

# 2017 oil price forecast: who predicts best?

Information document



# Since 2007, Roland Berger has published a yearly overview of available oil price forecasts

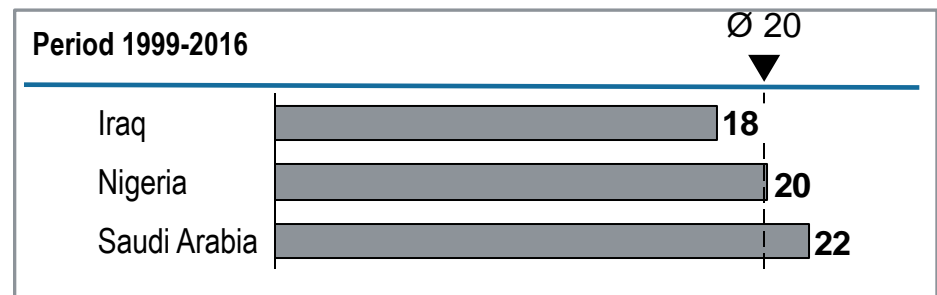
Roland Berger study of oil price forecasts, February 2017, WTI based

- > Since 2007, Roland Berger has published a yearly study on the oil price forecast
- > Major oil-producing countries use a forecasted value of the oil price in their annual budgets
- > We have studied the forecasting track records of the ten largest oil-exporting countries from 1999 to 2016
- > The budgeted oil prices of the top 3 most accurate countries are used to forecast the oil price for the year ahead
- > The oil price forecast of the countries is compared to that of the major energy institutions: NYMEX, EIA and OECD

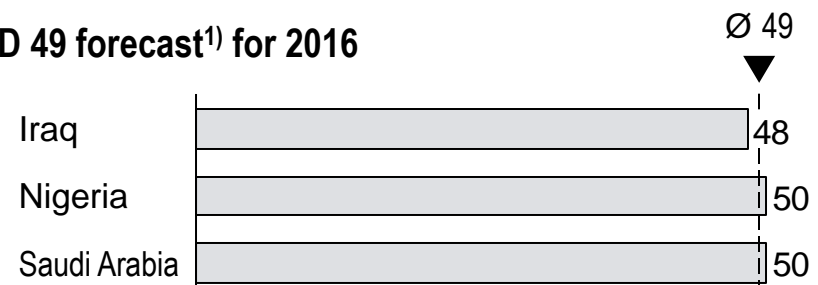
## Last year's results

### Top-3 best forecasting countries

Average absolute year-on-year oil price forecasting<sup>1)</sup> error [%]



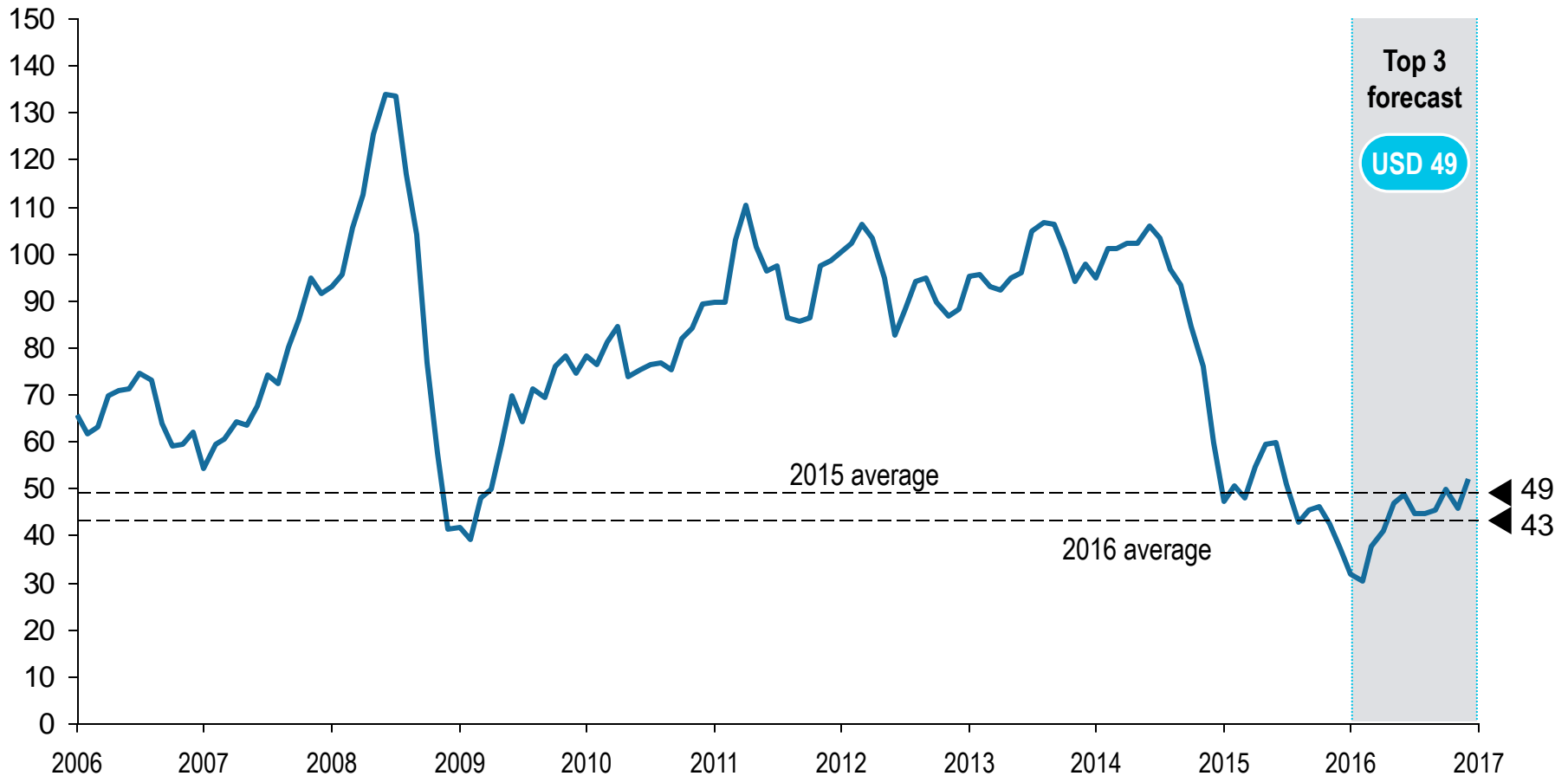
### USD 49 forecast<sup>1)</sup> for 2016



1) To improve comparability, forecasts are adjusted for the ratio of local oil prices to WTI prices (2012-2014) and for average budget deviations (1999-2014, excluding 2001, 2009 and 2015)

