

THE COLLAPSE IN OIL MARKETS FROM MID-2014 ONWARDS – ECONOMICS OR POLICY

This article examines the main reasons for the collapse of oil prices from mid-2014 onwards. The main purpose of the author is to determine whether the processes on the crude oil markets are dictated primarily by objective economic circumstances or lead mainly by different geopolitical interests.

The results are rather in support of the first claim – the collapse in prices is caused by oversupply, expectations for an economic slowdown in emerging economies and the refusal of the members of the Organization of Petroleum Exporting Countries (OPEC) to continue to use production quotas as a price regulation tool. At the same time the pursuit of geopolitical interests of countries like the US and Saudi Arabia should not be ignored, but it is rather a secondary, reaction to the current market situation.

JEL: F12; F14; Q02

Introduction

History of oil markets is a chronology of booms and busts. Very often the observed price dynamics is not determined solely by economic factors because the huge importance of crude oil for the world economy and for the leading exporters and importers makes it an important tool for the implementation of various political, geo-strategic, social and other purposes. This is possible due to market concentration and prevailing state ownership of oil companies. Only ten companies hold over 2/3 of **the world's proven reserves**, and nine of them are state-owned. Furthermore, eight of the ten largest world oil **producers** are state companies. In the past, most of these companies were private, nationalized during the 1970s.

For these reasons the following issues are always topical for the oil markets:

1. What is the importance of supply and demand in the price formation, i.e. how the market mechanism works?
2. What is the role of the leading producers and exporters (mainly OPEC members) in the main market processes and what goals do they pursue?

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3. Whether non-economic objectives, such as "punishment" of certain highly dependent on oil export countries are pursued with oil price change?

These questions can fully be placed in the context of the developments on crude oil markets from mid-2014 onwards. After its peak in June 2014 (108.4 USD / barrel) the average monthly price of three of the main sorts of oil decreased by 72.5% by January 2016 (29.9 USD/barrel).² The decline exceeds the one from the time of the global financial and economic crisis (2008-2009) and the recovery of prices, whenever and if it appears, could turn out to be much slower than expected by many economists and representatives of the oil industry. The data suggests that the drop in oil prices has structural/long-term nature.

The coinciding of these events with the exacerbation of geopolitical tensions between the great powers, which are also key players on the oil markets, creates numerous conspiracy theories. They are mainly related with the desire of political groups in US to change the political courses in Russia (like in the 1980s, when cheap oil is considered to be one of the reasons for the collapse of the Soviet Union) and partly in Venezuela. Saudi Arabia is recognized as an US ally in this initiative and its aims are mainly related to obstruct economic recovery of regional rival Iran, especially after the withdrawal of economic sanctions against the country (in the end of 2015), respectively elimination of barriers to Iran's crude oil export. Moreover, Saudi Arabia is seeking to occupy positions of Russia and Iran in Europe and Asia (while maintaining its market share in certain countries), especially since the shale revolution in North America began to threaten its positions on the US oil market.

It could be said that Saudi Arabia has more interest in low prices and gradual increase of oil consumption (not to induce strong price growth), which would allow it to expand its position on the oil markets. Saudi Arabia has competitive advantages in terms of cost of production (even against other OPEC members), which allow it to supply at prices unbearable for many other producers in the long term. The low cost also allows the country to provide discounts, which in turn are an effective tool precisely in situations of low oil prices and tight profit margins for other manufacturers. An important competitive advantage of the country is also its large spare production capacity that enables it to satisfy a greater share of the growing demand without making further investments in fixed assets.³ Meanwhile, other leading producers are unlikely to make new investments in extractive capacity in terms of lower prices and therefore higher risk on return on investment project. Too high oil prices are also not a good option because they will speed up transition to energy-saving technologies and alternative energy sources which within 15-20 years can more or less displace oil. First, high oil prices boost costs for research and development in the field of energy saving technologies. Such is the situation with OECD countries in the second half of the 1970s and in the first decade of this century. The difference between the

² The price is simple average of the monthly average spot prices of three of the main sorts crude oil – Brent, WTI and Dubai medium. The source of data is the IMF.

³ US Energy Information Administration (EIA) defines the spare capacity as the volume of production that can be brought on within 30 days and sustained for at least 90 days. According to the EIA spare production capacity of Saudi Arabia is more than 1.5-2 mln. b/day. For the time being it is used to control the prices, but it is possible in the future for the country to use it to increase its share on world markets.

two periods is that during the first period the costs are largely state, while during the second they are carried out mainly by private companies (IMF, April 2016). Exactly that involvement of the private sector shows that many of the achievements will find application in the industry. There is a positive correlation between oil prices and the so called "clean patents" (related to electric and hybrid vehicles and those with hydrogen fuel cells) and "gray patent" (related to innovations in terms of fuel efficiency). Second, high oil prices stimulate purchase of electric and hybrid cars. An example is the US share of electric and hybrid cars in the new car sales, which in 2013 (higher oil prices, respectively, expensive fuel) is almost 4%, while in 2015 (low fuel prices) it is below 3% (IMF, April 2016).

Despite the seemingly many benefits to the United States and Saudi Arabia from the current market situation, at this stage there is no clear evidence that such largely non-economic interests are decisive for events on the oil markets. To give a more definite answer to these questions, it is necessary to examine whether there are purely economic reasons for the drop of commodity prices. For that purpose, a comparison between the dynamics of oil prices since mid-2014 and the prices during previous market turmoil will be made in this study, the behavior of the prices of other commodities will be examined and the demand and supply of oil and the consequent balance between them will be analyzed in further details. This analysis should cover a longer period – to include the boom in commodity prices from the beginning of the previous decade, as since then oil markets have undergone important structural changes linked to the increasing role of emerging economies, which have become the main engine of the increase in consumption of commodities.

Analysis of the changing role of OPEC will also shed light on the current processes on the oil markets and in particular the inability of the organization to act as a cartel in the full sense of the term. This is caused, primarily, by internal divisions between members and secondly, by weakening the position of the organization on international markets, which stands out especially in the long term.

Evidence "in favors of" and "against" the purely economic reasons for the drop in oil prices since mid-2014

Similarities between the dynamics of oil prices during the global financial and economic crisis and the collapse since mid-2014 onwards

The analysis of the last collapse of oil markets begins with a comparison between the price behavior during current slump and the one during the global financial and economic crisis. The parameters for such comparisons are speed, extent and duration of the decline in prices, as well as the presence of signs for recovery. In the initial phase of the global financial and economic crisis, the decline of oil prices is significantly faster and larger compared to that of 2014 (see Chart 1). This can be explained with the almost simultaneous fall into recession of most developed economies and the coinciding slowdown in emerging markets. In other words, during this period there is a rapid contraction in oil demand, which producers cannot instantly respond to. However, within half a year the market starts to recover, mainly due to cuts in production quotas by OPEC, and then due to the gradual

recovery in global economic growth. In this situation, the lower production quotas of OPEC are effective because market problems are connected with weaker demand, and in addition there are no producers able to compensate for production restraint by the cartel members.

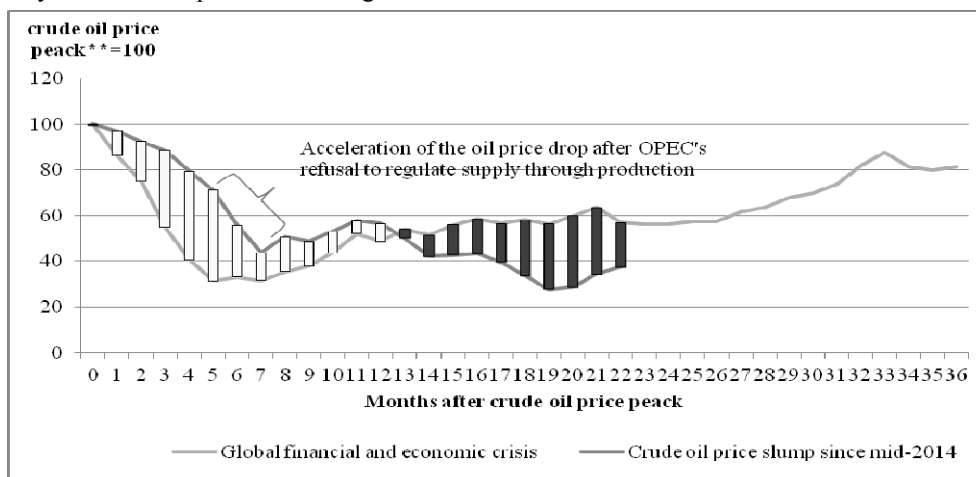
The decline in prices in 2014 is not initially as sharp because it is caused by factors on the supply side – the presence of overproduction and the emergence of new suppliers outside OPEC. Moreover, unlike in 2008, the global economy doesn't fall into recession, and only shows signs of slowing. It is associated more with the slowing growth of oil consumption and not so much with its downgrade. Within 5-6 months after the peak, however, the decline accelerates (from December 2014) and after a year the percentage reduction in price becomes higher than the one during the same time of the global crisis of 2008-2009. Among the main reasons is the decision of OPEC to change its policy in terms of market interventions. This time, the cartel does not regulate oil prices via production quotas and focuses on maintaining its world market share. Implementation of the policy of quotas – reduction in production to keep oil prices at high levels, is considered ineffective in this case, and would actually voluntarily give up market share to producers outside the cartel (USA, Canada, Russia). The latter will benefit from higher prices and will continue to increase their yields and occupy larger market share. On the contrary, in case of a fall of the price more inefficient investment projects will gradually disappear from the market, OPEC will continue to generate profit because of lower production costs. Thus the market will regulate itself and overproduction will disappear by itself. As a result of the OPEC decision the minimal crude oil price becomes uncertain, but naturally the cartel would intervene in case of a drastic and continuous decrease.

