

Oil markets and their transformation

International Petroleum Week 2015



February 2015



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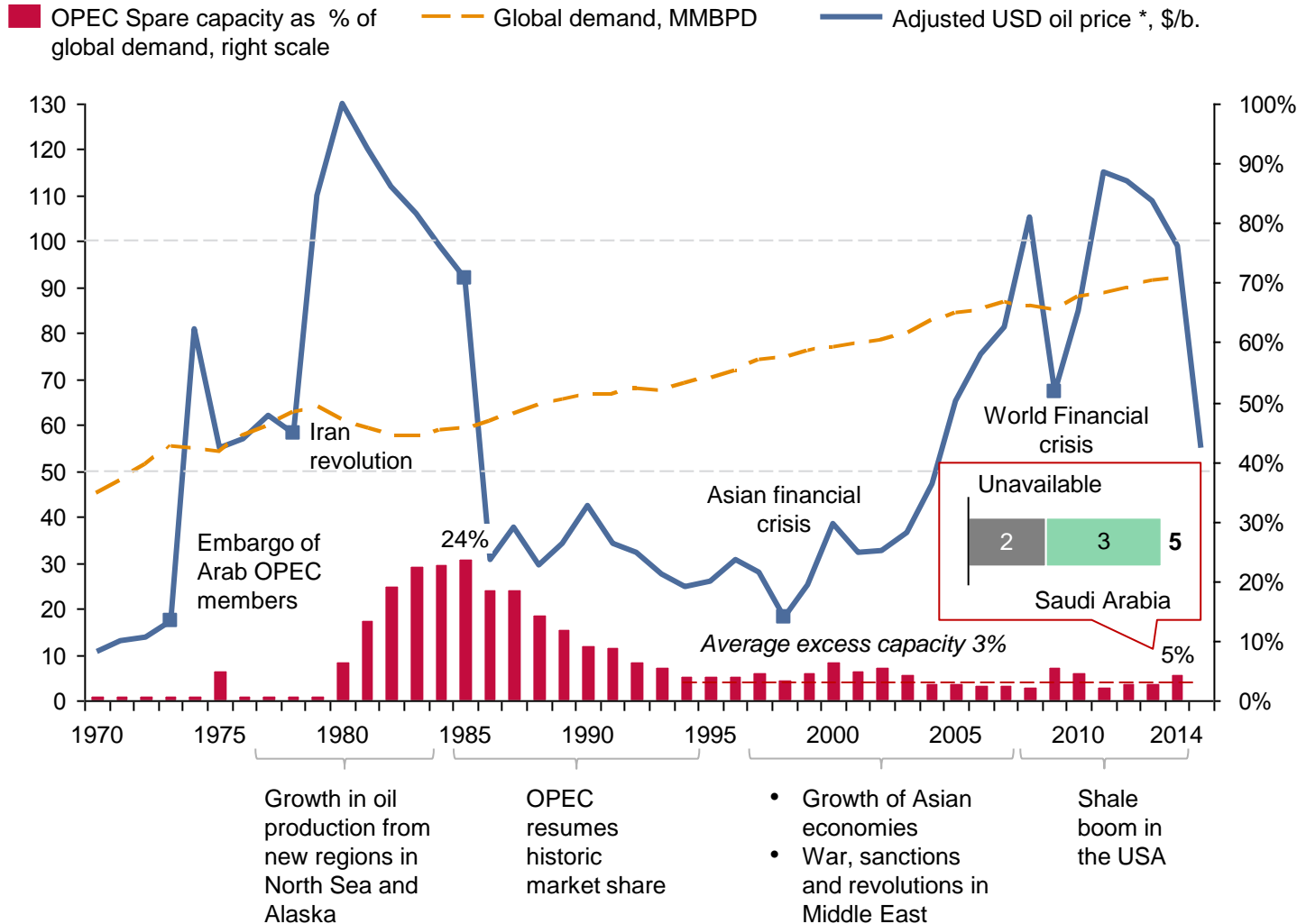


- **Global oil price decrease in 2014**
- **Areas of concern in global oil price discovery**



In 2014, the substantial fall in oil prices was not justified by the economic drivers

Oil price, \$/bbl 1970 to 2014



- Over the past 50 years the world oil market has passed through a series of **crises** caused by both **economic** and **political** reasons
- The scale of the **2014** price drop is reminiscent of the drop in **1985** in **real terms**, but with much smaller economic drivers
- However **the speed** of 2014 crisis development exceeds anything we've seen so far
- Average level of **spare capacities** during the last 20 years was around **3%**
- **Current excess of supply** is seasonal and does not exceed **1.5-2 MMBPD** or **2%**

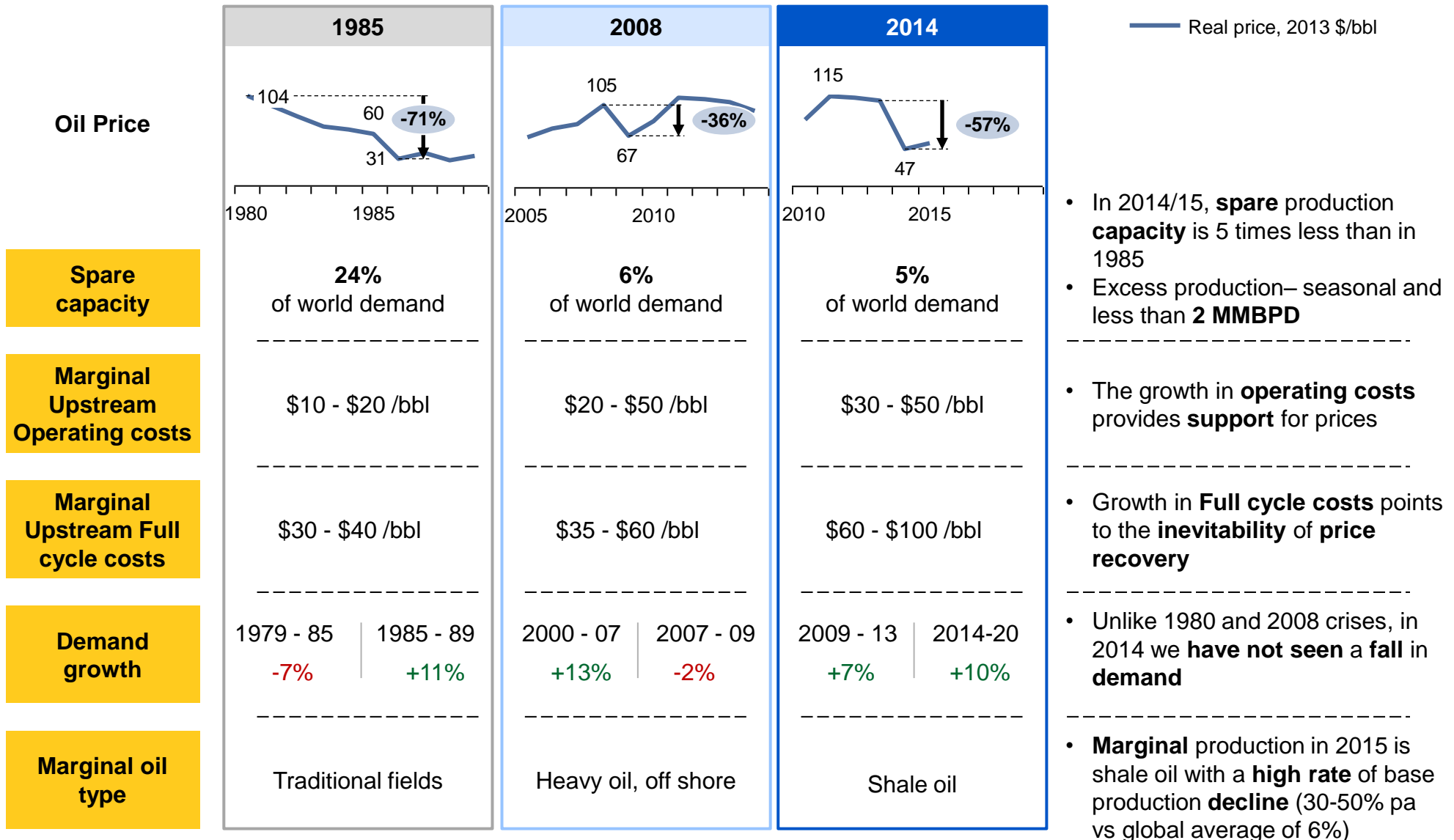
* Adjusted for USA inflation and change in US dollar exchange rate to currency basket

