Oil Price Analysis

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Abstract: The transport has been in the whole history of mankind the basic and determining mover of the human society shape. It determined not only the position of towns, but also their inner design and it was also last but not least the basic element of the economic development as the necessary condition of the exchange of goods. Its role in the 21th century will not differ and the question is rather the form of its future use. The trend of last several decades (and above all the increase of car traffic) has been showing that it will be necessary to solve especially the problem of the transport in the cities that fight the scarcity of space and also the question of the energy source for transport (or the substitution of the oil by another source), whatever the causes will be – ecological (lowering of transport emissions), strategic (connected above all with the security of delivery of oil and natural gas from the countries disposing of these raw materials) or other (above all the discussed oil depletion during the following 50-100 years). The oil price will decide about the success of the alternative fuels shortly, it will be the critical parameter of the economic efficiency of the particular energy sources. This topic is discussed in this paper that researches the various factors influencing the final oil price, whether the quantifiable factors (GDP growth, dollar exchange rates) or non quantifiable ones (natural catastrophes, political situation in oil exporting countries and others).

Key words: Oil, fuels, price, GDP, market equilibrium, history, oil reserves, deposit

1 Introduction

The oil has been known to the mankind for hundreds of years without bigger attention. It was of course used, it served as an additive for the construction materials in ancient Syria, later it substituted the blubber and was used for lubrication and lighting. By the way, the word “nafta” once meaned “leaking fluid”, from which it follows that it was no problem to extract it.

Its industrial use started up to the second half of the 19th century – the first commercial well was opened in 1861 in Pennsylvania. The golden era of oil came of course after the improvement of the spark-ignition engine cars and the beginning of their mass production. It had two presumptions – the first one is the feature of oil to concentrate big amount of energy in very small volume. It is the key feature for the propulsion of transport means, there is no need for transport of coal or heavy accumulators in the transport means.

The second presumption can be simply called Henry Ford – he improved the car with spark-ignition engine and was able to produce it so cheap thanks to the conveyor-belt line based production, that it was suddenly affordable for the middle class. The decision was made about the car propulsion for the next one hundred and fifty years. But it is necessary to add, that the 19th century was the period of the intensive searching for the suitable energy source for the propulsion of transport means. Of course the coal was pushing oneself from the beginning – partly in the steam propulsion (above all in the rail and water transport – transport means were big enough to store the sufficient amount of this energy carrier). The second possibility was then the electric propulsion, but the electric cars were not successful because of their insufficient driving properties and the electricity found its use in the transport only in the dependent traction especially in the rail transport.

2 Oil price in the history

The oil price can be observed since 1862. Standard Oil? At that time one barrel (159 l) of oil was sold for 75 cents. At the end
of the 19th century there was a fight among three biggest extracting companies that originated according to the extraction location. The extraction from the Caspian Sea was begun by Ludwig Nobel, but there was no sale in Russia, so he united with European markets, the French stem of the Rotschild family, and interconnected Baku with the Black Sea port of Batumi, from where the oil was exported to refineries in Rijeka. The Rothschilds united then with the branch of the Standard Oil in Great Britain [2].

After 1890 the salesman Marcus Samuel grounded the company Shell Transport and Trading and was sent to Asia, where he should bid the Russian oil for unrivalled prices. At that time the extraction also began in Indonesia under the control of the Royal Dutch Company that merged then with Samuelson into the Royal Dutch – Shell.

But Standard Oil faced the intervention of the antitrust authority, after which the famous group “Seven sisters” originated – Exxon, Mobil, Chevron, Gl?, Texaco, BP, Shell. It controlled the whole world oil trade. At the beginning of the sixties of the 20th century the Arabian states joined and the OPEC originated. During the last more than 50 years the oil price experienced the growth and the fall several times. The first oil shock was the rapid growth of the oil price in 1973, when the Egypt-Israel war begun (the Yom-Kippur war). The OPEC states laid an embargo on the export to the states that supported Israel.

The second oil shock occurred in 1979 after the so called Islamic revolution, when the Islamic regime begun to export less oil to be able to influence the world trade. Saddam Hussain then attacked Iran. Other OPEC countries increased the oil production to prevent the collapse and so the price growth was not so big as during the first oil shock.

The third oil shock happened in 1990 during the Gulf war (invasion of Iraq into Kuwait). This conflict was followed by the interruption of delivery from these two strategic countries. The oil price grew twice. At the beginning of 2008 the oil price broke the limit 100 USD, in the half year even 150 USD. This fluctuation did not last long, already in December the price was 40 USD for barrel. The price evolution is displayed in the Graph 1. It shows the real and the nominal oil price. The real value is given by the nominal price of the current time multiplied by the ratio of consumer price indices in the current and starting time [5].

Graph 1: Development of the real oil price, USD/barrel. Source: (Global Financial Data, 2011; Cilek, Kasik, 2008)

3 The dependence of oil price on quantifiable factors

The oil price is influenced by a number of factors. The most of them are not quantifiable (speculations, political situation etc.), as mentioned at the end of this paper in the complex analyse of these influences. At first we mention the dependence of oil price on quantifiable factors, namely in the period 2003-2010, when the price fluctuations were very sensible.