Eventually, in the end of 2016, an agreement for cutting production was reached, but with participation of OPEC as well as non-OPEC countries like Russia, Mexico, Oman, Azerbaijan and others (a total of 11 countries outside OPEC). There is definitely doubt what the real consequences for the crude oil market will be and it remains uncertain whether this agreement isn't just a verbal intervention which will only have short term results. We have to point out that production in many participating countries is at record levels which will make cutting of production less effective.

The seriousness of the change in OPEC's policy itself talks about expectations for low prices in long term. Moreover, the absence of distinct signs of recovery in the price, over two years after its collapse tells that behind the fall of oil prices lay more economic and structural factors, rather than cyclical ones. Nowadays it would be difficult even for two of the three largest producers (the US and Saudi Arabia) to keep the price at such low levels for a long time.

Chart 1

Dynamics of oil prices after the global financial and economic crisis and since mid-2014*



Note: * Simple average of the spot price of three main sorts of crude oil – Brent, West Texas Intermediate and Dubai Fateh.

** The peak of oil prices during the global financial and economic crisis is in July 2008, and before its collapse in 2014 it is in June 2014. The peaks are considered in month 0, the numbers on the horizontal axis shows the number of months after the peak.

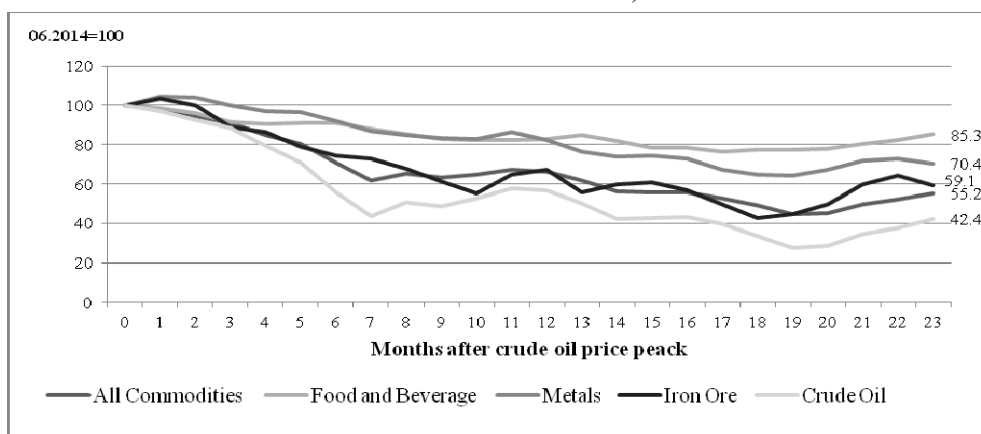
Source: Author's calculations according to IMF data (IMF, Primary Commodity Price System)

Dynamics of prices of other commodities

The turmoil in the oil market from 2014 is not an isolated case, as the drop in prices with a certain time lag is transferred on other commodities. In the first 1-2 months after the peak (in June 2014) the prices for most base metals and iron ore remain stable or even increase, which does not correspond with what is happening on oil markets (see Chart 2). From this it can be concluded that specific factors on the oil market, especially on the supply side, caused the decline in oil prices. Then the OPEC decision to renounce quotas also exacerbates the difference. At a later stage, however, the prices of oil, metals and iron ore begin to follow identical trend which leads to the conclusion that prices of all commodities are beginning to get influenced mainly by the same factors – the global economic slowdown mostly of emerging markets, which had been a key driver of growth in consumption of commodities during the previous decade. In other words to the existing oversupply on the oil market are added concerns about slowing demand for commodities as a whole, i.e. the crisis of oil markets transforms into crisis on commodity markets. Of interest is the comparison of the dynamics of the imported iron ore price in China during the global financial and economic crisis and the commodity slump since the middle of 2014. It shows that it moves in the opposite direction which can be explained by the different state of the Chinese economy during both periods. Given that China is the largest consumer and importer of iron ore (about 1/2 of world consumption and about 2/3 of imports) the country can be considered an engine and a litmus test for the entire market. In

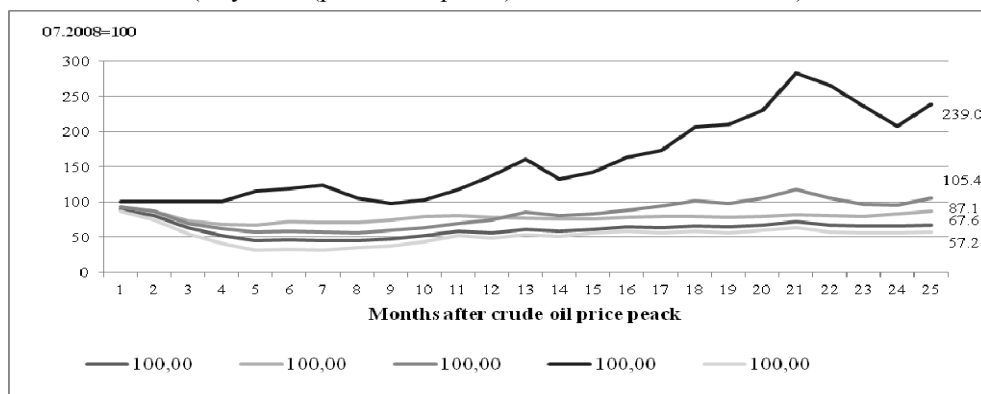
this regard, it can be said that the market for iron ore, and in particular, its price is an indication for the health of the Chinese economy. The current situation on this market certainly gives evidence of problems in Chinese business activity, industrial production, construction sector, which will inevitably deepen the decrease in commodity prices and will make it longer (meaning the impact on the markets for metals and energy in the medium term). Moreover, China is making efforts to gradually change its model of economic growth – from powered by exports and domestic investment to one driven by domestic consumption. This will have an impact on commodity markets in the long term.

Chart 2
Dynamics of prices of selected commodities since mid-2014 (June 2014 (peak of oil prices) is selected for zero month)



Source: Author's calculations according to IMF data (IMF, Primary Commodity Price System)

Chart 3
Dynamics of prices of selected commodities during the global financial and economic crisis (July 2008 (peak of oil prices) is selected for zero month)



Source: Author's calculations according to IMF data (IMF, Primary Commodity Price System)

It can be concluded that the situation on the commodity markets in late 2014 and in 2015 is opposite to that of the boom in commodity prices from the previous decade. Then emerging market economies, led by China, caused repeated price increase in industrial resources, but now most likely, they will play the opposite role.

The scale, the scope and the duration of this drop in prices of almost all commodities also supports the fact that it is related to fundamental and permanent factors (reduced business activity and resource intensity of emerging market economies, sustained shift toward services in developed economies, the development of scientific and technical progress) rather than geopolitical solutions.

Crude oil supply

On the supply side there are two long-term trends that have been growing in recent years and that are key to lowering prices. The first one is the almost steady increase in production, which became particularly apparent in 2010-2011 and from 2014 onwards. In parallel, however, yields of a number of producers and exporters of oil are reduced substantially as a result of various military conflicts. Such examples can be given with Libya, Yemen, Sudan and South Sudan, while the official export from Syria is virtually terminated. Another major exporter – Iran, is affected by economic sanctions, and as a result from 2012 the supply from the country on international markets decreased rapidly. In the absence of force majeure events of this kind, yield would be even greater, the surplus on the market more visible, therefore prices would have maintained even lower levels since 2011. In this respect, it can be said that the oil market has been with a hidden surplus since 2011.