# In 2016 the average price for a barrel was USD 43, lower than the USD 49 predicted by the top-3 countries

Development of monthly WTI averages [USD/bbl], Jan 2006 – Dec 2016



# This year's study not only assesses the accuracy of last year's forecasts, but also analyzes market dynamics and future prices

## Elements of this year's study

1

### ACCURACY OF OIL PRICE FORECASTS

Analysis of the accuracy of countries and institutions as forecasters of the oil price in 2016 and over past years

2

### CHANGING MARKET DYNAMICS

Analysis of the changing market dynamics since the US has become a major exporter of (shale) oil and analysis of the current oversupply in the global oil market

3

### FUTURE OIL PRICES

Analysis of oil price forecasts of countries and institutions and underlying political and market dynamics

# Institutions have become the better price forecasters – For 2017 they predict an average of USD 50 per barrel

## Improved performance of institutions vs. countries in the oil price forecast

1

**Before 2009**, the top oil exporting **countries outperformed the institutions** (NYMEX, EIA, OECD) in correctly forecasting the oil price

### Accuracy of oil price forecasts

**Since 2009** however, the **institutions** have forecasted the oil price **significantly better** than the countries

2

Since the start of the **shale gas boom**, the **US** has not only been one of the major producers of oil, but is also **exports significant amounts of oil**

### Changing market dynamics

**Oil-producing countries** – Saudi Arabia in particular – **have often adapted their oil output** to price levels, thereby influencing the oil price

**The dynamics have changed** since American shale oil entered the equation. North American shale oil is moving towards being the **swing supply**

After resisting production cutbacks for over a year, OPEC decided in November 2016 to **reduce** crude oil production by **1.8 million barrels per day**. This significant drop in supply should drive up the low oil price

3

**What will the future bring?** Will the oversupply be curtailed by OPEC countries?

### Future oil prices

**Prediction for the 2017 oil price [USD/bbl]**

Top-3 countries



Institutions

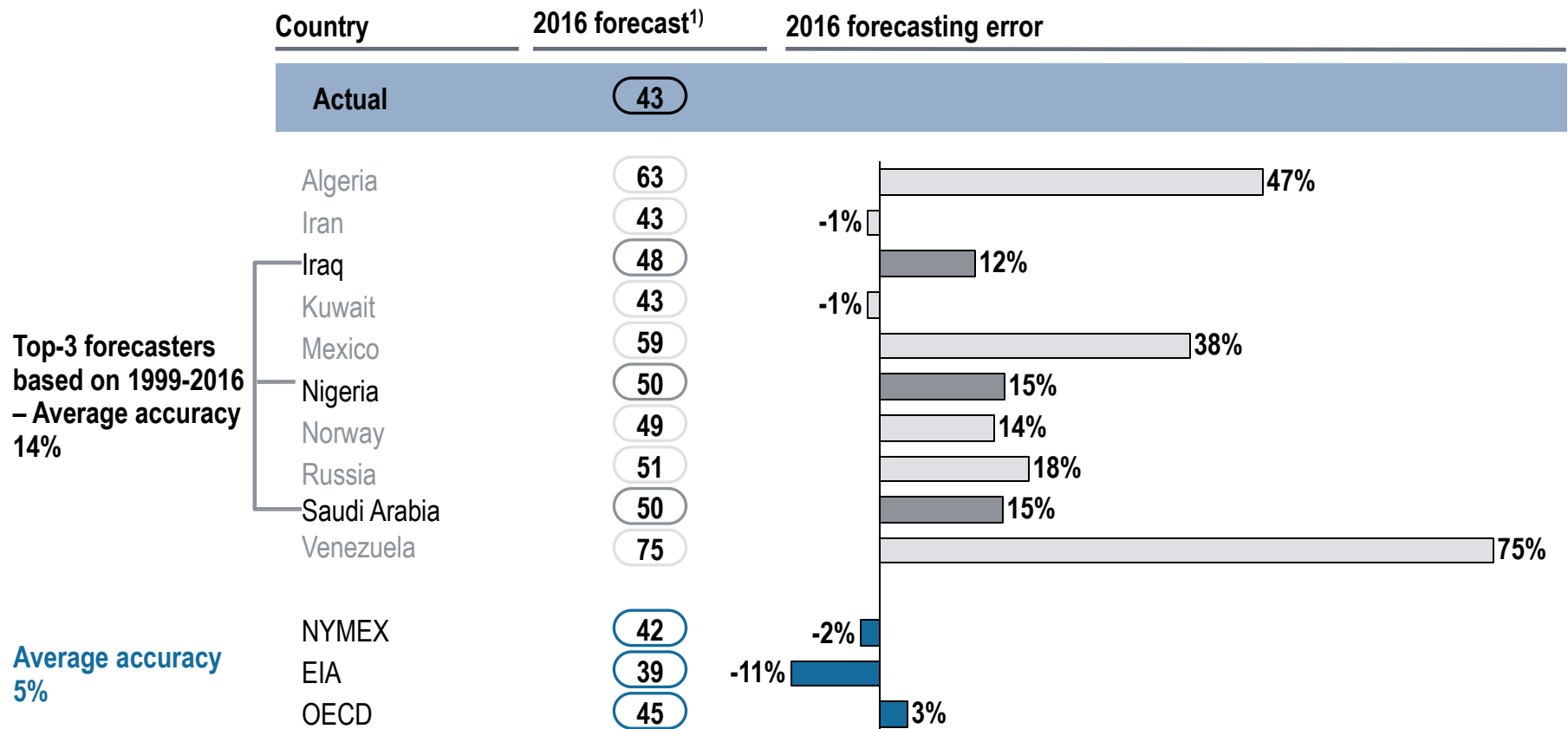


# 1. Accuracy of oil price forecasts



# Almost all countries overshoot the oil price in their 2016 forecasts – Predictions from most institutions fell below a 5% margin of error

