



## KEY FACTORS OF RECENT CHANGES IN CRUDE OIL PRICES

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### INTRODUCTION

As a well-known fact by millions of people, more than hundred and fifty years ago, Colonel Drake in Titusville, Pennsylvania did the first oil discovery. From 1859 to 2015, the use of oil and its market concept has dramatically changed by producers and consumers. First oligopoly market initiatives can be explained by the dissolution of the Standard Oil with the accusation of illegal monopoly in 1911. Dissolution served as an opportunity to the rise of the multi-national oil companies. Until the 1970s, these large multi-national companies administrated crude oil prices. Then, in 1973, the Arab-Israeli War began and the Organization of Petroleum Exporter Countries (OPEC) had gained the control over crude oil prices. OPEC brought the market-related pricing system, and still, it is widely used as the main crude oil pricing mechanism. With the developments in prices and markets, crude oil trading has become globally available for the access of traders at any time.

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Current oil market is more complex, market fundamentals are never known with certainty and physical dimension of oil has become important in pricing associated with static reserve index (Fattouh, B., 2011). There are many factors that can be effective on daily oil prices (benchmark prices) in different time periods. In this analysis, economic, technological, and political factors were analyzed with the current market conditions.

### ECONOMIC FACTORS

#### U.S. FEDERAL RESERVE BANK (FED) POLICY

The end of U.S. FED quantitative easing policy and thus, the U.S Dollar being powerful with the expectation of subsequent interest rate increase explicitly play an important role on oil price decline, which means that there

will be higher interest rates in U.S and that will cause a powerful U.S Dollar. There is a stubborn fact that is an inverse proportion between being powerful U.S. Dollar Index and oil price decline as shown in Figure 1 and 2 below. Accordingly, it can be said that powerful U.S Dollar Index forms main oil price decline trend and vice versa. The reasons behind oil price decline is almost the same as the reasons for commodity price decline, which result from pricing of commodity and oil price by U.S Dollar. Such pricing forces commodity and oil prices to decline while U.S Dollar Index is getting powerful, which can be easily seen in Figure 3. The other reason is that the expectation of U.S Dollar in all over the world return to U.S to gain more interest, which leads the expectation that world growth and investment rates decline in the following years, so oil need and demand are decreasing. Similarly, the beginning of the FED quantitative easy policy in 2008 led U.S Dollar to be weaker with expectation of low interest rate and thus, oil price declines.

### SUPPLY AND DEMAND RELATED FACTORS

On a global scale, supply and demand relation is the main factor to shift oil price. The declination of production rates and the failure of new discoveries increased oil price in the history, and as opposed to this, market currently encounters oversupply of oil and oil price has been accelerating downward since the unconventional oil phenomena emerged. Especially, the Americans' great endeavor and success introduced the shale oil production from shale reservoirs by using new techniques in drilling. Due to high flow rate of shale oil into market, oil price has been declining since 2014. For instance, domestic crude oil production of the U.S. was about 4.6 million barrels per day in 2008, and it jumped to 9.2 million barrels per day in 2015, which is doubled in 7 years. As a result of this extraordinary increase in oil supply, U.S. became the largest crude oil producer in the world in 2014.

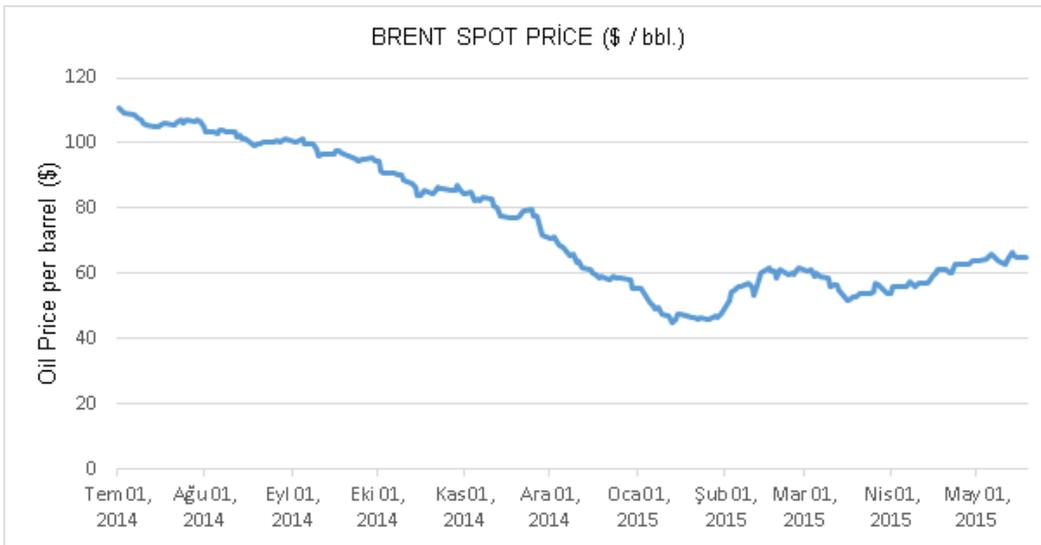


Figure 1: Brent Spot Price Change between July 2014 and May 2015 (Energy Information Administration).