The second, perhaps more important trend is that an increasing share of the world production is provided by countries outside OPEC (only from 2008 to 2014 this share increased from 58.7 to 61.1 %).⁴ Actually the increase in global supply during 2013-2014 was driven mainly by countries outside the organization. Such a change, however, must necessarily be read in conjunction with the production boom in North America. Still the largest importer in the world - the US, in recent years has significantly reduced imports from other regions due to increased domestic production and the larger share of Canada and Mexico in overseas deliveries. Moreover, the US canceled the over 40-year ban on exports of crude oil and although at this stage it can not become a significant factor on the international markets as an exporter (currently irregular supplies to Europe, China, Panama are being carried out), the country could play an important role against a sharp rise in oil prices. Higher prices will stimulate domestic production, which will increase the export potential of the United States. It should also be noted that the US government has taken a decision to sell part of its strategic reserves, which would be accelerated in a favorable

⁴ The figures are far more impressive when they are considered in the long-term. Nowadays OPEC produces about 32 mln.b/day conventional oil, which is slightly more than 1/3 of world production. 40 years ago it produced about the same amount, but then it represented almost 50% of the total world production. As of January 1, 2017 OPEC members are 13 countries – Algeria, Angola, Venezuela, Gabon, Ecuador, Iraq, Iran, Qatar, Kuwait, Libya, Nigeria, UAE and Saudi Arabia.

situation on the international oil markets (Bloomberg, 2015). From future weakening of OPEC's position and improvement of positions of alternative suppliers derive several consequences:

- 1) OPEC's ability to control prices through production quotas is restricted and at the end of 2014 logically comes the organization's abandonment of applying this policy for the time being. The cartel was even forced to increase production at downward prices in order to maintain its share of world markets and accumulate revenues that are vital for the functioning of the public sector in member states. Internal conflicts between OPEC member states have also caused an increase in oil supply from the cartel in 2015 (for more details see "OPEC's role in recent development on oil markets" in this study). Eventually, from the end of 2016 and the beginning of 2017, OPEC makes an effort to implement similar policy, but with participation of non-OPEC countries. The real effect of the policy however, will be visible after a certain period of time. It's obvious that announcing the policy increased the crude oil price, but it is questionable however whether this will have a long-term effect on the market.
- 2) Improves security of supply as crude oil sources diversify to countries that are considerably politically and economically more stable than OPEC members (USA, Canada, Russia). As a result of this various internal and external conflicts in the Middle East and Africa don't have as much impact on oil markets as they had in the past.

Table 1

Crude oil supply from the world's leading producers (mln.b/day), 2000, 2005-2015

| | 2000 | 2005 | 2006 | 2007 | 2008 | 2009 | 2010 | 2011 | 2012 | 2013 | 2014 | 2015 |
|-------------------------------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|
| OECD | 21.9 | 20.4 | 20.1 | 20.0 | 19.6 | 19.8 | 20.0 | 20.2 | 21.1 | 22.2 | 24.2 | 25.2 |
| Americas | 14.2 | 14.1 | 14.2 | 14.3 | 14.0 | 14.4 | 15.0 | 15.5 | 16.7 | 18.2 | 20.1 | 21.0 |
| Europe | 6.8 | 5.7 | 5.3 | 5.2 | 4.9 | 4.7 | 4.4 | 4.1 | 3.8 | 3.6 | 3.6 | 3.7 |
| Pacific | 0.8 | 0.6 | 0.6 | 0.6 | 0.6 | 0.6 | 0.7 | 0.6 | 0.6 | 0.5 | 0.5 | 0.5 |
| DCs | 10.9 | 11.9 | 11.9 | 11.9 | 12.2 | 12.4 | 12.7 | 12.6 | 12.0 | 12.0 | 12.2 | 11.5 |
| FSU | 7.9 | 11.5 | 12.0 | 12.5 | 12.6 | 13.0 | 13.2 | 13.2 | 13.4 | 13.6 | 13.5 | 13.7 |
| Other Europe | 0.2 | 0.2 | 0.2 | 0.2 | 0.1 | 0.1 | 0.1 | 0.1 | 0.1 | 0.1 | 0.1 | 0.1 |
| China | 3.2 | 3.6 | 3.7 | 3.8 | 3.8 | 3.8 | 4.1 | 4.1 | 4.2 | 4.2 | 4.3 | 4.4 |
| Processing gains | 1.7 | 1.9 | 2.0 | 2.0 | 2.0 | 2.0 | 2.1 | 2.1 | 2.1 | 2.1 | 2.2 | 2.2 |
| Total non-OPEC | 45.7 | 49.6 | 49.9 | 50.4 | 50.4 | 51.1 | 52.3 | 52.4 | 52.9 | 54.3 | 56.5 | 57.1 |
| OPEC NGLs + non-conventional oils* | | 3.9 | 3.9 | 3.9 | 4.1 | 4.3 | 5.0 | 5.4 | 5.6 | 5.6 | 5.8 | 6.1 |
| Total non-OPEC supply and OPEC NGLs | 49.0 | 53.5 | 53.8 | 54.4 | 54.5 | 55.4 | 57.3 | 57.8 | 58.4 | 59.9 | 62.3 | 63.3 |
| OPEC crude oil production | 28.0 | 30.7 | 30.6 | 30.2 | 31.3 | 28.8 | 29.2 | 29.8 | 31.2 | 30.2 | 30.1 | 31.8 |
| Total supply | 77.0 | 84.2 | 84.4 | 84.6 | 85.8 | 84.2 | 86.5 | 87.6 | 89.6 | 90.2 | 92.4 | 95.1 |
| Annual change | | 1.3 | 0.2 | 0.2 | 1.2 | -1.6 | 2.3 | 1.1 | 2.0 | 0.6 | 2.2 | 2.7 |
| Annual change (%) | | 1.6 | 0.2 | 0.2 | 1.4 | -1.9 | 2.7 | 1.3 | 2.3 | 0.7 | 2.4 | 2.9 |

Note: * OPEC's unconventional oil is not subject to production quotas, and therefore is considered separately from conventional oil.

Source: OPEC, Monthly Oil Market Reports (2000-2016)

Crude oil demand

The global financial and economic crisis puts an end to the prolonged upward trend in worldwide oil consumption. Even before the crisis, however, during the boom in commodity prices after 2003, certain processes of transformation become more clear, which could be the reason for the current situation on crude oil markets. The growing role of emerging economies stands out, and they quickly become the engine of growth in world consumption and imports. They are much less affected by the global financial and economic crisis, most of them largely retain their levels of crude oil consumption and quickly restore them afterwards. It is expected in the future, for emerging markets to strengthen their role as consumers and by doing so to determine the direction of oil prices. The state of their economies can now be considered as the main leading indicator of global demand for oil. In parallel, the most developed countries (OECD) limit their consumption of oil, which in most cases is due to substitution with other energy sources, the introduction of energy saving technologies and outsourcing industries in developing countries. Markets in advanced economies are quite mature and sharp and lasting upward changes in demand should not be expected. It should be noted though that changes on the world oil map are quite dynamic. In 2000, OECD countries accounted for 62.6% of world oil consumption, while until 2015 their share has reduced to 49.7%. Then, for the first time developed economies formed less than half of global oil consumption.

Table 2
Crude oil demand from the world's leading consumers (mln.b / day), 2000, 2005-2015

| | 2000 | 2005 | 2006 | 2007 | 2008 | 2009 | 2010 | 2011 | 2012 | 2013 | 2014 | 2015 |
|--------------------------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|
| OECD | 47.9 | 49.9 | 49.5 | 49.4 | 48.4 | 46.4 | 47.0 | 46.4 | 45.9 | 46.0 | 45.7 | 46.2 |
| Americas | 24.1 | 25.6 | 25.4 | 25.5 | 24.5 | 23.7 | 24.1 | 24.0 | 23.6 | 24.1 | 24.2 | 24.4 |
| Europe | 15.1 | 15.7 | 15.7 | 15.5 | 15.5 | 14.7 | 14.7 | 14.3 | 13.8 | 13.6 | 13.4 | 13.7 |
| Pacific | 8.7 | 8.6 | 8.5 | 8.4 | 8.4 | 8.0 | 8.2 | 8.2 | 8.5 | 8.4 | 8.2 | 8.1 |
| DCs | 19.3 | 22.7 | 23.6 | 24.8 | 25 | 25.5 | 26.5 | 27.3 | 28.3 | 29.2 | 29.9 | 30.7 |
| FSU | 3.8 | 3.9 | 4.0 | 4.0 | 4.1 | 4.0 | 4.2 | 4.3 | 4.4 | 4.5 | 4.5 | 4.6 |
| Other Europe | 0.9 | 0.8 | 0.9 | 0.8 | 0.7 | 0.7 | 0.6 | 0.6 | 0.6 | 0.6 | 0.7 | 0.7 |
| China | 4.7 | 6.7 | 7.2 | 7.6 | 8.0 | 8.3 | 9.0 | 9.4 | 9.7 | 10.1 | 10.5 | 10.8 |
| World demand | 76.5 | 84.1 | 85.2 | 86.6 | 86.1 | 84.8 | 87.3 | 88.1 | 89.0 | 90.4 | 91.4 | 93.0 |
| Annual change of demand | | | | | | | | | | | | |
| OECD (mln.b /day) | | 0.5 | -0.4 | -0.1 | -1.0 | -2.0 | 0.6 | -0.6 | -0.5 | 0.1 | -0.3 | 0.5 |
| (%) | | 1.0 | -0.8 | -0.2 | -2.0 | -4.1 | 1.3 | -1.3 | -1.1 | 0.2 | -0.7 | 1.0 |
| DCs (mln.b /day) | | 0.9 | 0.9 | 1.2 | 0.2 | 0.5 | 1.0 | 0.8 | 1.0 | 0.9 | 0.7 | 0.8 |
| (%) | | 4.1 | 4.0 | 5.1 | 0.8 | 2.0 | 3.9 | 3.0 | 3.7 | 3.2 | 2.4 | 2.7 |
| China (mln.b /day) | | 0.2 | 0.5 | 0.4 | 0.4 | 0.3 | 0.7 | 0.4 | 0.3 | 0.4 | 0.4 | 0.3 |
| (%) | | 3.1 | 7.5 | 5.6 | 5.3 | 3.8 | 8.4 | 4.4 | 3.2 | 4.1 | 4.0 | 3.1 |
| World (mln.b /day) | | 1.6 | 1.1 | 1.4 | -0.5 | -1.3 | 2.5 | 0.8 | 0.9 | 1.4 | 1.0 | 1.6 |
| (%) | | 1.9 | 1.3 | 1.6 | -0.6 | -1.5 | 2.9 | 0.9 | 1.0 | 1.6 | 1.1 | 1.7 |