3.1 The Relation between oil price and US dollar value

The most important quantifiable factors influencing the oil price are the GDP of demanding states and the value of the US dollar, used in oil trading. The tightness of the dependence of the oil price and theses factors can be expressed by the correlation coefficient and graphically demonstrated by the regression line. The graph 2 shows the dependence of the oil price on the dollar exchange rate. The value of dollar is expressed by the exchange rate of the US dollar and the currency basket (SDR). The basket of currencies diversifies the variability of values of the individual currencies. The oil price as well as the dollar value are not adjusted for the inflation, so they are real.
The correlation coefficient is -0.787 in this case, what evidences a tight indirect dependence.


3.2 The Relation between oil price and the GDP of the G7 group
For the purpose of the calculation of the dependence of the oil price and the GDP of demanding states we chose the G7 countries as the demanding ones, thus the strongest world economies. The correlation coefficient is +0.79 in this case, what means a tight direct linear dependence. The graph 3 shows this dependence by a regression line.

Graph 3: Dependence between oil price and the GDP of the G7 group. Source: www.consensuseconomics.org, www.econstats.com

4 Complex analyse of oil price drivers
In this chapter we will be concerned with the particular causes of the oil shock in 2008, which result from the causal analysis of this problem. By understanding the oil price development in this period we can find the factors that will also influence it shortly. As the basic drivers we can regard: demand for oil, US dollar value, speculations, natural and ecologic effects, oil production or if you like oil supply.

The production of the OPEC cartel was decreasing in 2008. The OPEC has been regulating the oil quantity by production quotas that were broken by some member states in order to get higher profit.

The instability of delivery from non-OPEC countries was influenced by the expectations of troubles of terrorist attacks. For instance in 2008 it came to the decrease of the production growth in the western Siberia that has the highest share of the Russian oil production. The price stability was also negatively influenced by the war conflict between Russia and Georgia because of the effort of Georgia to become a member of NATO. But this Transcausasian region represents an important path as for Gazprom, as for the Nabucco pipeline. Also the BTC pipeline connecting the Caspian and the Mediterranean Sea goes only few tensths of kilometres from the war locality in Georgia. Another oil producer is Iran, ranking among five greatest world exporters. In the first half of 2008 there was the conflict between Israel with the USA and Iran because of the everlasting threat of nuclear and rocket programs.

The economy of one of the richest countries in Africa, Nigeria, is based on the oil industry and it is the 7th biggest world oil exporter. Here rebel aggressions occurred, they wanted the increase of production quotas just because of the growing price [6]. Also Venezuela belongs to oil powers. Under the presidency of Hugo Chávez it started to nationalize the oil industry. Chávez also threatened with the stopping of the oil export to the EU and USA in the effort to strengthen his political influence as home as abroad.

Besides the political situation the next cause of the oil price growth is the decrease of the production mainly in the North Sea as a result of the gradual exhaust of deposits. It is
connected with the next cause-the oil supply. The continual decrease of the number of new deposits and the verification of the Hubbert theory of the oil peak affects the oil price [8]. During the last 20 years the attractivity of the investment into oil deposits, because stroken oil is hardly available and so necessarily the costs of its extraction have been growing. We consider the increasing oil demand for the most essential effect on the oil price. It is given esp. by the GDP growth of the oil demanding countries.

The oil has been being traded in US dollars. Because of the economic crisis the value of USD was decreasing. If the dollar depreciates, the oil producing countries headed by the OPEC decrease the oil production, what raises the oil price [7]. The inflation is also an important factor influencing the value of dollar and thus the oil price. A strong inflation wave was initiated by Alan Greenspan, the former chief of the central bank of the USA FED. After the terrorist attacks in 2001 the economic system started logically to unbalance. The FED wanted to prevent it and so it started to invest massively into the banking system. The free liquidity in the system leaked into many various types of assets. It had prevented the crisis at financial markets, but it brought problems to the USA and the value of dollar lost 42 % in 2008 [4].

Other very important dollar value factors are stock and commodity markets. As the stock markets at the crisis time are primarily influenced by the sentiment, we can attribute to the financial crisis also the short term growth of the dollar value in the half of August and so the oil price shrink. The mortgage crisis can be regarded as the main driver of stock markets. The development of the commodity market is similar to that of the stock market. When the stock market does not flourish, investors turn to less hazardous assets as commodities like oil.

5 Conclusion

Oil and its price is the key parameter of the development of an economy. Through influencing the price of transport it has also effect on the inflation and everyday life. It is of course a big question, whether actual fluctuations are caused by the giving out of the oil stock or by the functioning of other factors. As for the year 2008, just these other factors caused the drastic growth of oil price. The causes can be found above all in the coming economic recession with the decrease of the American dollar and speculations at commodity markets. In the connection with the following decrease of the GDP the oil price than started to sink logically and its today’s growth can be explained by the economic revival. The short-term rapid fluctuations are caused by instable situations in oil exporting countries. These fluctuations can be the demonstration of the world political instability and as well a sign of more serious problems, the analyse of this topic is already out of the economic character of this paper.

This conclusion does not want to hide possible problems with giving out of the oil stock. The mankind will shortly come into the epoch, when the oil will be albeit sufficient, however its extraction will be far more difficult and also costly, which is connected with the failing energetic return of its extraction. In this sense it can be supposed that the oil price will be the basic parameter that will influence the implementation of other technologies of the propulsion of vehicles or alternative fuels, which are not able to compete as for costs with the oil fuels for the present.

References
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