** Countries under sanctions, at war, etc. (Libya, Iran, Iraq, Nigeria, other)

Source: BP statistical review of world energy 2014



The fundamental imbalance in 2014 is just a ripple on the water compared to the oversupply tsunami of 1985

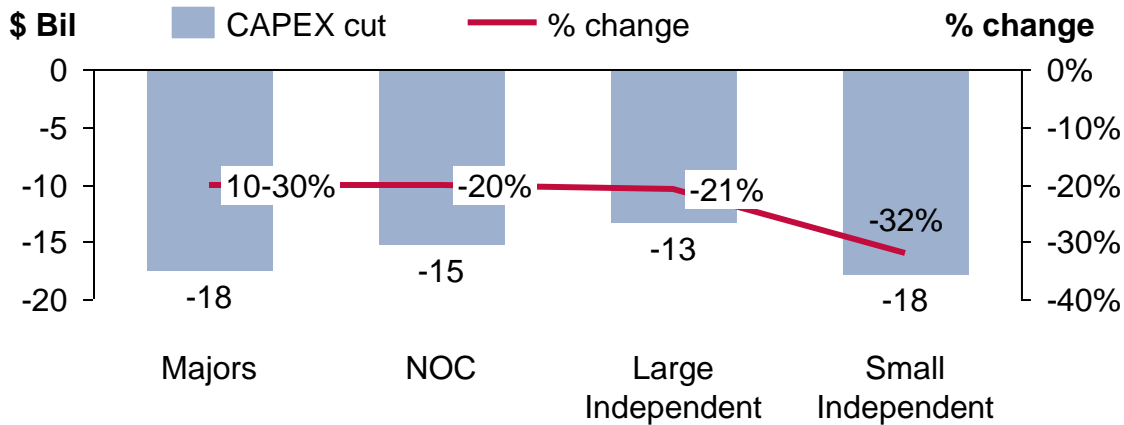


Source: IHS CERA report: "Finding the critical numbers, 2007", IEA, Wood Mackenzie, IEA



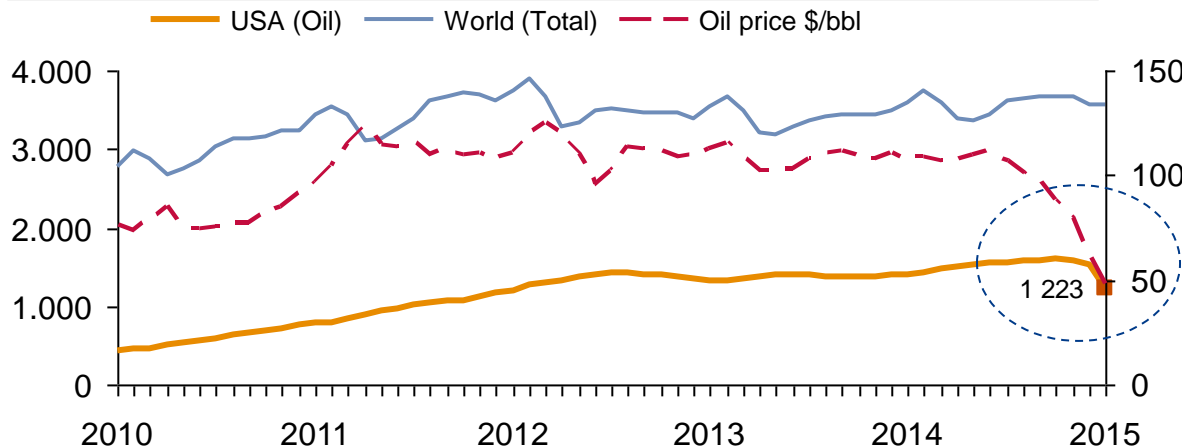
Plans to cut upstream CAPEX for 2015 by 20-30% have been announced, while Rig count in the US is dropping sharply

Announced CAPEX cuts in 2015 compared with 2014



- Oil companies are **cutting capital investment plans** – currently announced **-\$65 billion**, however Wood Mackenzie expects **\$100 billion** by the end of 2015:
 - **Total:** 2 oil sands projects in Canada
 - **Chevron:** drilling in Canadian Arctic (Beaufort Sea), fracking project in Poland

World drilling activity, rig count



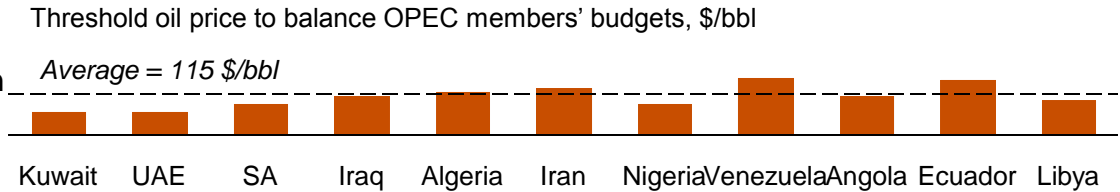
- The greatest investment decline is in **medium** and **small** independent companies, many of which are involved in **shale oil**
- Over **20,000 headcount** reductions announced (including 16,000 in Schlumberger and Baker Hughes)
- The **US Oil Rig** count has dropped by **276 units (-18%)** in **January** alone



Actions taken to lower the oil prices undermine the investment basis of the oil industry and damages the budgets of producing and consuming nations

Producing nations

- Considerable budget deficits, as growing expenses were based at an assumed oil price of \$100/bbl



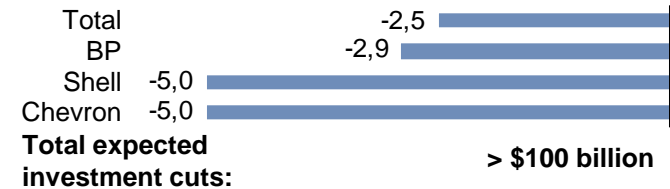
Consumer nations

- Even in growing economies, the budgets of consuming countries can suffer because of lower centralized fiscal revenues from major oil companies
- Increase in social expenses possible, to support laid-off employees of oil industry and adjacent industries