Source: OPEC, Monthly Oil Market Reports (2000-2016)

However, processes within each developed country proceed differently. In Europe, the drop in consumption begins in 2007, before the global financial and economic crisis. Thus it is not the root cause, but only a catalyst for this change, and suggests contraction in demand will continue in the future. Quite different is the situation in the US and to some extent in Canada, where there is a process of reindustrialization, which will likely intensify in the

coming years. This inevitably is associated with increased consumption of oil, but the region is unlikely to be the engine of growth in world demand. One can say that North America is close to the peak in oil consumption.

In 2010, oil markets recovered and surpassed pre-crisis levels, but in the following years, growth of demand slowed down and its pace lagged behind demand. Thus the market began to form surpluses that occurred to their greatest extent in 2014 and 2015. The slowdown of economic growth in emerging economies raises concerns that oil markets will not rebalance in the short term, i.e. price will remain low for a longer period of time.

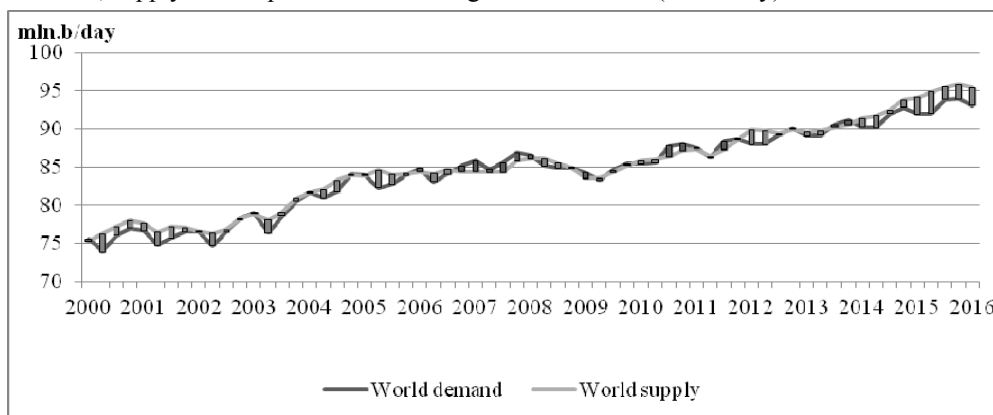
Balance between demand and supply

Faster growth rate of crude oil supply than demand is causing the oil markets to form a significant surplus in regard to its size and duration, which is a record for the past 15 years (see Chart 4 and Chart 5). Until clearing this imbalance prices will inevitably remain at low levels (range 40-60 USD/barrel). OPEC's expectations are for the market to gradually start to rebalance from the end of 2016 and only then for prices to take an upward direction (The Telegraph, 2016). Hopes are that not only shale producers in the US will lower their supply but also other countries where production is unprofitable at current price levels (e.g. deepwater drilling in Brazil, production from tar sands in Canada, etc.).⁵ It must be noted, though, the ability of shale producers to considerably quickly resume production, thus they actually appear to hold the growth of prices in medium and long term.

A study of the International Monetary Fund conducted among 41 oil producing countries, which are responsible for over 90% of world production and investment in the oil sector, shows that a 1% drop in oil price can lead within three years to lower investments under their usual trend by up to 0.6 % p.a. That effect can be felt even in the first year after the oil price drop (IMF, April 2015). According to these results, the decline in oil prices since 2014 has begun to reflect on investments (as demonstrated with the example of shale rigs in the US), but more notable effects are yet to be seen. According to the same study a 1% decrease in investment leads to 0.4% variation of production in descending direction relative to trend. That effect though is observed with a significant time lag – after 5 years. This suggests that the present collapse in oil prices could have a significant impact on production around 2020. But again we stipulate that shale producers are quicker than conventional producers not only in limitation of investment, but are also more flexible when time comes to resume them. This is associated with the rapid construction of shale wells and with the considerably short period of their exploitation, which is about 2 years. It can be expected that shale technology will change the economy of the oil market, i.e. will change the function of supply or will accelerate the reaction between the price and quantity of supply.

⁵ According to the EIA, the number of oil rigs in the seven US regions that provided 92% of the increase in crude oil production in USA during 2011-14, decreased from its peak in October 2014 (1309 pcs.) by nearly 80% in May 2016 (down to 262 pcs.). However, due to the increase in average productivity, the produced amount of oil during this period decreased by only 2.3%.

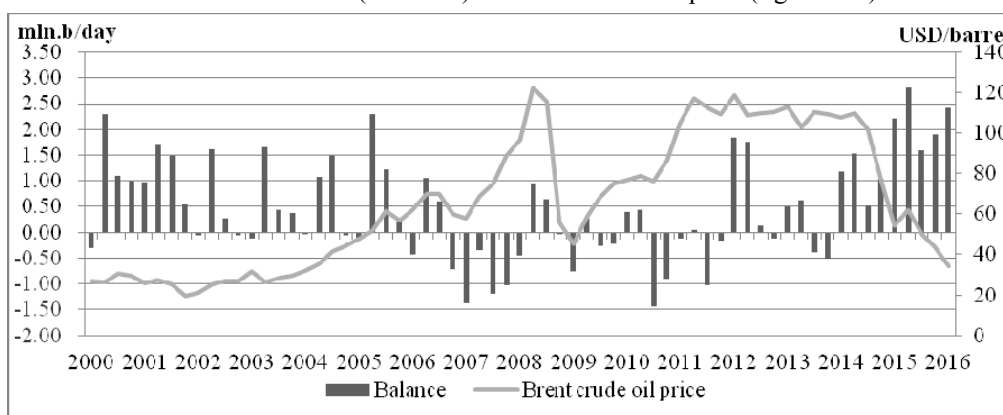
Chart 4
Demand, supply and surplus/deficit on the global oil market (mln.b/day) from 2000 to 2016



Note: Pillars in red correspond to deficit and those in green to surplus
Source: OPEC, Monthly Oil Market Reports (2000-2016).

Chart 5 is also in support of this assertion. It clearly shows the strong correlation between the balance on the oil markets and the price of crude oil.

Chart 5
Balance on oil markets (left scale) and Brent crude oil price (right scale)*



Note: *U.K. light, Brent Blend 38o API, spot price, FOB U.K. ports
Source: OPEC, Monthly Oil Market Reports (2000-2016); IMF (IMF, Primary Commodity Price System).

Besides the general imbalance on the oil markets, imbalances of the main consumers of crude oil should also be traced separately. This will give a better picture about their ability to satisfy their consumption with their own production and will also show what their import needs are. The analysis is carried out via the ratio between production and consumption of oil.

By 2007, OECD countries gradually reduced their domestic production due to depletion of existing deposits. Thus their dependence on external supplies grew and in 2007 OECD countries imported nearly 60% of the oil they consumed. After 2007, the situation quickly begins to change thanks to the US and Canada, where a growing proportion of demand is met by domestic supply – from 56.1% in 2007 to 86.2% in 2015. Thus both countries in a sense limit their role on the international markets and force leading exporters to strengthen competition on other markets – Europe and Asia.