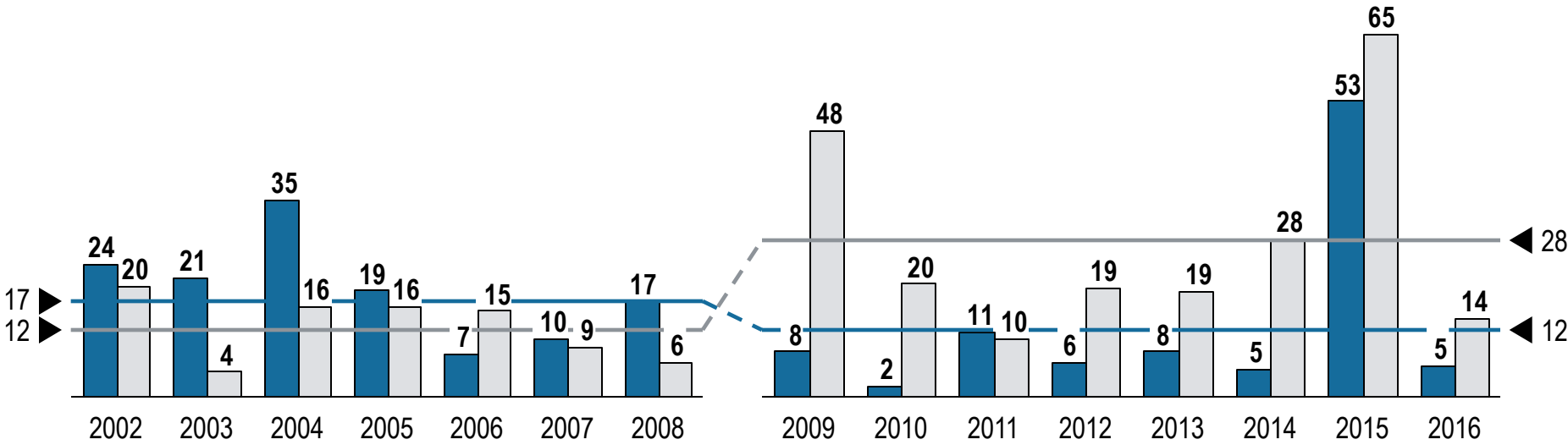
Absolute year-ahead oil price forecasting error, 2016 [%]



1) To improve comparability, forecasts are adjusted for the ratio of local oil prices to WTI prices (2012-2014) and for average budget deviations (1999-2014, excluding 2001, 2009 and 2015)

# Since 2009, the institutions have been better forecasters than oil-producing countries

Yearly absolute error, oil price forecast, institutions and top-3 countries<sup>1)</sup>, 2002-2016 [%]



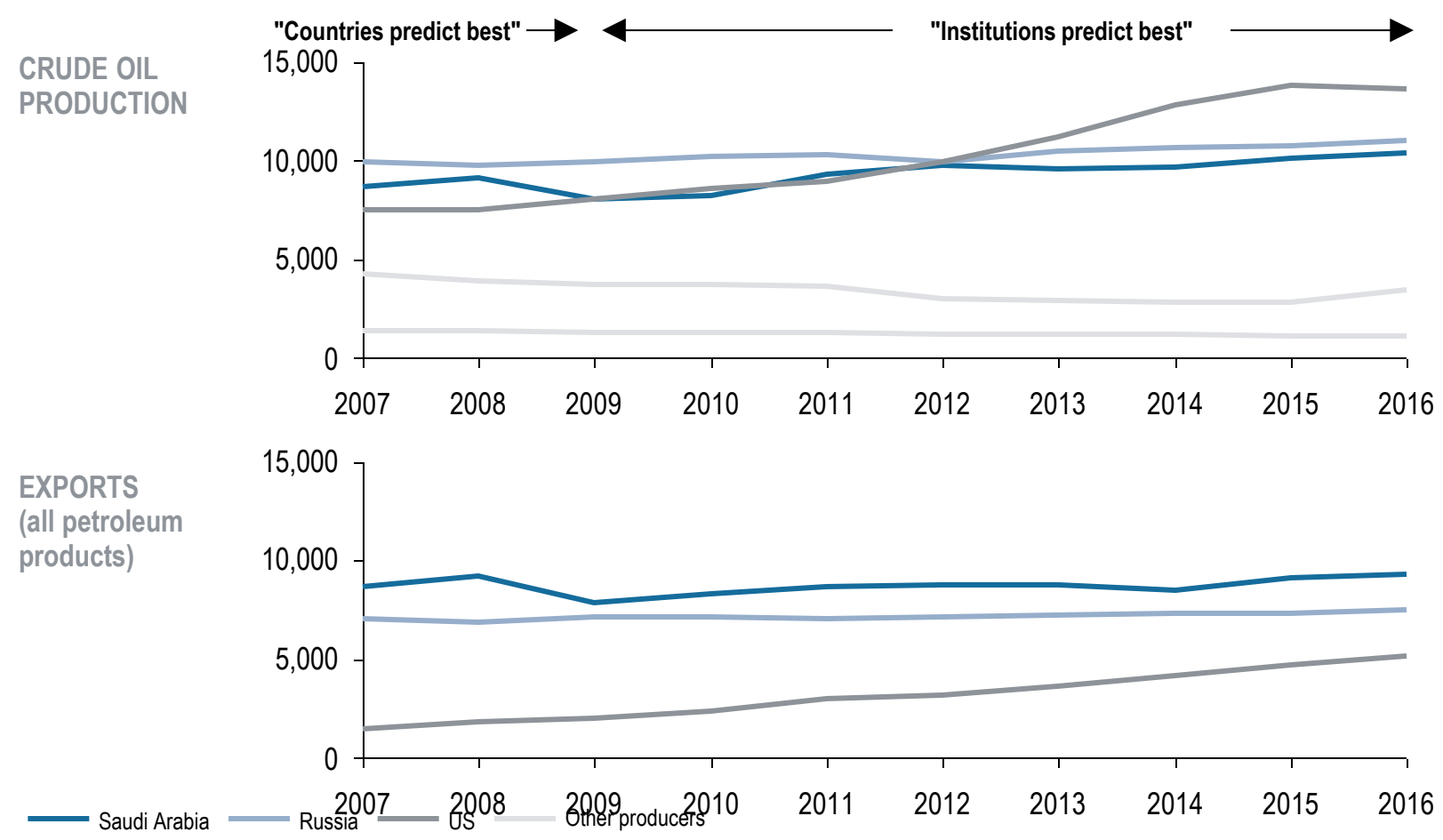
■ Institutions □ Top-3 Countries

1) Updated top-3: based on up to year n-1. To improve comparability, forecasts are adjusted for the ratio of local oil prices to WTI prices (2012-2014) and for average budget deviations (1999-2014, excluding 2001, 2009 and 2015)



# The rise of the institutions as better predictors coincides with the rise of the US as a major (shale) oil producer and exporter

Crude oil production per country and US exports, 2007-2016 ['000 bbl/day]

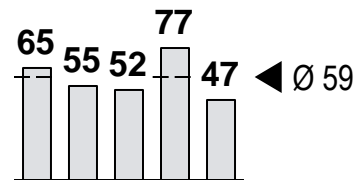


Source: OPEC; EIA

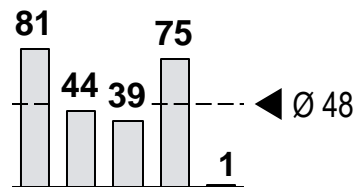
# The top-3 oil-forecasting countries all predicted the oil price within 20%

Absolute forecasting errors, 2012-2016 [%]