Large oil companies

- A considerable drop in revenues and cancellation of investment projects

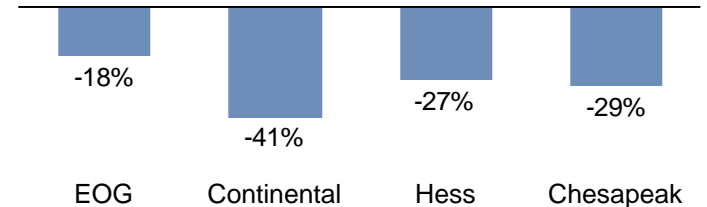
Decreasing investments by majors in 2015 as compared to 2014, \$ bn



Small / medium oil companies

- Many medium-sized companies are exposed to the risk of financial pressure due to weak balance sheets and can become targets for acquisition

Decrease of share value on 06.02.2015 as compared to 01.07.2014



Oilfield services companies

- Considerable personnel reductions



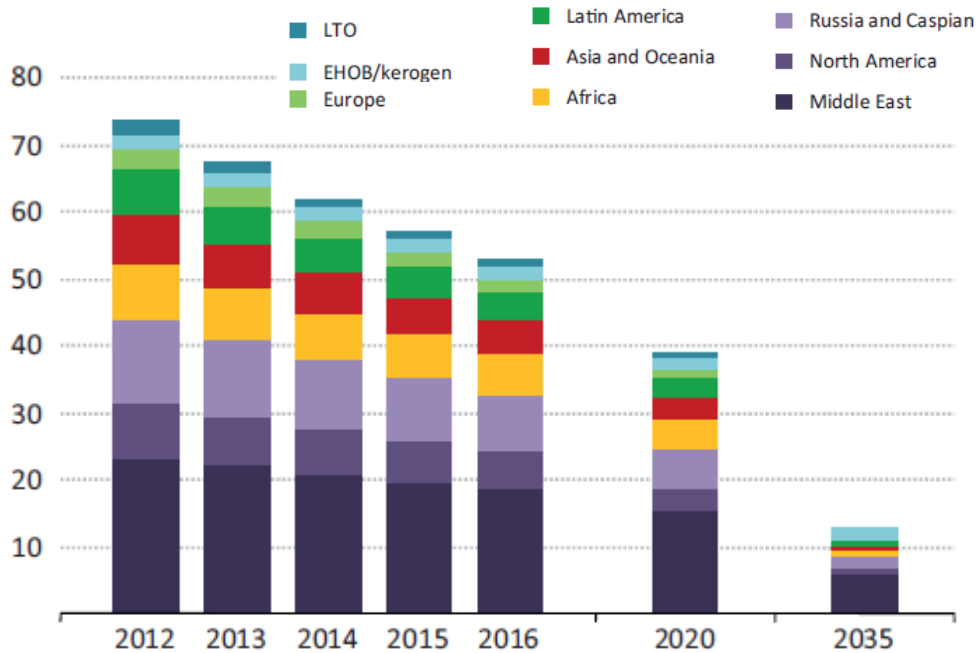
Source: IHS, Bloomberg, MSN money

Disruption of long-term investment may lead to oil deficit in the future

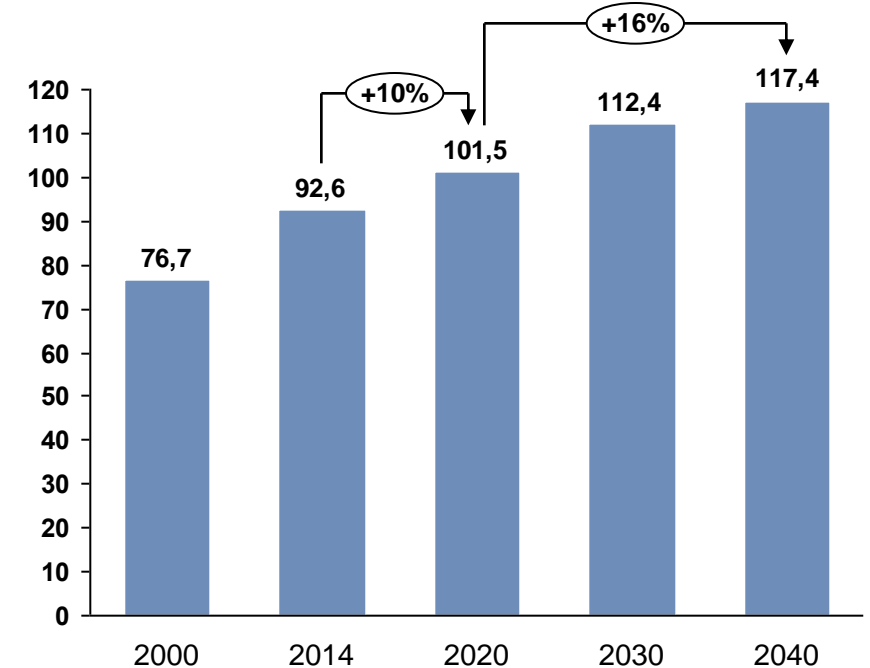


A continued decrease of investment in exploration and production, against a growing demand and declining base production, may lead to an oil deficit