In developed economies in Europe the indicator production/consumption had accounted for the long-term degradation and as of 2007 these countries assure for more than 2/3 of their consumption through imports. It should be noted, however, that since 2008 the domestic oil shortage (respectively import need for crude oil) remains at almost constant level in absolute terms of about 10 mln.b /day, due to the decline in domestic production and the decrease in consumption (one can even say that in OECD European members are experiencing a long-term stagnation in oil consumption). The situation for OECD countries in the region of Asia and Oceania (Australia, New Zealand, South Korea and Japan) is similar.

Again the changing map of world oil markets is clearly shown. China and other developing countries increase their needs of imports at high speed and are quickly emerging as key customers of the world's leading exporters. Very significant is the fact that in 2015 the import needs of developing economies (excluding China) amount to 19.2 mln.b /day, and those of all OECD countries to 20.9 mln.b / day. Only seven years earlier, in 2008, the import needs of the developing economies are 12.8 mln.b/day compared to 28.8 mln.b/day for OECD countries (see Table 4).

Table 3

Ratio of production to consumption in different regions of the world, 2000, 2005-2015 (%)

| | 2000 | 2005 | 2006 | 2007 | 2008 | 2009 | 2010 | 2011 | 2012 | 2013 | 2014 | 2015 |
|--------------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| OECD | 45.7 | 40.9 | 40.6 | 40.5 | 40.5 | 42.7 | 42.6 | 43.5 | 46.0 | 48.3 | 53.0 | 54.7 |
| Americas | 58.9 | 55.1 | 55.9 | 56.1 | 57.1 | 60.8 | 62.2 | 64.6 | 70.8 | 75.5 | 83.1 | 86.2 |
| Europe | 45.0 | 36.3 | 33.8 | 33.5 | 31.6 | 32.0 | 29.9 | 28.7 | 27.5 | 26.5 | 26.9 | 27.4 |
| Pacific | 9.2 | 7.0 | 7.1 | 7.1 | 7.1 | 7.5 | 8.5 | 7.3 | 7.1 | 6.0 | 6.1 | 5.9 |
| DCs | 56.5 | 52.4 | 50.4 | 48.0 | 48.8 | 48.6 | 47.9 | 46.2 | 42.4 | 41.1 | 40.8 | 37.5 |
| FSU | 207.9 | 294.9 | 300.0 | 312.5 | 307.3 | 325.0 | 314.3 | 307.0 | 304.5 | 302.2 | 300.0 | 299.1 |
| Other Europe | 22.2 | 25.0 | 22.2 | 25.0 | 14.3 | 14.3 | 16.7 | 16.7 | 16.7 | 16.7 | 14.3 | 19.4 |
| China | 68.1 | 53.7 | 51.4 | 50.0 | 47.5 | 45.8 | 45.6 | 43.6 | 43.3 | 41.6 | 41.0 | 40.4 |

Source: Author's calculations according to OPEC, Monthly Oil Market Reports (2000-2016).

Realized surpluses in 2014 and 2015 were the reason for accumulation of significant commercial stocks of oil (see Table 4). It is important to note that the increase in stocks during those two years was with a record rate – 5.8 and 10.1% respectively. Historically a drastic increase in commercial stocks has been observed during economic crises – the Asian financial crisis, "Dot-com" crisis of the early twenty-first century and the global financial and economic crisis, but even then the rates are significantly smaller.

Table 4
Balance on crude oil markets in selected groups of countries and oil reserves in OECD countries

| | 2008 | 2009 | 2010 | 2011 | 2012 | 2013 | 2014 | 2015 |
|--|-------------|-------------|-------------|-------------|------------|-------------|------------|------------|
| Balance | -0.4 | -0.6 | -0.7 | -0.5 | 0.6 | -0.2 | 1.1 | 2.1 |
| OECD | -28.8 | -26.6 | -27.0 | -26.2 | -24.8 | -23.9 | -21.6 | -20.9 |
| Americas | -10.5 | -9.3 | -9.1 | -8.5 | -6.9 | -5.9 | -4.2 | -3.4 |
| Europe | -10.6 | -10.0 | -10.3 | -10.2 | -10.0 | -10.1 | -9.9 | -10.0 |
| Pacific | -7.8 | -7.4 | -7.5 | -7.6 | -7.9 | -7.8 | -7.6 | -7.6 |
| DCs | -12.8 | -13.1 | -13.8 | -14.7 | -16.3 | -17.1 | -17.6 | -19.2 |
| FSU | 8.5 | 9.0 | 9.0 | 8.9 | 9.0 | 9.1 | 9.1 | 9.1 |
| Other Europe | -0.6 | -0.6 | -0.5 | -0.5 | -0.5 | -0.5 | -0.6 | -0.5 |
| China | -4.2 | -4.5 | -4.9 | -5.3 | -5.5 | -5.9 | -6.2 | -6.5 |
| OECD stocks (mil. barrels) | | | | | | | | |
| Commercial | 2697 | 2662 | 2679 | 2605 | 2683 | 2589 | 2738 | 3015 |
| SPR | 1530 | 1568 | 1565 | 1536 | 1547 | 1584 | 1579 | 1587 |
| Total | 4227 | 4231 | 4244 | 4141 | 423 | 4174 | 4317 | 4601 |
| Oil-on-water | 969 | 919 | 871 | 825 | 879 | 909 | 924 | 1017 |
| Days of forward consumption in OECD | | | | | | | | |
| Commercial | 58.0 | 57.0 | 58.0 | 57.0 | 58.0 | 57.0 | 59.0 | 65.0 |
| SPR | 33.0 | 33.0 | 34.0 | 33.0 | 34.0 | 35.0 | 34.0 | 34.2 |
| Total | 91.0 | 90.0 | 91.0 | 90.0 | 92.0 | 91.0 | 93.0 | 99.2 |

Source: OPEC, Monthly Oil Market Reports (2000-2016).

The exchange rate of the US dollar

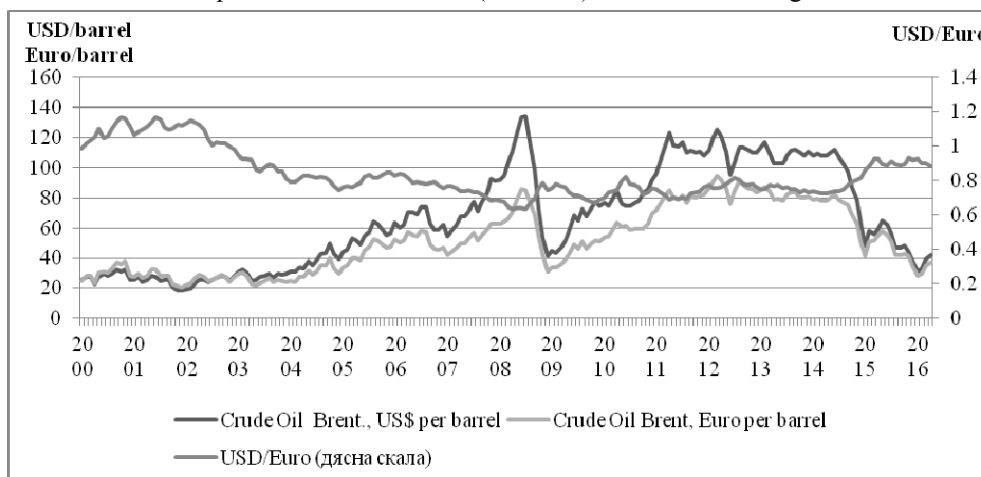
Factor for the drop of oil prices in the past two years has also been the appreciation of the US dollar. As the prices of most commodities on international markets, including that of oil, are quoted in US dollars, the exchange rate of the US dollar is very important for the internal crude oil price of countries, whose currency is not USD or is not pegged to it. Thus the rate of local currencies against the dollar is an important factor in the pricing chain from the producer (exporter) to the final consumer (importer). Besides direct impact on export and import prices the dollar has also an indirect one. Expensive dollar means more revenue for exporters and more costs for importers expressed in their local currency. So it stimulates supply and suppresses demand, which leads to a logical consequence – lower price.⁶

From the beginning of 2002 to the global financial and economic crisis, the US dollar reports constant steady weakening against leading currencies, 45% against the euro. This is undoubtedly one of the main reasons for the boom in oil prices during this period. After mid-2014, however, the US currency is on an uptrend, which "eats" part of the drop in oil prices. From June 2014 to April 2016 the dollar price of oil decreases by 62.5% and denominates in euros by 53.3% (appreciation of the dollar against the euro for the same period is 21.1%).

⁶ There are other reasons for the negative correlation between the USD exchange rate and commodity prices, but they are not in the scope of this paper.

Chart 6

Brent crude oil price in USD and euro* (left scale) and rate of USD against the euro



Note: *U.K. light, Brent Blend 38o API, spot price, FOB U.K. ports
 Source: IMF (IMF, Primary Commodity Price System); World Bank.