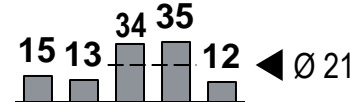
## Algeria



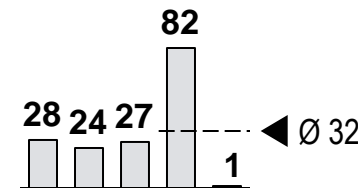
## Iran



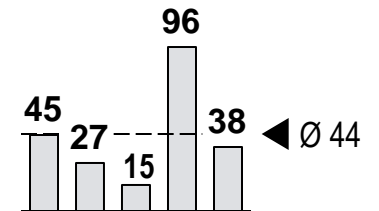
## Iraq



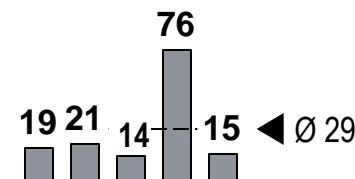
## Kuwait



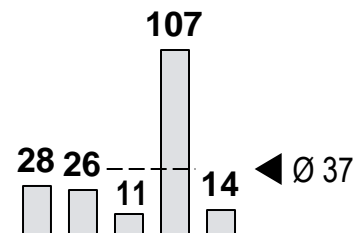
## Mexico



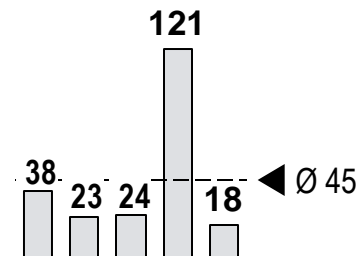
## Nigeria



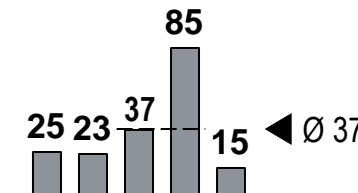
## Norway



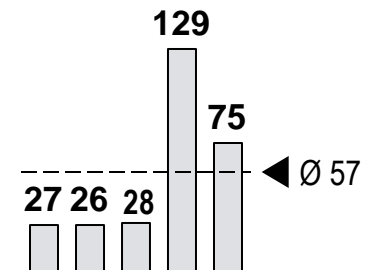
## Russia



## Saudi Arabia



## Venezuela

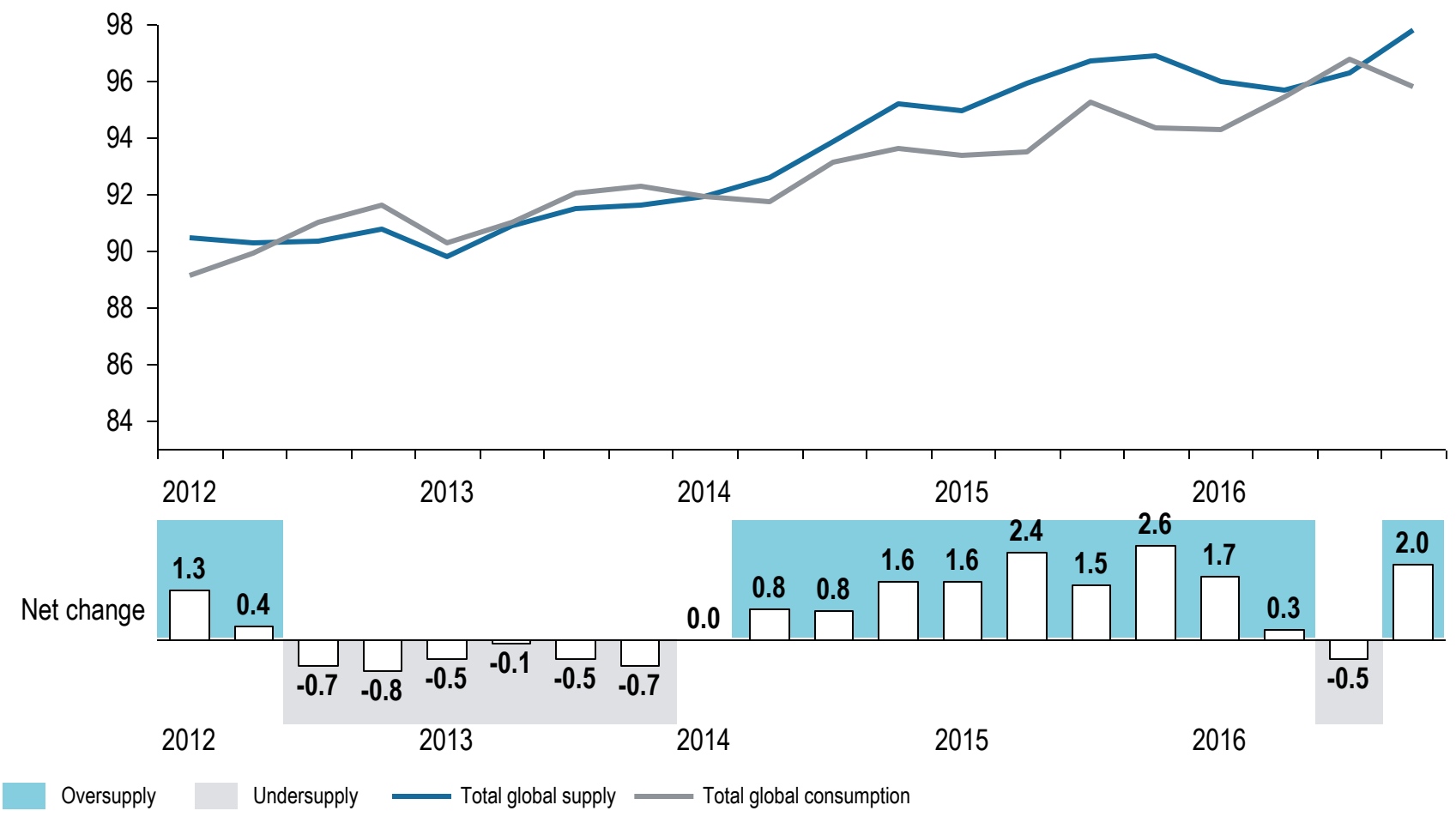


## 2. Changing market dynamics



Since the start of 2014, the oil price has been under heavy pressure due to oversupply

Global supply and demand of oil and net differential [m bbl/day]