Base production from current fields, MMBPD



Global demand for liquid hydrocarbons, MMBPD

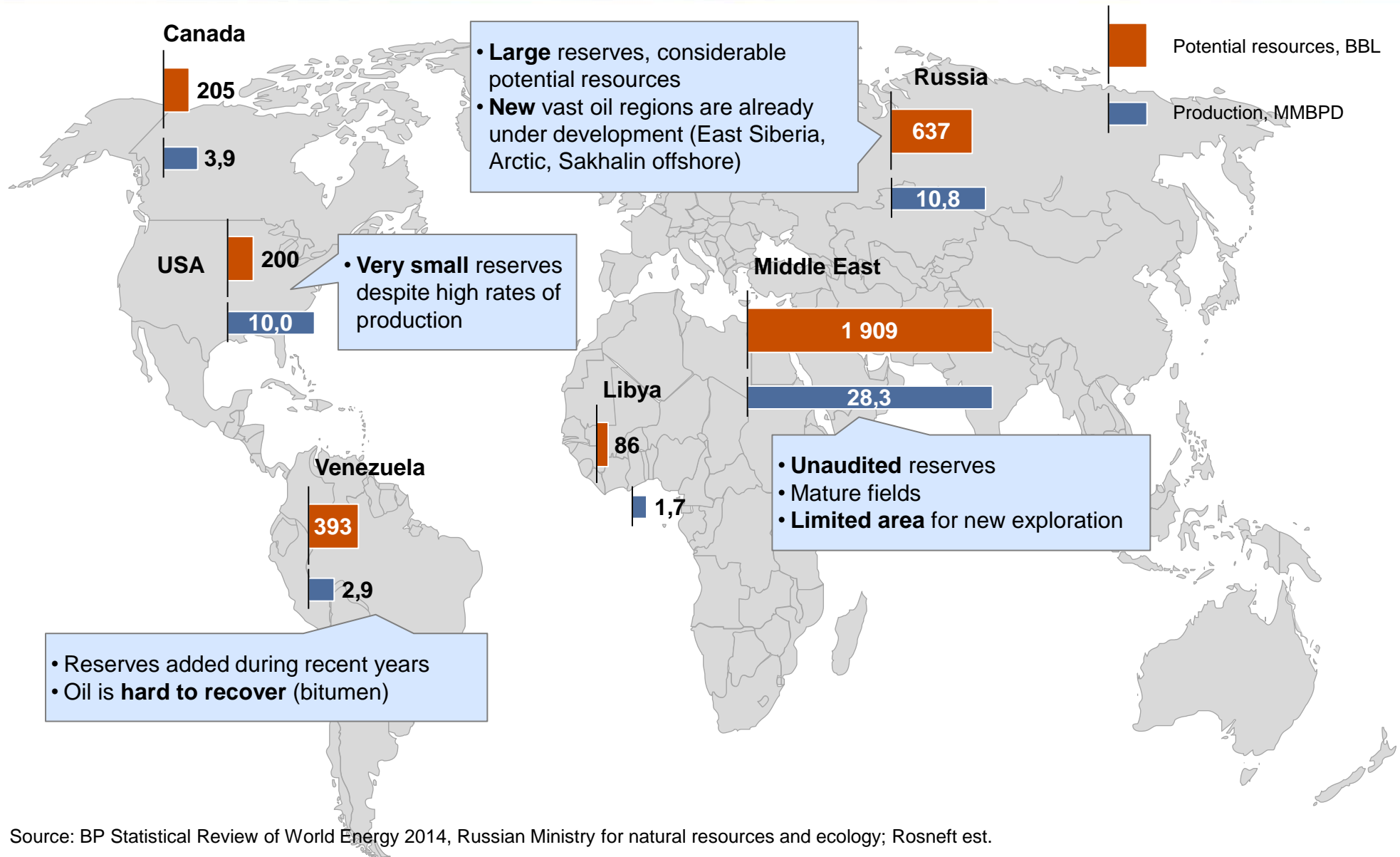


- The average rate of **decline** in **base** oil global production is about -6% or **6 MMBPD**
- The decrease of US weighted-average base production amounts to -28% annually, due to high rates of decline of shale wells (-30-50% per year)
- Today's over capacity of 2 MMBPD may well be balanced in less than 1 year

- **In the long term**, population growth and a large share of oil in energy consumption, will ensure a **growth** in **global oil demand**
- All else being equal, **demand growth** alone can **balance** the market within **1-2 years**



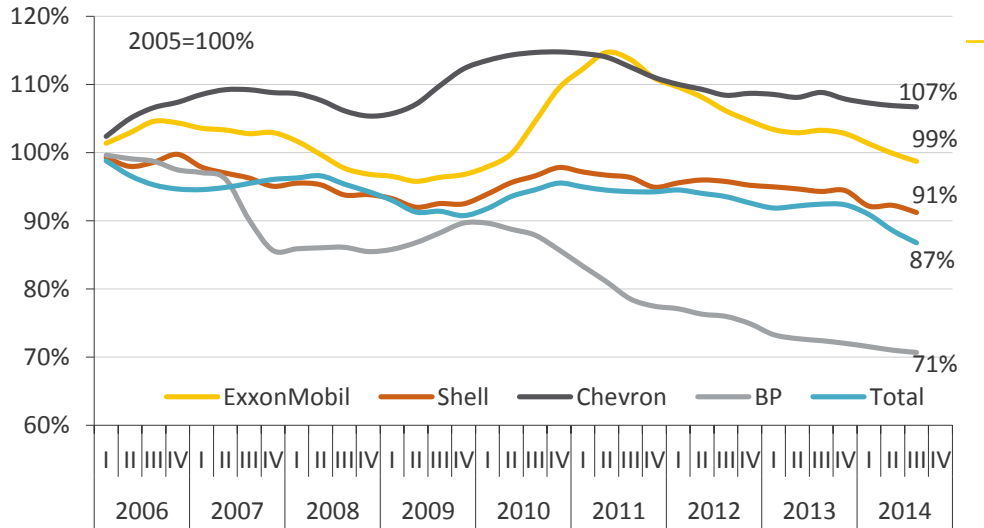
The structure of current global production is misleading regarding the sources of future production, the latter depending on resources available





Major oil companies' CAPEXs increasing, against a stable or declining production level

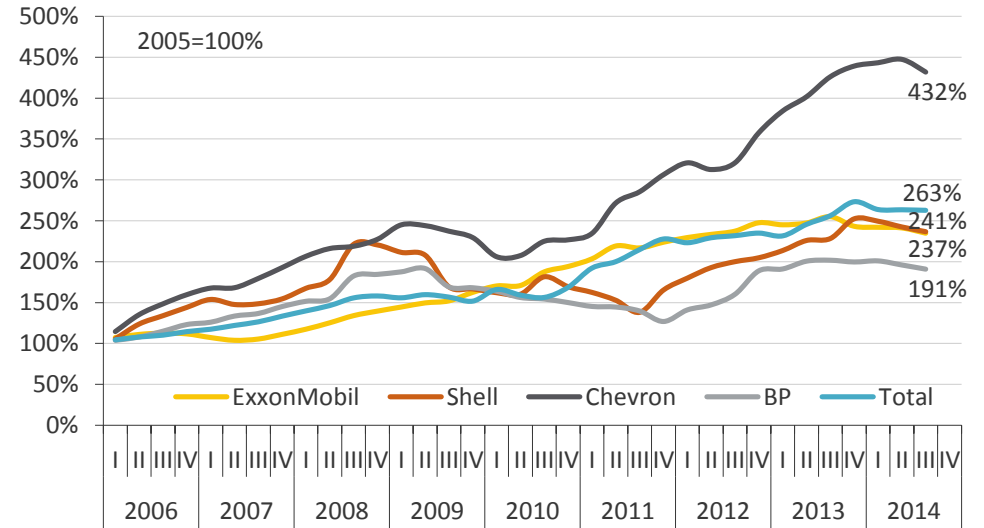
Oil and gas production by Majors



Sources: est. by Institute of Economics and Finance of MIIT, quoted by Bloomberg

- Even during high oil prices, Majors didn't ramp up oil and gas production
- Natural gas share in total hydrocarbon production of Majors is increasing
- Oil and natural gas production by Majors amounts to 551 MTOE for the first 9 months of 2014, which is lower by 4.3% than the previous year

CAPEX of Majors



* Quota and production given without Iraq's share till 12.2011.