At the same time, the currencies of a number of oil exporters get cheaper against the dollar, which encourages them to maintain high levels of production and respectively of exports. In some countries the depreciation of the local currency is so great that the change of domestic crude oil price is relatively small. Most obvious are the cases of Russia, Azerbaijan and Kazakhstan (see Table 5). All three countries shift from fixed to floating exchange rate (the Russian ruble was pegged to the basket of US dollar and the euro, the currencies of Azerbaijan and Kazakhstan to the US dollar), which is among the main reasons for the abrupt and significant devaluation of their currencies. Thanks to it, however, the oil price in local currency decreased by only about 20% compared to nearly 60% decrease in the dollar price. Should the oil prices remain low, changes in exchange rate regime can be expected in other major oil exporters – Gulf countries. At this stage they deal with reduced export revenues by spending part of the accumulated over the years public funds and issuing debt. Most of them have not done this for years. These significant changes in the exchange rate and fiscal policies of the above mentioned oil economies could also be seen as an indication that oil prices will stay at lower levels for a long time and will hardly approach their levels from before the middle of 2014 anytime soon. This is another fact in favor of the hypothesis that behind the price decrease stand mainly economic reasons.

Table 5

Crude oil prices decrease in local currency of selected leading exporters and in USD

| Country | Devaluation of the local currency against the USD for the period June 2014 – May 2016 (%) | Oil prices in local currency in June 2014* | Oil price in local currency in May 2016* | Crude oil price drop in local currency (%) |
|-----------------------------|---|--|--|--|
| Angola | -42.1 | 10585.4 | 7763.0 | -26.7 |
| Azerbaijan | -47.7 | 84.9 | 69.0 | -18.8 |
| Brazil | -36.8 | 242.2 | 162.7 | -32.8 |
| Canada | -16.3 | 117.3 | 59.5 | -49.3 |
| Algeria | -27.7 | 8595.3 | 5045.4 | -41.3 |
| Iran | -16.1 | 2758109.7 | 1393969.2 | -49.5 |
| Kazakhstan | -44.9 | 19889.3 | 15302.5 | -23.1 |
| Kuwait | -6.4 | 30.6 | 13.9 | -54.7 |
| Nigeria | -18.1 | 17668.3 | 9149.9 | -48.2 |
| Norway | -26.6 | 654.7 | 378.7 | -42.2 |
| Russia | -47.9 | 3725.0 | 3031.2 | -18.6 |
| Crude oil price drop in USD | | | | -57.6 |

Note: * Simple average of the spot price of three main sorts of crude oil - Brent, West Texas Intermediate and Dubai Fateh.

Source: IMF (IMF, Primary Commodity Price System); World Bank.

OPEC's role in recent development on oil markets

The analysis of the oil markets would be incomplete without taking into account the position and the specific actions/inactions of OPEC. As already mentioned, in the long term the cartel has slowly lost its position on international oil markets and must conform to an increasingly higher extent with the actions of other market participants. This is especially true in the context of the shale revolution in the US, virtually resulting in the oil market turning from unipolar (OPEC regulates prices through production volume) to multipolar, where Saudi Arabia, Russia, the United States and a number of smaller producers compete for market share and new customers. In the face of shale producers, OPEC, for the first time in more than 30 years, is facing competitors who can actually change the rules of the "oil game". The other major producers outside the cartel such as Russia, Norway, Mexico, Azerbaijan, Kazakhstan are unable to rapidly and significantly change their production volumes and therefore are predictable players whose moves can not threaten the dominance of OPEC.

The current situation with oil production to some extent can only be compared with the 1980s, when the emergence of a new competitor (Norway with deposits in the North Sea) threatened the position of OPEC. Partly based on that experience, now the cartel does not resort to cuts in production to regulate prices and focus on maintaining its market share. The policy was formalized at a meeting between the member states in November 2014 to which markets reacted instantly with price declines.⁷ According to OPEC representatives,

⁷ Actions of speculative traders who began to perceive oil as too risky asset and closed their long positions, are also essential for that decrease in price.

market fundamentals will work again and the intervention of the cartel is not necessary at this moment. Part of the logic is that lower prices would make production inefficient for a number of shale producers, which will push them out of the market. The lower supply mainly from the US and the recovery of growth in demand, thanks to low prices, will lead to rebalancing the market at prices at least higher than the current, if not as high as earlier levels.

In this situation, the unilateral reduction of production by OPEC would have no effect due to the presence of alternative suppliers - USA, Canada, Russia. In the past, quotas have had an important role during shocks in the global economy, but during those periods, problems had arisen only from the demand side. For quotas principal to work at present, actions must be comprehensive – to include participation of all OPEC member states as well as major producers outside the cartel (Russia, Mexico, Oman, Kazakhstan, Azerbaijan, etc.). Exactly that is the condition of Saudi Arabia (the largest exporter in the world and a major producer in OPEC) to reduce its production. The kingdom refused to play the role of "swing producer", insisting that the burden of reducing production must be shared. It should be noted that in the current situation it would be hard even for Saudi Arabia to lower production to such a large extent as to return prices to their previous levels. Such agreement was reached in the end of 2016. Participating countries are most OPEC members, as well as 11 non-OPEC countries. Yet it's too early to say whether production levels will be kept limited in line with the agreement or what the effect on the price would be.

Along with these external factors, some internal ones for OPEC, that question the fulfilment of the aforementioned agreement, should also be noted. There are some compelling political and economic differences between the countries in the organization, while Saudi Arabia and Iran are indeed in a situation of proxy war. After the removal of economic sanctions against the country in the beginning of 2016 Iran categorically rejects any possibility of substantial restrictions on production, and even states that in the short term it will regain its position on international markets. This would mean an increase in supply of about 1 mln.b /day by 2017. Iraq also has been restoring production at a sustained pace and the country is unlikely to agree to cuts in it.

In the current market situation a primordial problem with the functioning of OPEC has crystallized – inequality between member countries. Saudi Arabia has always been a leader of the cartel and largely defines its policy, often lead only by its own interests. Some economists even say that the cartel has never had the market power to set prices. It was actually Saudi Arabia's market power (Alhajji, Jul 26, 2016). The country is one of the world's largest producers (in the top 3 as it can easily take first place), forms about 30% of OPEC's oil exports and takes the largest share of the reduction in supply whenever a decision for reaction towards price adjustment has been taken (see Table 6). Data during the global financial and economic crisis are indicative of the role of Saudi Arabia as a "swing producer." In 2009, OPEC lowered its exports to just over 2 mil.b/day compared to the previous year and a little over a half of this decrease came courtesy of the kingdom. Moreover, the country did not recover its export volumes until 2011, last of all Member States.

Table 6
Crude oil export of OPEC member countries and their share in total exports of the organization