Source: EIA; Roland Berger

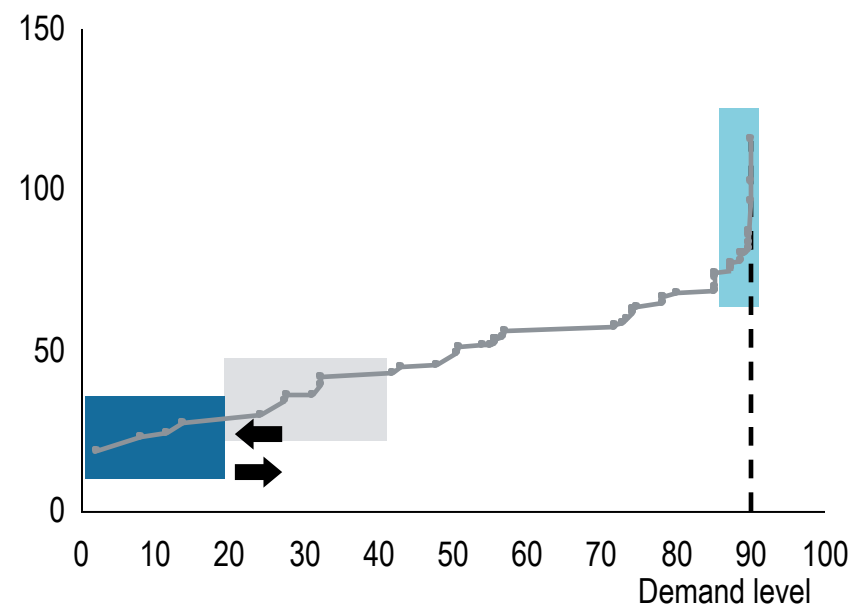
Since 2014, a new oil production pattern has emerged: major OPEC players have decided to win on volume using their low-cost positions

Production cost [USD/bbl]<sup>1)</sup> vs. global oil demand [m bbl/day]

Illustrative

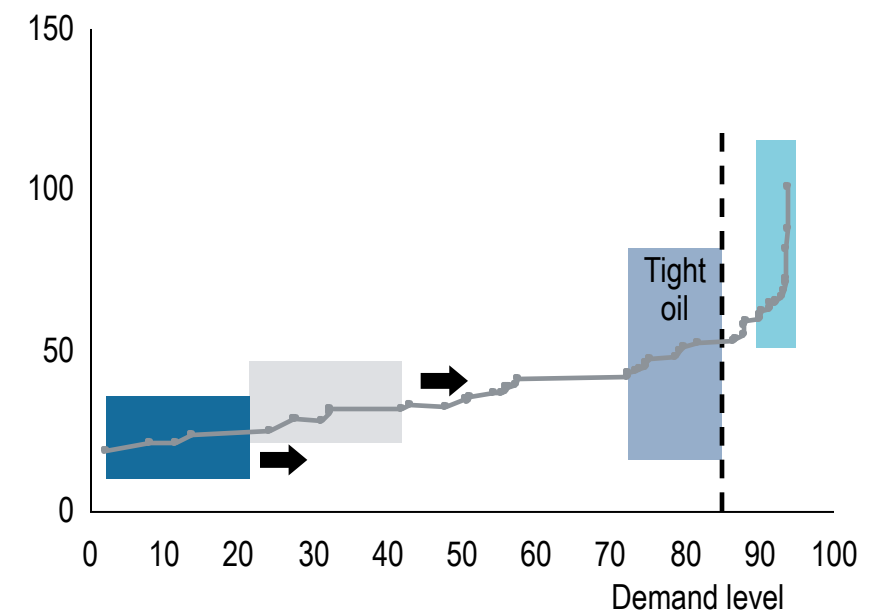
**Pre-2012 (pre-tight oil)**

**Saudi Arabia and OPEC** manage production volumes to ensure that **marginal demand is met by high-cost resources** so that the price of oil remains in a USD 80-100/bbl range



**Post-2014**

Tight oil production grew from 0 in 2011 to 5 m bbl/day in 2015. In late 2014, major OPEC players decided to win on volume using their low-cost positions



Saudi Arabia 
  Other OPEC 
  High-cost resources (offshore deepwater, oil sands) 
  Tight oil

1) Total oil production cost estimates, including capital returns

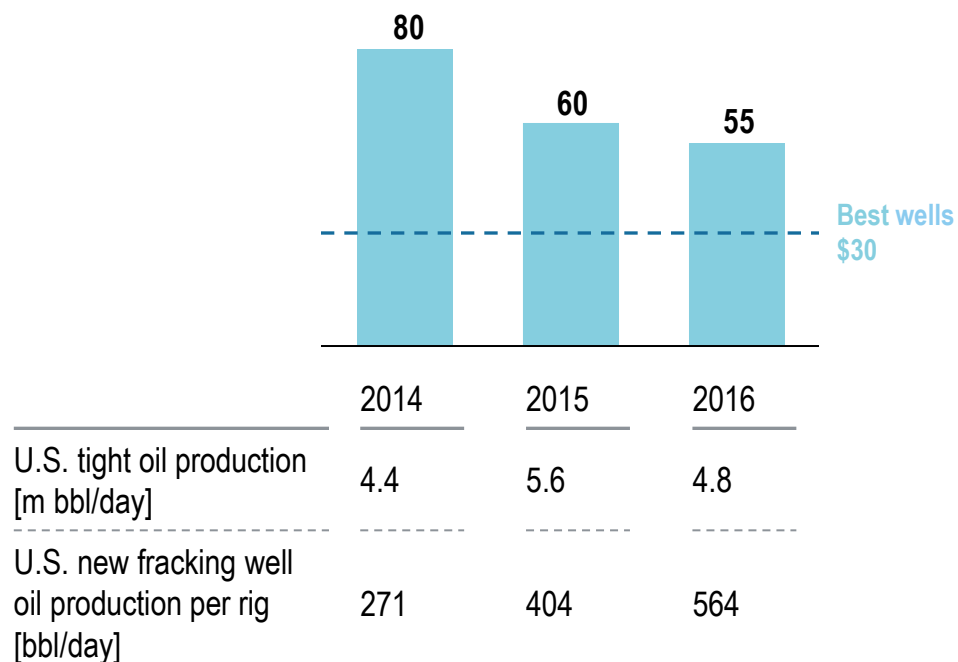
# US tight oil production has been resilient to lower prices thanks to improving economics and high short-run elasticity

## US tight oil production dynamcis

### Tight oil attributes

- > Significant reserves: 130 billion barrels (50% of total US and more than 50% of Saudi Arabia)
- > Near-perfect competition:
  - 1,000's of independent players, many of which are small
  - Limited barriers to entry and exit (USD 5-10 m to develop a typical well, 2-3 year payback on most wells)
- > Highly elastic in the short-run:
  - Well construction to production in less than 2 months
  - Fast depletion rates relative to conventional wells