Sources: est. by Institute of Economics and Finance of MIIT, quoted by Bloomberg

- Capital expenditure of the majors grew continuously from 2005 to 2014
- Majors' CAPEX doubled from 2005, Chevron's rose by 4 times
- However in 2014, Majors embarked on CAPEX reduction and portfolio optimization programmes. As a result, Majors CAPEX amounted to \$109.5 bn, which is by 4.8% lower than the previous year
- Given the low oil prices, this decline in exploration CAPEX is likely to continue

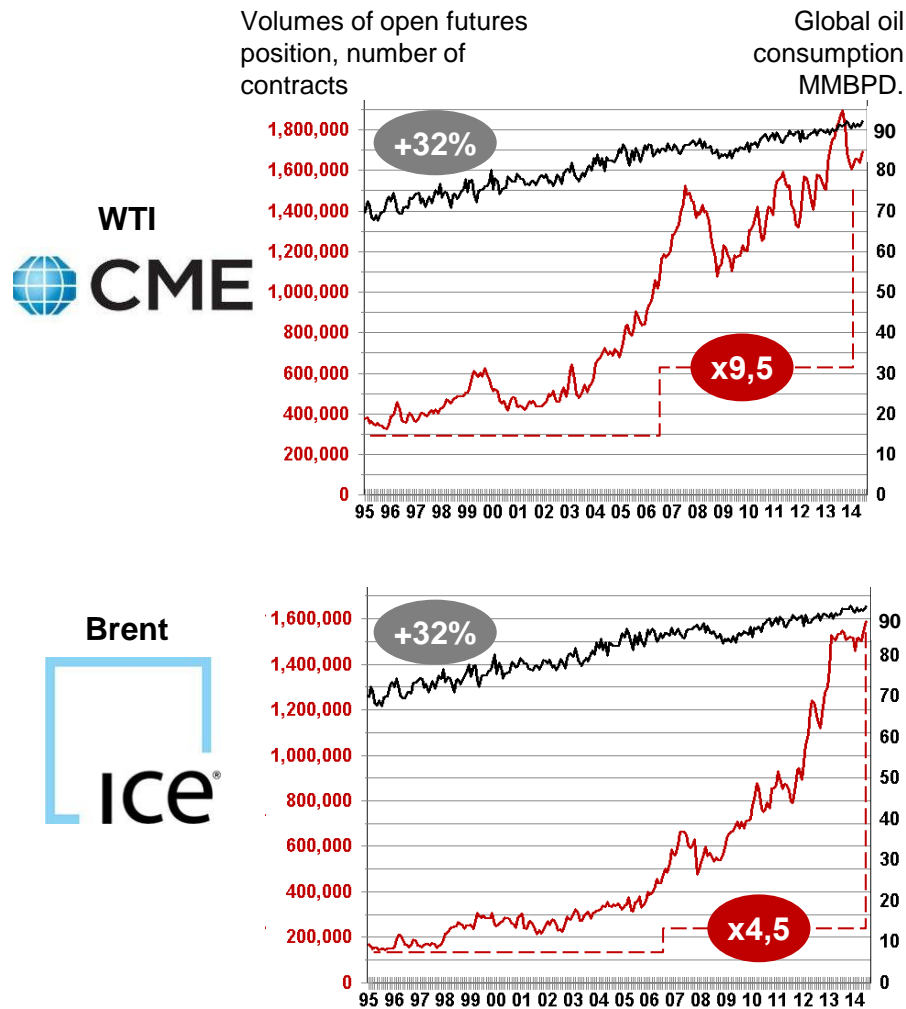


- **Global oil price decrease in 2014**
- **Areas of concern in global oil price discovery**

Greater reliance on financial markets for oil price discovery leads to loss of link between oil economics and the price



Volume of future open positions compared with global oil consumption

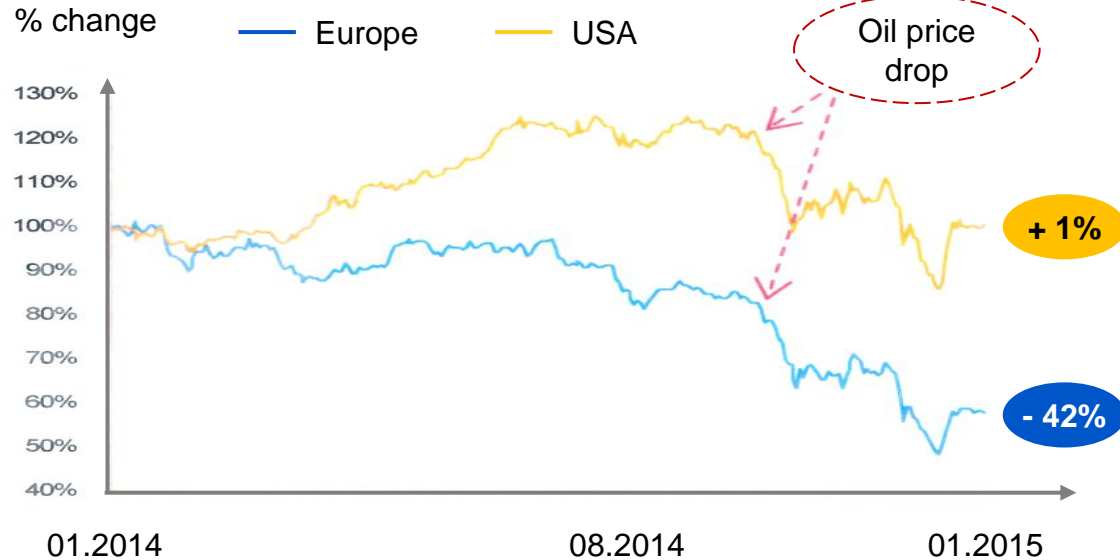


- In the past 20 years the open interest in Brent and WTI futures has gone up by **9.5x** and **4.5x** respectively while oil demand has increased only by 32%
- This **huge increase** in **paper trading** results in higher influence of **financial** drivers
- Financial markets are prone to **bubbles**: dot.com crisis in 2000, subprime mortgage crisis 2008.
- **Oil supply** is too **important for everyday life** to risk to financial bubbles
- Even though efforts are undertaken, financial markets are still prone to **manipulation** such as (LIBOR rate fixing, inflated AAA ratings for mortgage backed securities)
- The oil industry requires **stability** and low risks to support sustainable investment and production



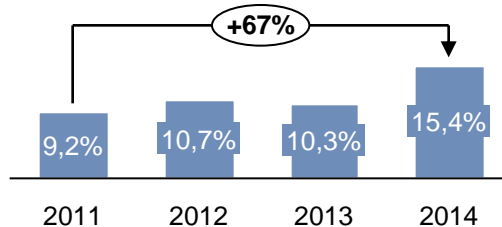
Despite a drop in oil prices and growth in company debt, share prices of US shale oil producers are at January 2014 levels. Is it a new financial bubble?

European and US E&P companies share prices, % change

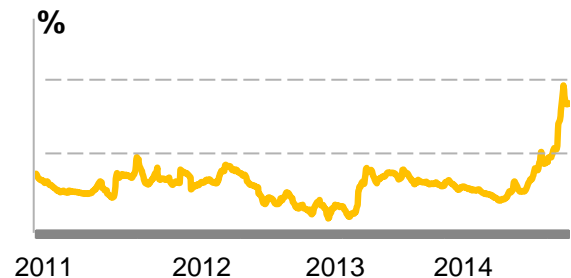


- Since the beginning of 2014 shares of European E&P companies **fell by 42%** along with the drop in oil prices
- At the same time, shares of **US shale oil producers** are at January 2014 levels. **Why?**
 - Have they **increased productivity** twofold? **Reduced their debt** level sharply?
 - Has there been an adequate **market response** and subsequent **valuation**?
 - Is it an another bubble, in the US shale oil? What will happen to the US financial system if this bubble bursts?