| | | 2004 | 2005 | 2006 | 2007 | 2008 | 2009 | 2010 | 2011 | 2012 | 2013 | 2014 | 2015 | 2009/2008 | |
|--------------|----------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|-----------|-------|
| Saudi Arabia | Th.b/day | 6813.1 | 7208.9 | 7029.4 | 6962.1 | 7321.7 | 6268.0 | 6644.0 | 7218.1 | 7556.8 | 7570.7 | 7153.5 | 7163.3 | -1053.7 | -14.4 |
| | % | 29.7 | 30.4 | 29.5 | 28.6 | 30.3 | 28.3 | 28.7 | 30.1 | 29.9 | 31.7 | 30.9 | 30.4 | | |
| Iraq | Th.b/day | 1450.0 | 1472.2 | 1467.8 | 1643.0 | 1855.2 | 1906.0 | 1890.0 | 2165.7 | 2423.4 | 2390.4 | 2515.5 | 3004.9 | 50.8 | 2.7 |
| | % | 6.3 | 6.2 | 6.1 | 6.7 | 7.7 | 8.6 | 8.2 | 9.0 | 9.6 | 10.0 | 10.9 | 12.7 | | |
| UAE | Th.b/day | 2172.0 | 2195.0 | 2420.3 | 2342.7 | 2334.4 | 1953.0 | 2103.0 | 2457.0 | 2445.2 | 2701.4 | 2496.7 | 2441.5 | -381.4 | -16.3 |
| | % | 9.5 | 9.3 | 10.1 | 9.6 | 9.7 | 8.8 | 9.1 | 10.2 | 9.7 | 11.3 | 10.8 | 10.4 | | |
| Nigeria | Th.b/day | 2356.0 | 2326.0 | 2248.4 | 2144.1 | 2098.1 | 2160.0 | 2464.0 | 2377.0 | 2368.0 | 2193.0 | 2120.1 | 2114.0 | 61.9 | 3.0 |
| | % | 10.3 | 9.8 | 9.4 | 8.8 | 8.7 | 9.8 | 10.7 | 9.9 | 9.4 | 9.2 | 9.1 | 9.0 | | |
| Venezuela | Th.b/day | 1566.2 | 1787.8 | 1919.4 | 2115.6 | 1769.6 | 1608.0 | 1562.0 | 1553.4 | 1724.8 | 1528.0 | 1964.9 | 1974.0 | -161.6 | -9.1 |
| | % | 6.8 | 7.5 | 8.0 | 8.7 | 7.3 | 7.3 | 6.8 | 6.5 | 6.8 | 6.4 | 8.5 | 8.4 | | |
| Kuwait | Th.b/day | 1414.9 | 1650.8 | 1723.4 | 1612.9 | 1738.5 | 1348.0 | 1430.0 | 1816.1 | 2070.0 | 2058.5 | 1994.8 | 1963.8 | -390.5 | -22.5 |
| | % | 6.2 | 7.0 | 7.2 | 6.6 | 7.2 | 6.1 | 6.2 | 7.6 | 8.2 | 8.6 | 8.6 | 8.3 | | |
| Angola | Th.b/day | 940.9 | 946.9 | 1010.3 | 1157.6 | 1044.5 | 1770.0 | 1683.0 | 1545.6 | 1663.3 | 1669.4 | 1607.9 | 1710.9 | 725.5 | 69.5 |
| | % | 4.1 | 4.0 | 4.2 | 4.8 | 4.3 | 8.0 | 7.3 | 6.4 | 6.6 | 7.0 | 6.9 | 7.3 | | |
| Iran | Th.b/day | 2684.1 | 2394.5 | 2377.2 | 2466.8 | 2438.1 | 2232.0 | 2583.0 | 2537.3 | 2102.0 | 1215.4 | 1109.2 | 1081.1 | -206.1 | -8.5 |
| | % | 11.7 | 10.1 | 10.0 | 10.1 | 10.1 | 10.1 | 11.2 | 10.6 | 8.3 | 5.1 | 4.8 | 4.6 | | |
| Algeria | Th.b/day | 893.2 | 970.3 | 947.2 | 1253.5 | 840.9 | 747.0 | 709.0 | 842.9 | 808.6 | 744.0 | 622.9 | 642.2 | -93.9 | -11.2 |
| | % | 3.9 | 4.1 | 4.0 | 5.1 | 3.5 | 3.4 | 3.1 | 3.5 | 3.2 | 3.1 | 2.7 | 2.7 | | |
| Qatar | Th.b/day | 542.7 | 677.3 | 620.3 | 615.1 | 703.1 | 647.0 | 587.0 | 587.9 | 588.3 | 598.7 | 595.5 | 490.7 | -56.1 | -8.0 |
| | % | 2.4 | 2.9 | 2.6 | 2.5 | 2.9 | 2.9 | 2.5 | 2.5 | 2.3 | 2.5 | 2.6 | 2.1 | | |
| Ecuador | Th.b/day | 373.7 | 380.0 | 376.3 | 341.7 | 348.4 | 329.0 | 339.0 | 334.0 | 357.7 | 388.2 | 422.4 | 432.9 | -19.4 | -5.6 |
| | % | 1.6 | 1.6 | 1.6 | 1.4 | 1.4 | 1.5 | 1.5 | 1.4 | 1.4 | 1.6 | 1.8 | 1.8 | | |
| Indonesia | Th.b/day | 412.7 | 374.4 | 301.3 | 319.3 | 294.1 | n.a. | n.a. | 256.9 | 228.9 | 228.6 | 255.9 | 315.1 | | |
| | % | 1.8 | 1.6 | 1.3 | 1.3 | 1.2 | n.a. | n.a. | 1.1 | 0.9 | 1.0 | 1.1 | 1.3 | | |
| Libya | Th.b/day | 1284.5 | 1306.3 | 1425.6 | 1377.8 | 1403.4 | 1170.0 | 1118.0 | 299.5 | 962.0 | 589.1 | 319.0 | 235.0 | -233.4 | -16.6 |
| | % | 5.6 | 5.5 | 6.0 | 5.7 | 5.8 | 5.3 | 4.8 | 1.2 | 3.8 | 2.5 | 1.4 | 1.0 | | |
| OPEC | Th.b/day | 22904 | 23690 | 23866 | 24352 | 24190 | 22139 | 23112 | 23991 | 25298 | 23875 | 23178 | 23569 | -2051 | -8.5 |

Source: OPEC, Annual Statistical Bulletin (2004-2016).

Besides the availability of alternative external providers the present situation differs in one more aspect to the crisis of 2008, which makes use of quotas not applicable, as only OPEC members participate. During the global financial and economic crisis, Kuwait, UAE, Libya, Iran and Venezuela have also had significant contributions to the reduction of OPEC production and at that time the production of Iraq still hadn't recovered from the 2003 war. Currently Iran is unwilling to fully participate in such an initiative, Iraq is in a similar position, even though it has reached record production levels. The conflict in Libya has minimized production in the country and political uncertainty makes any engagement implausible. Venezuela has repeatedly stated willingness to contribute to contraction of

production, but given its heavy economic and political situation any real action can hardly be expected. Currently each source of foreign exchange revenue is vital for Venezuela and oil sector is one of the few. Moreover, the country has many commitments for oil export to China for which it had previously received financial resources. Nigeria and Angola would also not resort to a drastic contraction of production at a time when they have actually almost lost the North American market (they produce sort of crude oil, which is similar to shale oil and refineries in the US have almost completely replaced the imports from the two African countries with domestic production) and fight for market positions in Asia.⁸ To summarise, one can say that the only OPEC members that have the opportunity to support Saudi Arabia in output reduction are Kuwait and the UAE.

The contradictions and competition between OPEC members are increased also by the change on the world map of oil trade. After the shale revolution in the US and Canada, the North American region is on track to achieve self-sufficiency through local production. As already mentioned above, Nigeria and Angola are pushed out completely, and Saudi Arabia is gradually losing ground (the reason for the kingdom not to completely lose its market position on North American market is that it produces oil with different qualities which is used in the mix of refineries). The crude oil market in Europe has been in stagnation since before the global financial and economic crisis and as an only client that can accommodate growing exports of OPEC emerged Asia. Not only a lot of OPEC members but Russia as well head towards it (forced by Western sanctions for the annexation of the Crimea), a kind of a price war unleashes.

In 2004, 41.8 percent of OPEC's oil export is focused on Asia and the Pacific, just over 1/4 to North America and more than 1/5 to Europe (see Table 7). In 2015, the picture is radically different – Asia and the Pacific region attracted more than 60% of the total oil export of OPEC as to North America are exported only 12% and this share decreases rapidly. The positions of OPEC in Europe are far more stable as the decline for the period was only 3.2 percentage points to 18%.

Changes in the geographic orientation of OPEC's oil export are even more evident when you consider foreign trade of crude oil of each individual member. Charts 7 and 8 show shift of the oil export flows from the countries of North America to Asia and the Pacific. The period during which we examine the changes is from 2008 to 2015. The starting year is selected in view of the fact that then the US economy reported high levels of import, as at that time production from shale deposits hadn't started yet. In subsequent years, oil import in the US decrease, initially due to low consumption because of the global recession, and later (2010-2011) because the shale oil had started to replace some imports. Shale revolution affects firstly and mostly exporters from Africa – Nigeria, Angola and Algeria. Oil exports of Nigeria to North America decreased from 1381 thousand b/day (65.8% of Nigeria's total crude oil export) in 2008 to less than 84 thousand b/day (4%) in 2015. In addition to the three African countries Iraq was also affected greatly. During the period in question North America's share in its crude oil export decreased by 33.6 percentage points

⁸ Although in the first half of 2016 there were signs of recovery in the supplies of Nigeria to the United States, thanks to declining shale production, they can not be considered as reliable in the long run and do not mean that the country should give up the search for alternative markets.

to just 7.3%. Along with this process of export redirection, the country had increased significantly the amount of its export as a result of restoration of the oil industry after the war in 2003, in which China and Japan had had important contributions with their investments (considerably large part of Iraq's oil production is directed to these countries). After 2011 Iran was also forced to focus on trade relations with countries in the Asian region in order to compensate for the loss of the European market as a result of the imposed economic sanctions. Venezuela also deepens trade relations with Asia, mainly China, with which a number of credit agreements had been signed, that have been paid in oil. Moreover, the two countries have many common projects in the energy sector of Venezuela. As a result, in 2015 a little over 1/3 of overseas oil supplies of the South American country were directed to Asia compared to only 5.4% in 2008. Outside OPEC, Russia is also forced to focus on the Asian market following the above mentioned deterioration of relations with the West. All these economic and political processes cause these countries to begin to compete with suppliers incumbent on the Asian market such as Saudi Arabia, UAE and Kuwait and at least partially jeopardize their positions. In this respect, one can say that these three countries use low prices as a tool to preserve their positions with emerging Asian economies and as a tool for redistribution of markets after shale revolution in the US and Canada. It can be concluded that until recently partners within OPEC are increasingly becoming competitors, which will inevitably impede the functioning of the cartel.

