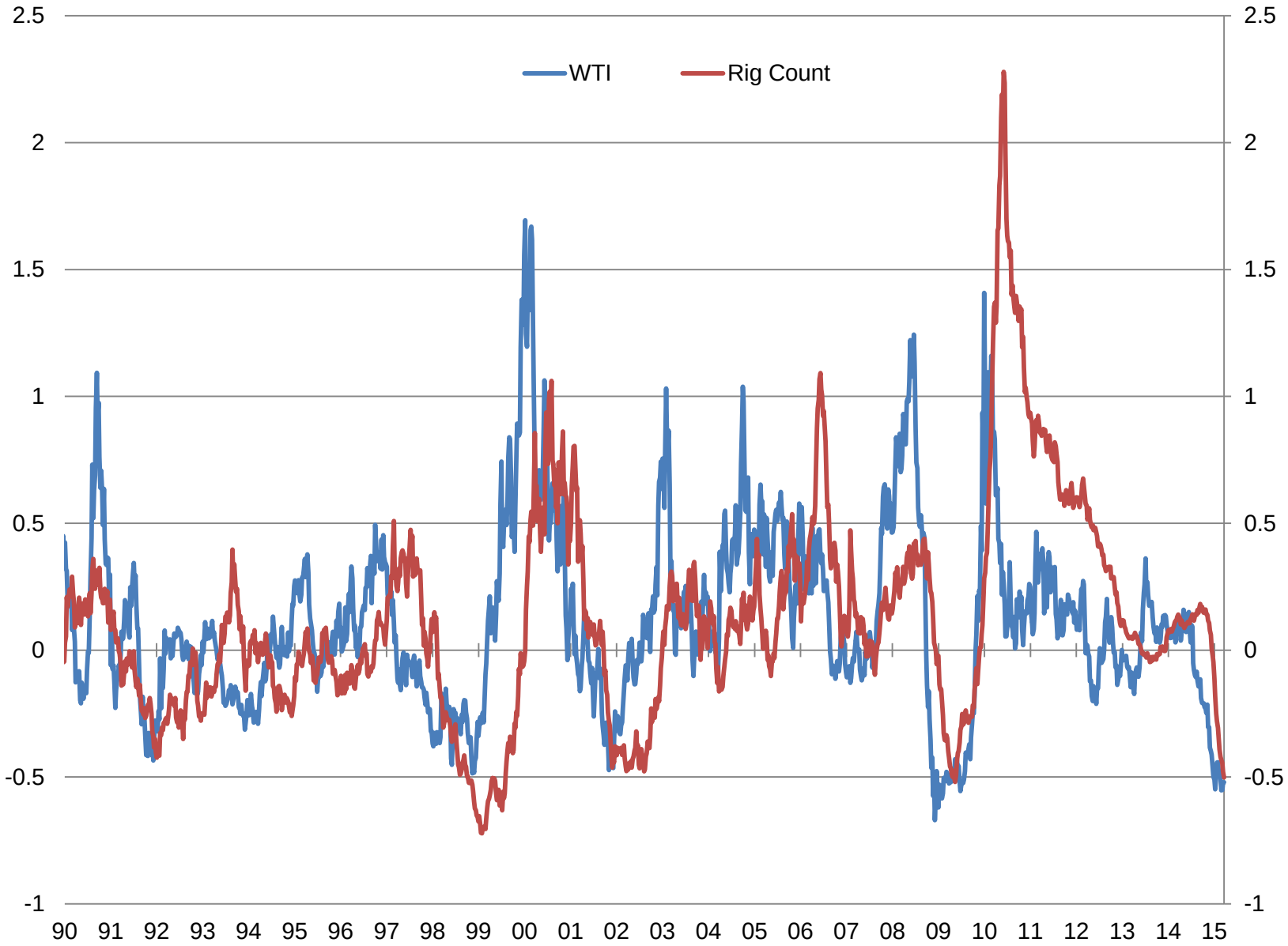
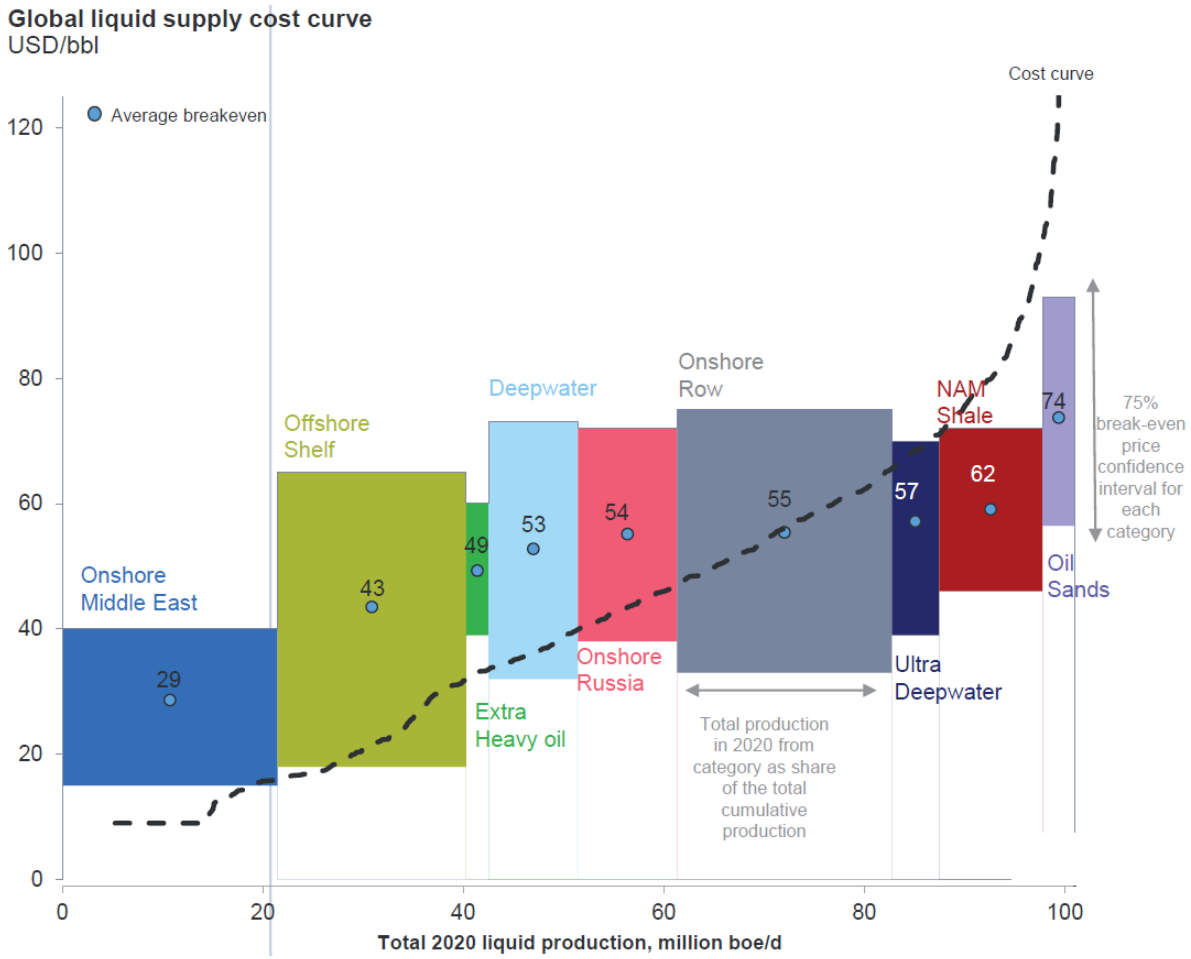
Weekly Rig Count



(notes) Annual Changes in percentage. Oil rig counts from Baker Hughes Inc. WTI spot prices from Datastream.

Oil Sands and Deep Water would be Most Affected



But not the big shale plays