Share of energy companies in US bonds index, %



US energy companies bond yield, %



- With the end of Quantitative Easing policy in the USA the **speculative capital** switched to **US shale oil**, fueled by **tax breaks and subsidies**

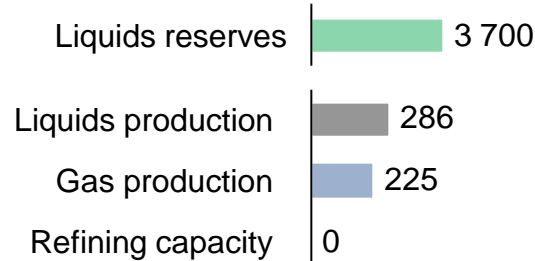


Are US shale-focused companies overvalued? EOG valued 34% higher than Lukoil with 3,9 times lower reserves and 6,6 times lower liquids production



- Upstream oil company with assets in USA, Canada, S. America and UK
- No vertical integration

Operational highlights, MMBPD, reserves in MMB

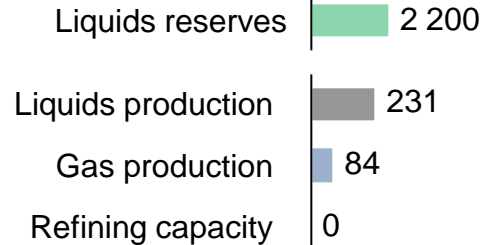


Market Cap., \$ bil.*



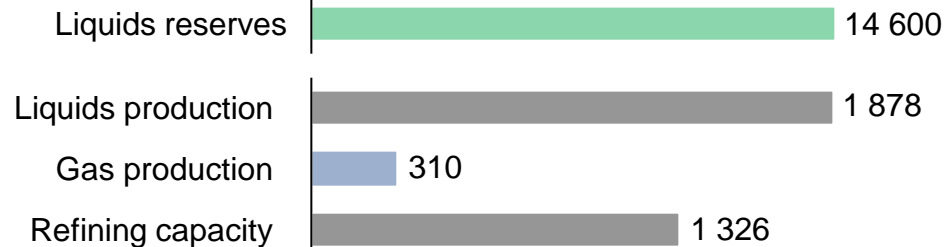
#3 in tight oil production in USA

- Upstream oil company with 60% production in USA and 40% in Europe and Africa.
- Recently exited from refining.



LUKOIL
2,1% global crude production

Vertically integrated oil company with assets exploration, production, refining and retail in Russia, Europe, Middle East, USA.



* As of 09/02/2015

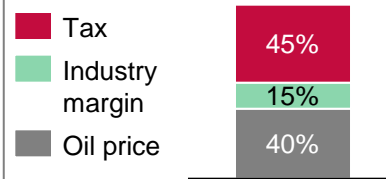
Source: Wood Mackenzie, Bloomberg, company reports



Heavy and protectionist regulation harm development of the oil industry...

- US ban on oil exports along with growing shale production gives **advantage to local refineries** which **hurts European refining industry**

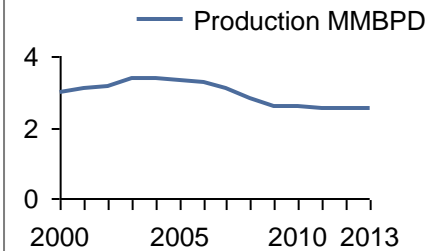
- OECD high **taxes** on refined products **distort** consumption patterns



- **Sanctions** against Russian oil industry aimed at undermining European crude supply and support growing WTI / Brent differential and may be detrimental of **European refining industry**

MMBPD

- **State policies in Mexico** have led to **decreasing oil production**



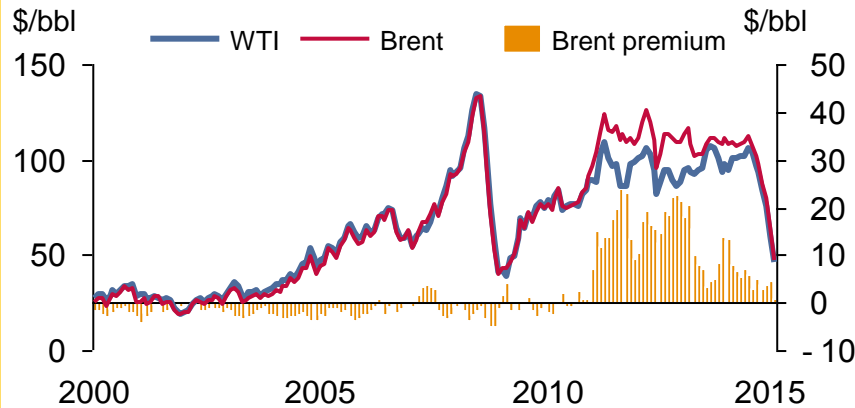
- Growing oil **demand** in Africa limits its **export capabilities**

- **Chinese oil imports** are **dominated by State-owned companies**

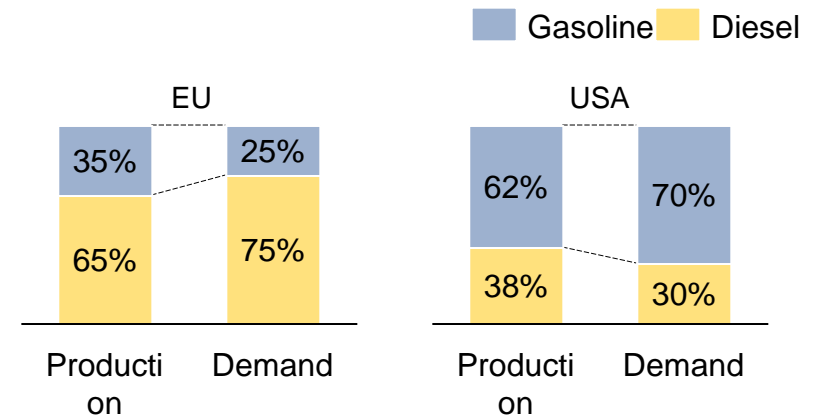


... and leads to regionalisation and unbalancing of the global market for crude and oil products, which undermines global energy security

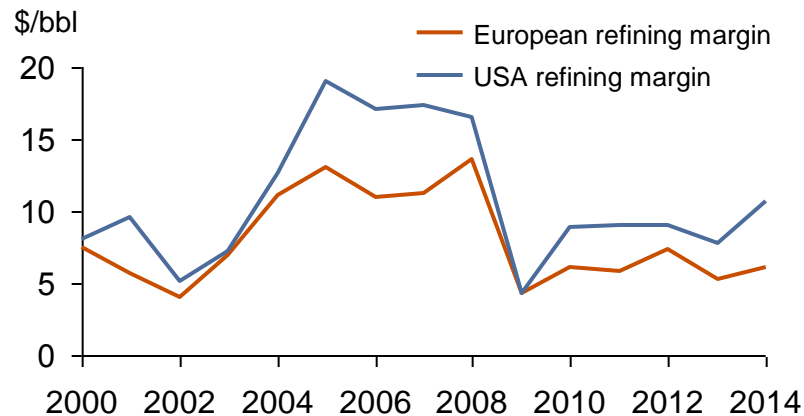
WTI / Brent differential has created benefits for the US refining industry