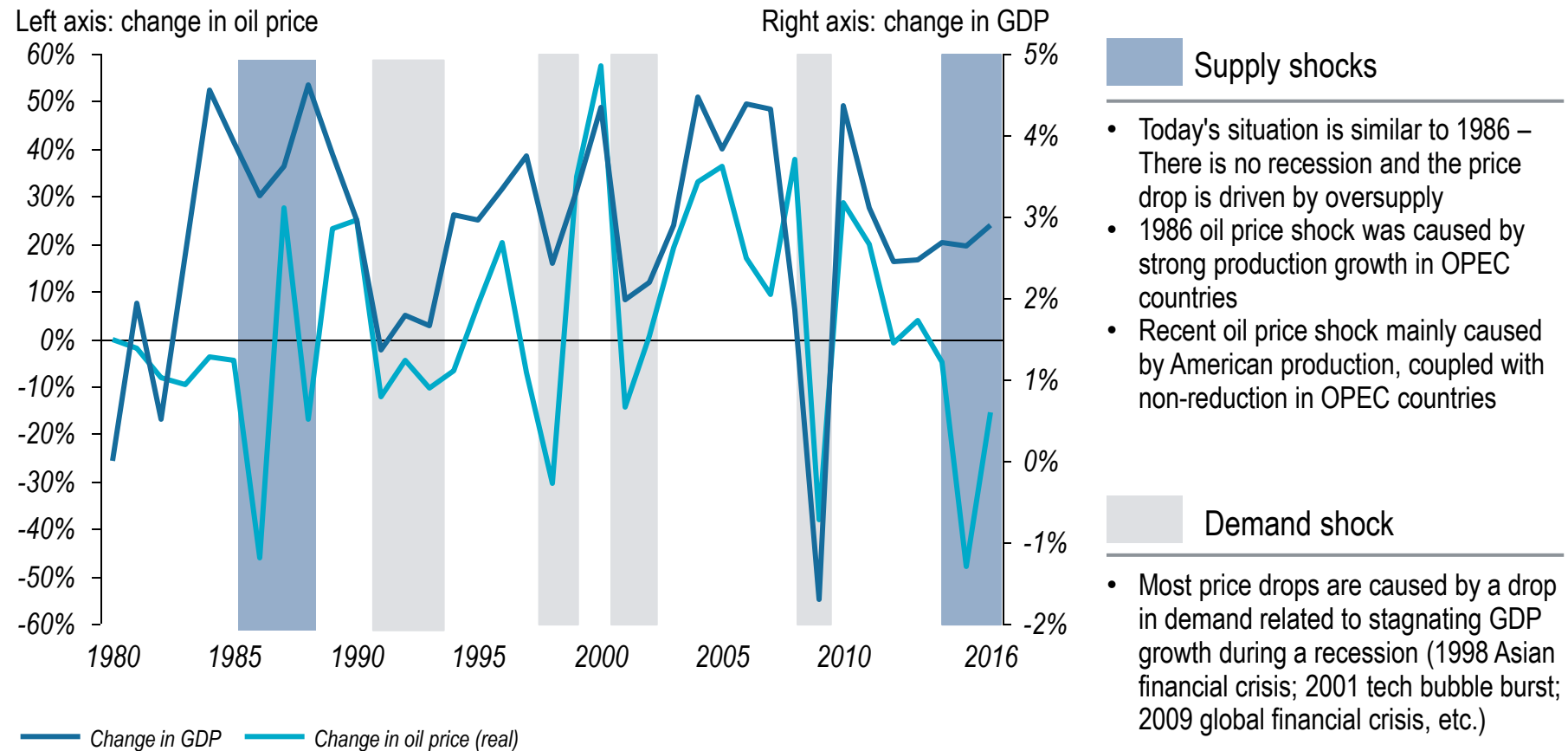
### U.S. tight oil breakeven economics<sup>1)</sup> [USD/bbl]



1) Including capital returns

# The latest drop in the oil price is due to oversupply – There is no longer a correlation between oil price changes and GDP

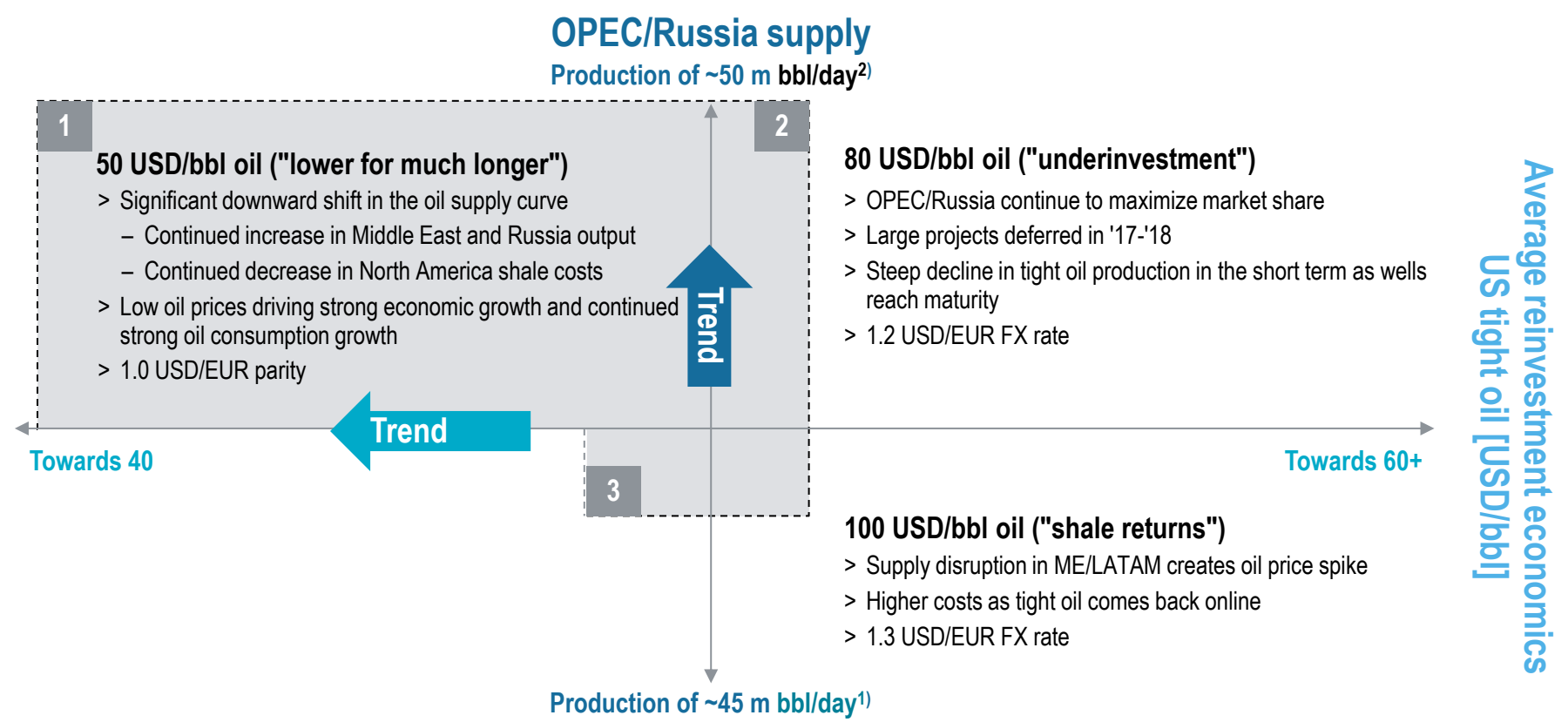
(Real) oil price development and GDP change during previous oil price drops



- Today's situation is similar to 1986 – There is no recession and the price drop is driven by oversupply
  - 1986 oil price shock was caused by strong production growth in OPEC countries
  - Recent oil price shock mainly caused by American production, coupled with non-reduction in OPEC countries
- 
- Most price drops are caused by a drop in demand related to stagnating GDP growth during a recession (1998 Asian financial crisis; 2001 tech bubble burst; 2009 global financial crisis, etc.)