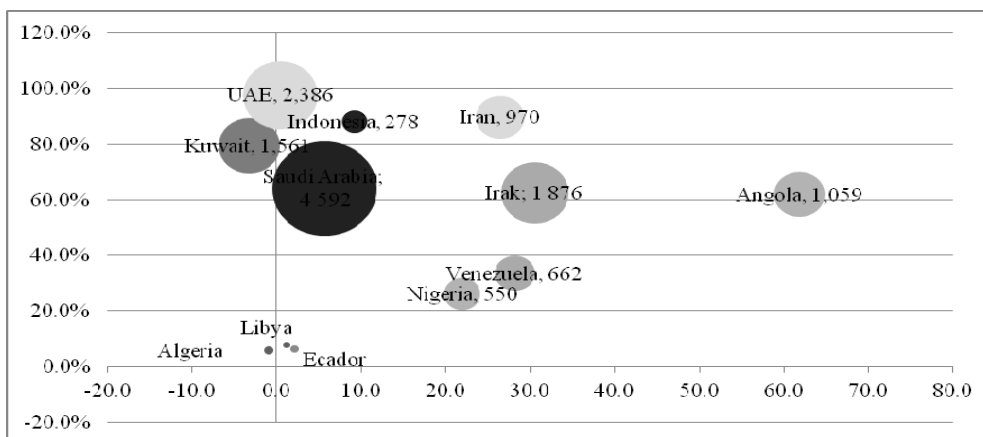
Table 7
Geographical structure of crude oil exports of OPEC member countries from 2004 to 2015

| | | 2004 | 2005 | 2006 | 2007 | 2008 | 2009 | 2010 | 2011 | 2012 | 2013 | 2014 | 2015 |
|------------------|----------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|
| Europe | Th.b/day | 4853.5 | 5119.1 | 4844.7 | 4574.5 | 4819.2 | 3917.0 | 3958.0 | 3899.3 | 3954.8 | 4086.3 | 4036.2 | 4241.6 |
| | % | 21.2 | 21.6 | 20.3 | 18.8 | 19.9 | 17.7 | 17.1 | 16.3 | 15.6 | 17.1 | 17.4 | 18.0 |
| North America | Th.b/day | 5768.3 | 5598.4 | 6140.7 | 6711.5 | 5940.1 | 5279 | 5100.0 | 4644.3 | 4667.7 | 3475.6 | 3170.6 | 2834.9 |
| | % | 25.2 | 23.6 | 25.7 | 27.6 | 24.6 | 23.8 | 22.1 | 19.4 | 18.5 | 14.6 | 13.7 | 12.0 |
| Asia and Pacific | Th.b/day | 9582.2 | 10256.9 | 10688.6 | 10947.8 | 11401.4 | 11146.0 | 11546.0 | 13325.3 | 14607.9 | 14420.6 | 13924.3 | 14504.2 |
| | % | 41.8 | 43.3 | 44.8 | 45.0 | 47.1 | 50.3 | 50.0 | 55.5 | 57.7 | 60.4 | 60.1 | 61.5 |
| Latin America | Th.b/day | 966.3 | 1034.7 | 913.1 | 913.4 | 1054.3 | 1105.0 | 661.0 | 1249.8 | 1189.9 | 1070.9 | 1153.4 | 1075.0 |
| | % | 4.2 | 4.4 | 3.8 | 3.8 | 4.4 | 5.0 | 2.9 | 5.2 | 4.7 | 4.5 | 5.0 | 4.6 |
| Africa | Th.b/day | 704.6 | 675.2 | 486.7 | 454.2 | 459.6 | 406.0 | 389.0 | 579.3 | 588.2 | 539.7 | 616.0 | 620.5 |
| | % | 3.1 | 2.9 | 2.0 | 1.9 | 1.9 | 1.8 | 1.7 | 2.4 | 2.3 | 2.3 | 2.7 | 2.6 |
| Middle East | Th.b/day | 338.6 | 558.2 | 299.9 | 336.6 | 304.5 | 296.0 | 305.0 | 293.3 | 290.1 | 282.2 | 277.8 | 293.2 |
| | % | 1.5 | 2.4 | 1.3 | 1.4 | 1.3 | 1.3 | 1.3 | 1.2 | 1.1 | 1.2 | 1.2 | 1.2 |
| Total | Th.b/day | 22904.0 | 23690.4 | 23866.9 | 24352.2 | 24190.0 | 22139.0 | 23112.0 | 23991.3 | 25298.7 | 23875.3 | 23178.3 | 23569.5 |

Source: OPEC, Annual Statistical Bulletin (2004-2016).

Chart 7

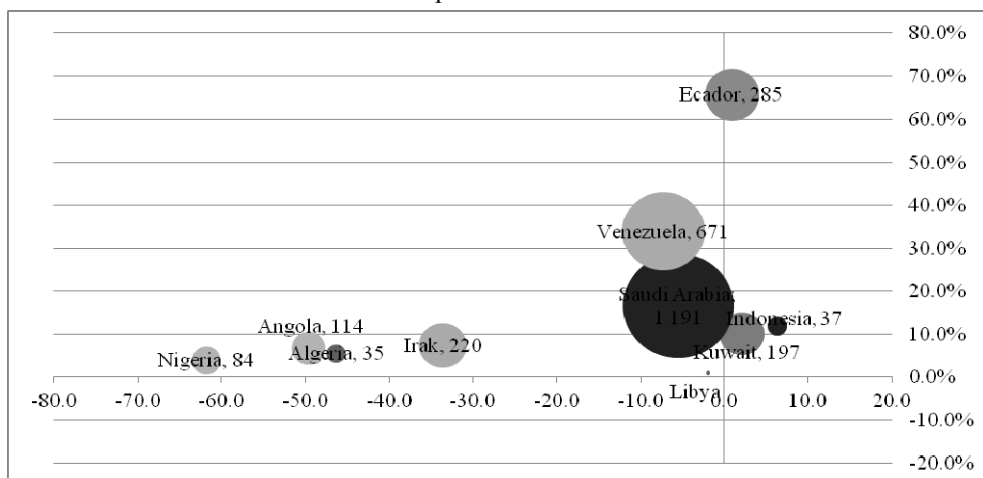
Increasing dependence of the OPEC members on oil exports to Asia and the Pacific for 2015 compared to 2008*



Source: OPEC, Annual Statistical Bulletin (2004-2016).

Chart 8

Decreasing dependence of the OPEC members on oil exports to North America for 2015 compared to 2008.*



Note: * Horizontal axis shows the growth (in percentage points) of share of oil exports in total exports of crude oil of OPEC member state to Asia and the Pacific/North America for 2015 compared to 2008. The right-more horizontally is a country, that increases its share the most. The vertical axis shows the proportion of total oil exports of each OPEC member to Asia and the Pacific / North America in 2015. The higher is a country, the greater is the share of its exports to this region. The size of the bubble shows the size of country's oil exports to Asia and the Pacific/North American (in thousands b/d).

Source: OPEC, Annual Statistical Bulletin (2004-2016).

The noted disagreements within OPEC and the rapid increase of production by countries outside the organization puts a number of questions over the future of the cartel. You could even say that through their current actions OPEC is actually a cartel only by name. Its weakened position does not allow it to fully act as a “Price maker” setting a high price. It is more likely for member countries to strongly intervene only during a drastic fall in oil prices, i.e. to set a minimum price.

Conclusion

After the analysis of the crude oil market we can conclude that the current situation reflects primarily objective economic realities of overproduction, the emergence of alternative suppliers competing for larger market share and growing fears of economic slowdown in emerging markets. The latest have been the engines of growth in oil consumption over the last decade. Moreover, taking into account a number of unforeseen events (long wars, economic sanctions) which "removed from the game" quite significant producers and exporters of oil, it can be said that oil markets have been functioning in a hidden surplus since 2011-2012, which is long before the last price collapse. When we add to this the significant drop in prices of other commodities, we could reach the conclusion that the collapse in oil prices is related mainly to economic problems of the market with structural nature. Geopolitical issues remain in the background and although they can not be ignored completely, they are definitely not leading factors but complementary to economic ones. In this regard market recovery can not be expected in the short or medium term. Perhaps supply and demand will rebalance, but at much lower price than the one from before the middle of 2014. In support of these conclusions are the actions of many of the oil exporters, which confirm the expectations for a prolonged period of lower prices. Examples can be given with Russia, Azerbaijan and Kazakhstan, which switched to floating exchange rates, and in the present situation this is tantamount to a strong depreciation of the national currency. This supports foreign trade flows and mitigates the decline in budget revenues and revenues of the oil companies. Other petroleum exporters, those in the Gulf, spent part of the accumulated reserves and resorted to issuing loans and bank credit, instruments that have not been resorted to even during the global financial and economic crisis.

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