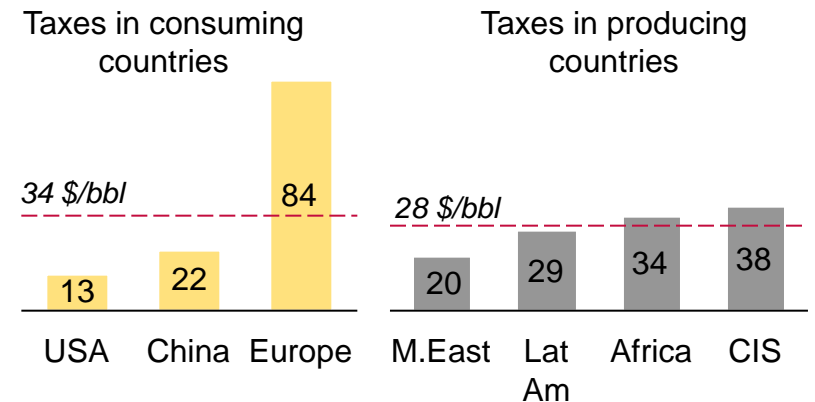
The structure of demand in Europe is significantly different that production due to taxation regimes



The USA has a significant advantage over the European average refining margins



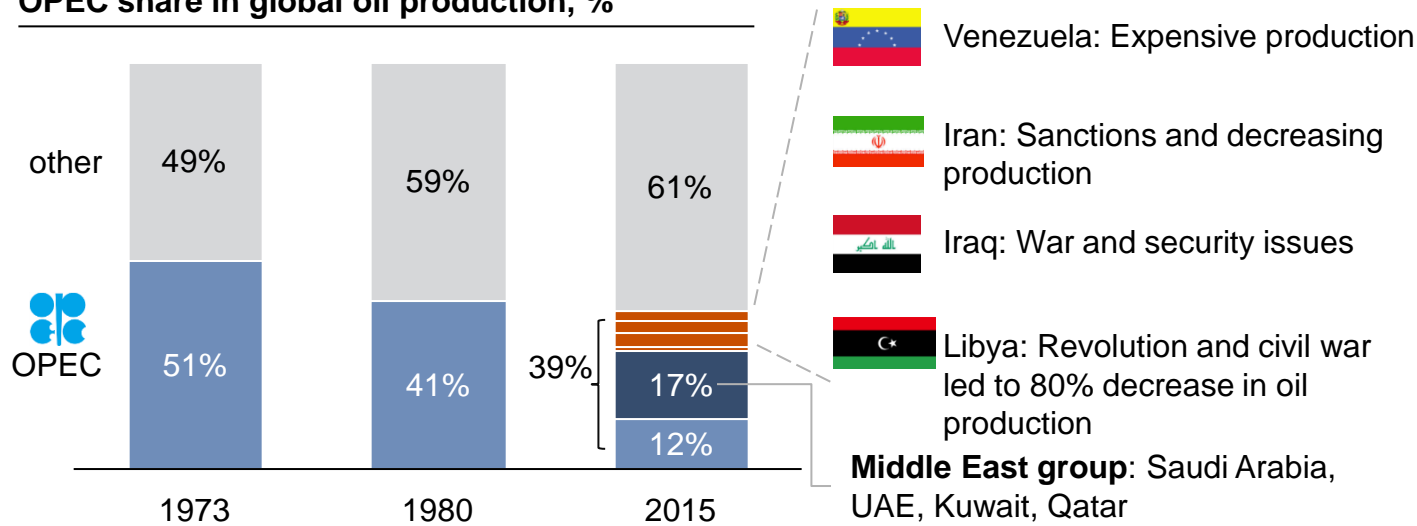
Governments of both consuming and producing countries compete for extraction of rents from oil





OPEC is no longer a united centralized organization due to disagreements among its members

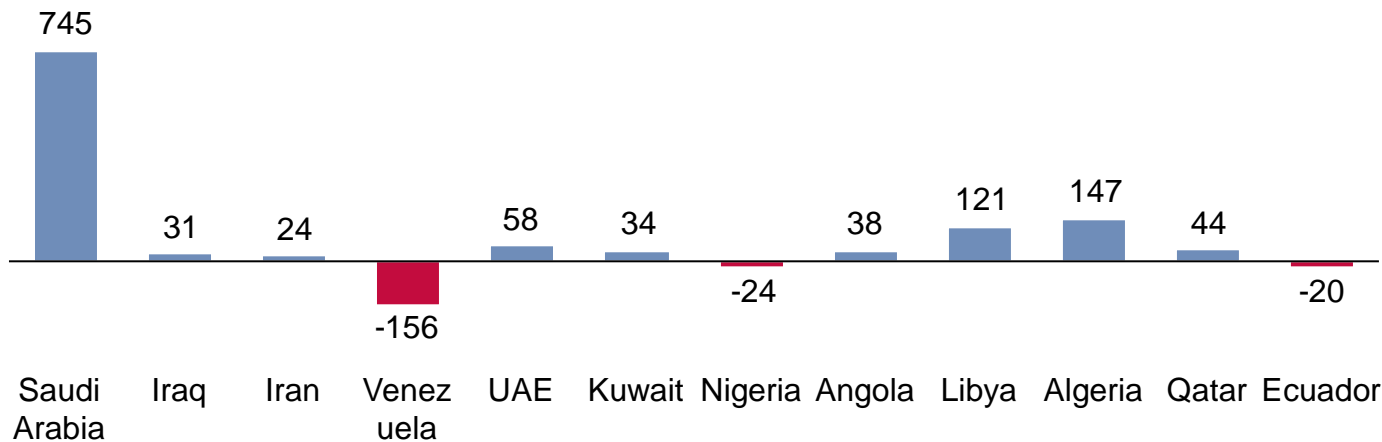
OPEC share in global oil production, %



Since 1980s share of OPEC is stable but:

- **Interests of OPEC members are not aligned** – some don't consider interests of countries with cash constraints and high social obligations
- Most **OPEC** countries lack the **substantial financial reserves** required to grow the production (upstream investments) or to reduce production (social obligations)
- Only a **group of Middle East** countries have substantial **financial reserves** and spare production capacity to decrease / increase production and execute **independent oil policies**

Net financial reserves / debt of OPEC countries, \$ bln, 2014





The oil pricing infrastructure is not reliable and requires improvements

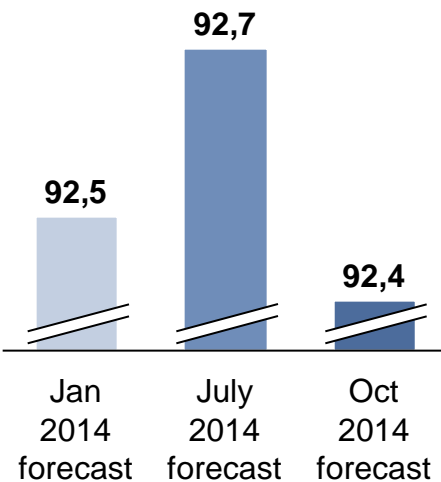
1 Information

- World oil market fundamental data which influences the price **are not confirmed** by independent audits, mainly oil reserves of **Middle East** countries and **North America** shale oil reserves