# Oversupply and the resilience of US tight oil have been driving the world towards a "lower for much longer" oil price environment

## Scenario definition

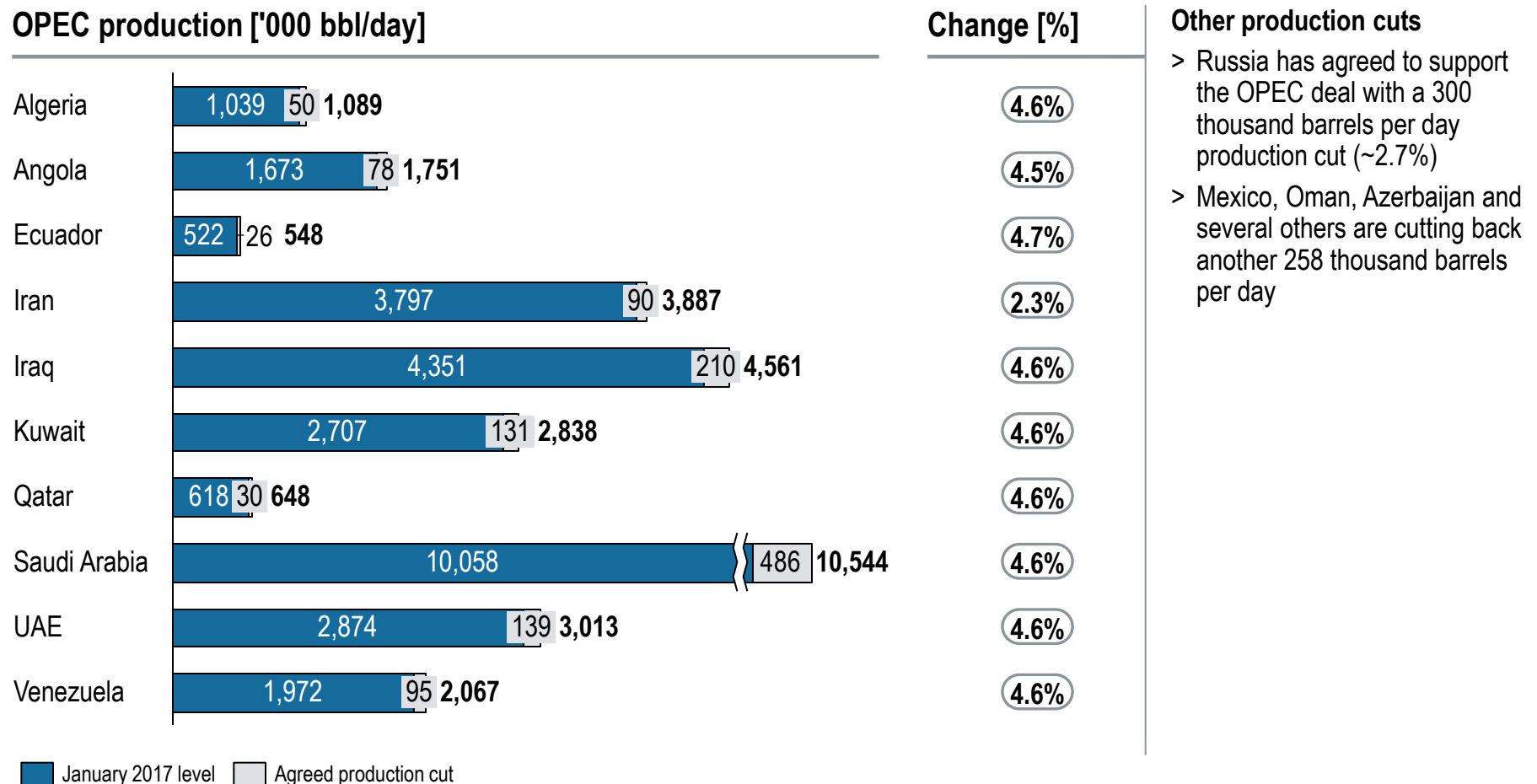


Scenario bounds



But this trend was interrupted in November 2016 when OPEC reached an agreement to cut production by 1.2 m bbl/day