2 Forecasts

- Forecasts** of oil market are often **opaque**, are changeable and **exacerbate** price movements

Evolution of the IEA Forecast of World demand in 2014 MMBPD



3 Quotes

- Quotations** by market participants wildly **swing** the market

22.12.2014
REUTERS
"it is not in the interest of OPEC producers to cut their production, whatever the price is. Whether it goes down to \$20, \$40, \$50, \$60, it is irrelevant"
Saudi Arabia's oil minister Ali al-Naimi

4 Prices

- In May 2013 the **EC** launched an **investigation** about **Platts** and **other companies** and the possible **manipulation of prices**



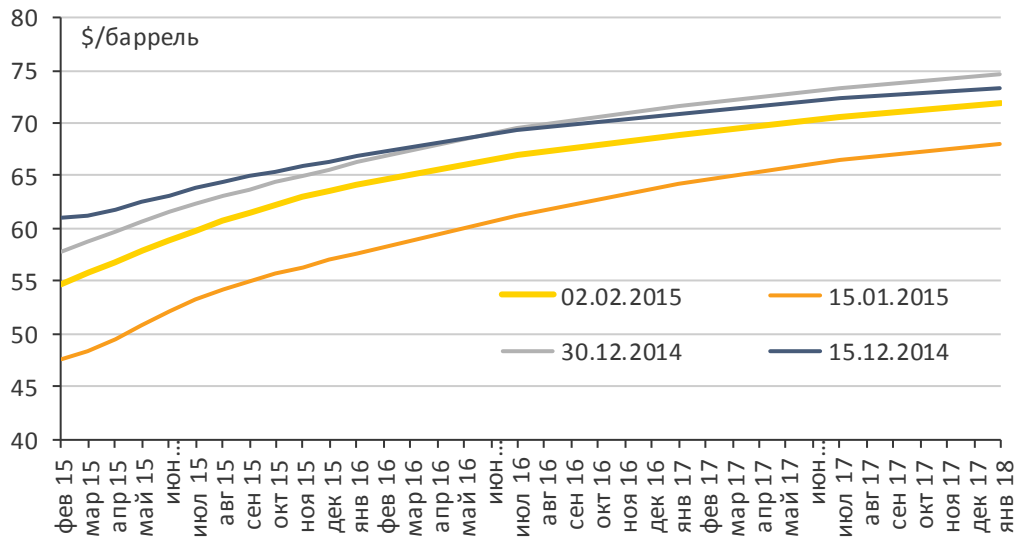
01.03.2012

*"Pricing agencies can be **manipulated**", IOSCO - 2012*



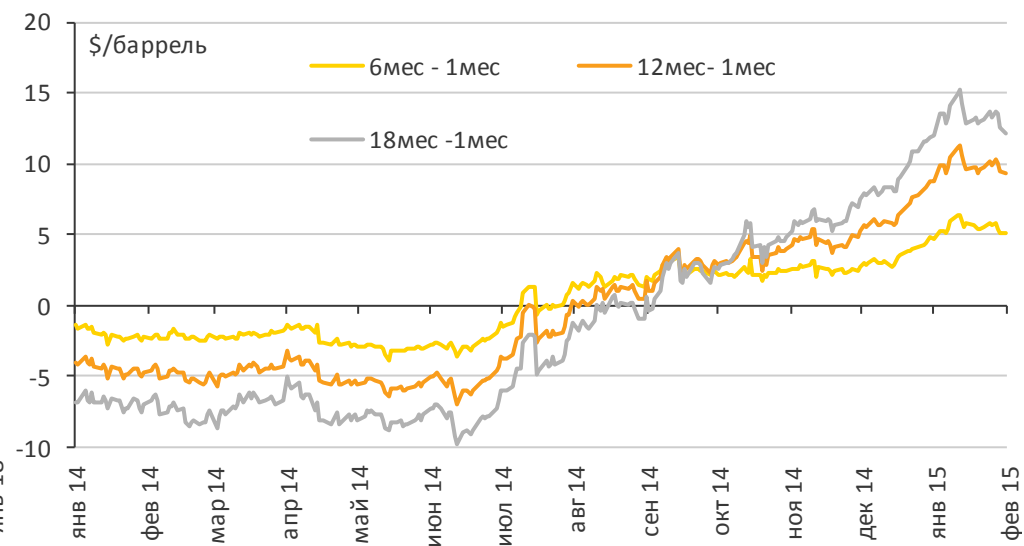
Forward curve and futures spreads

Brent forward curve



- After the decrease in spot market and "near" futures prices, price levels along the entire forward curve lowered.
- The forward curve partly reflects expectations about future prices, as well as expectations about interest rates (through arbitrage with regard to spot prices).
- **The long-term rate on futures market is now around \$70 per barrel**
- The futures market is in "contango" now (future prices are higher than spot prices).

Brent futures spreads



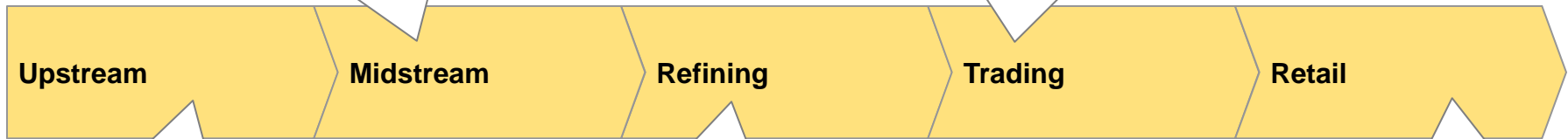
- Higher oil prices at the end of January 2015 led to a "flattening" of the futures curve and lowering of futures spreads. In particular, the spread (18 months - 1 month) dropped from \$ 15 / barrel in mid-January to \$ 12 in early February.

Business and real oil market participants may counter the growing risks with a closer integration along the supply chain and by building long term relationships



- Consumers provide financing for building **infrastructure**

- **Long term supply contracts** for crude and refined products



- Increased participation of consumers in **upstream**

- Traders building assets in upstream

- Producers invest in **refining** projects in consuming regions

- Traders building assets in **retail**

- Producers gaining access to retail in consuming countries

Regulators and oil pricing infrastructure managers should ensure transparency for all market participants



Suggested elements of oil pricing infrastructure development

Market participants

- Monitor the impact of **financial players** on oil pricing and increase the role of **real** producers and consumers.
- Increase the share of **physical crude volumes** in oil pricing up to 10-15% of total trade flows

Exchanges

- Develop **regional oil trading venues**, considering the characteristics of respective markets and oil grades predominantly traded on them

Market infrastructure

Development of a transparent and independent oil trading infrastructure:

- Reorganize exchange market **infrastructure** by enhancing the role of oil **producers** and **consumers** in it, coupling it with a qualitative increase in **transparency** of exchanges in order to reduce possible price manipulation (similar to the activities carried out regarding bank interest rates and price agencies activity).
- Improve the efficiency and quality of **market information** (production, consumption, inventory volumes, price information, conditions of oil contracting, etc.).