Oil production in major OPEC countries and production cut agreements

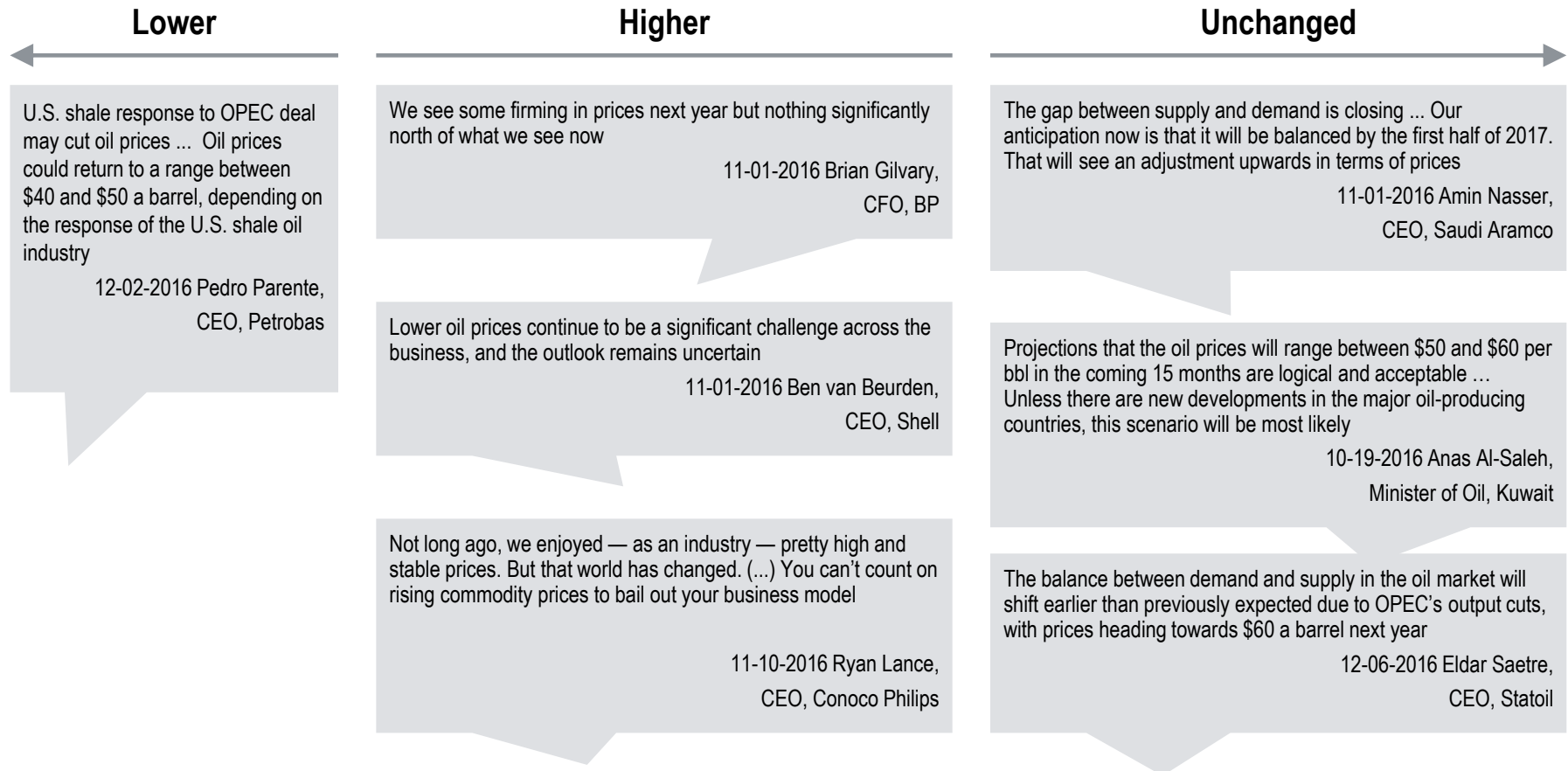


### 3. Future oil prices



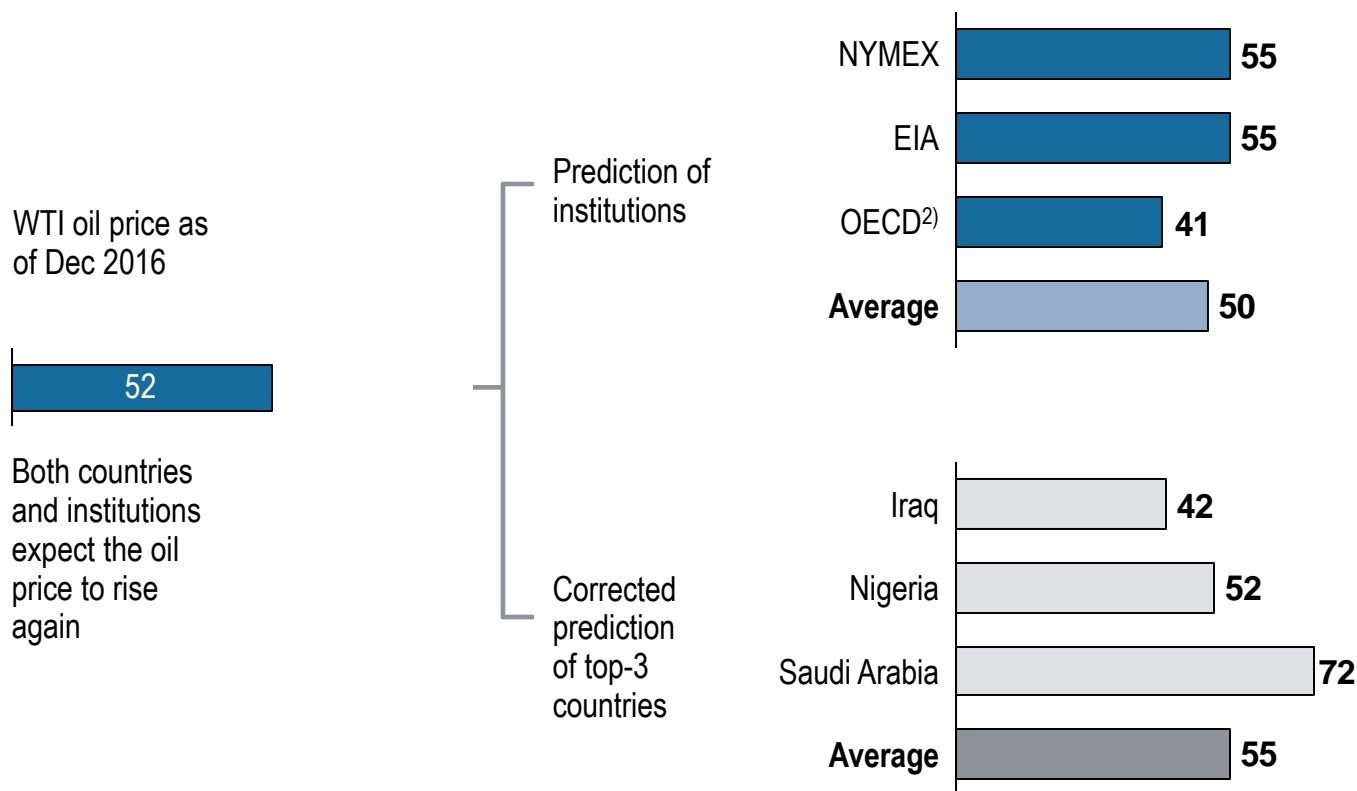
# What will the future bring for oil prices? Expert opinions vary, but many of them tentatively predict higher prices

## Selected quotes on oil price forecasts



The oil price is now ~USD 52 – Institutions predicted an average price of USD 41-55 and the top-3 forecasting producers USD 42-72

2017 WTI price forecasts<sup>1)</sup> [USD/bbl]



1) Updated top-3: based on 1999-2016. To improve comparability, forecasts are adjusted for the ratio of local oil prices to WTI prices (2012-2014) and for average budget deviations (1999-2014, excluding 2001 and 2009); 2) Forecasts were made before the OPEC meeting in November 2016

Source: Ministries of Finance; National banks; Press reports

# The institutions and the countries agree that the oil price will increase, but they do not agree on how much

## Summary

- > The oil price has slightly recovered from the major dip in late 2015/early 2016, but with an average of USD 43 per barrel in 2016 it remains low
- > Institutions (NYMEX, EIA, IEA) predict only a moderate increase of the oil price (to an average of USD 50 per barrel in 2017)
- > Cost developments in shale oil indicate an oil price around USD 50 per barrel as the most likely scenario
- > If OPEC holds to the November 2016 agreement, this will reduce the oversupply and possibly drive up the oil price
- > This could lead to the scenario foreseen by the top-3 oil-forecasting countries of a higher oil price of USD 55 per barrel over 2017

Roland  
Berger