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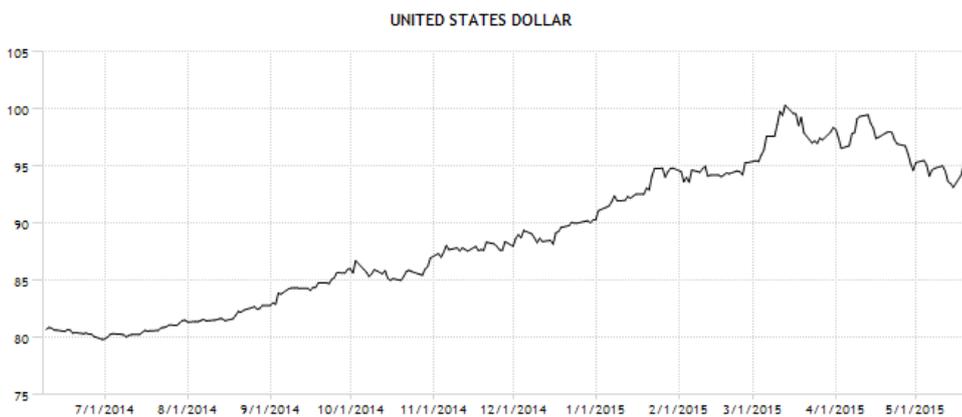


Figure 2: U.S Dollar Index Change versus Euro, Yen, British Pound, Canadian Dollar, Swiss Franc, Swedish Krona between July 2014 and May 2015.

OPEC has also increased its production rates to struggle against the American oil supply. Therefore, with the oversupply, benchmark oil prices quickly dipped at \$35 / bbl. at the end of 2015.

Another point that shifts the supply-demand balance is the seasonal consumption rates. Residential and industrial oil use rises in cold periods of the year (during winter) and falls in summer. In addition, winter conditions are harder to pump out oil. That brings a huge oil consumption difference between winter and summer, which will volatile the market, too.

### TECHNOLOGICAL INNOVATION AND CHANGE IN COSTS

The most important approach for the petroleum economics is the investment feasibility. It is roughly calculated by comparing the estimated total production multiplied by the unit oil price versus total costs including the time value of invested amount. Recent technological developments become competitive to make costly operations cheaper.

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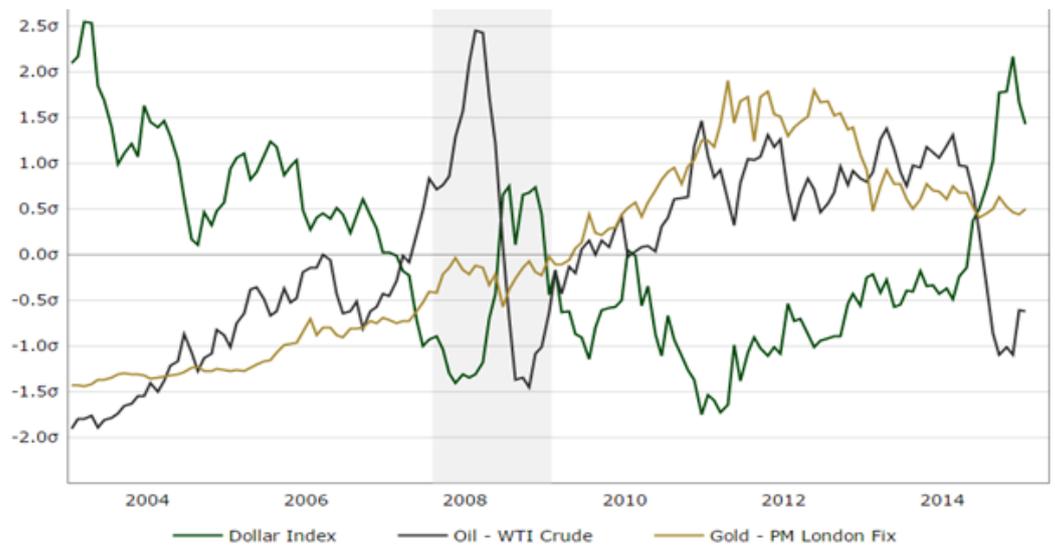


Figure-3: Brent Price versus U.S Dollar Index between 2004 and May 2014.

"Horizontal drilling and hydraulic fracturing technologies created a new era in upstream industry."

draulic fracturing technologies created a new era in upstream industry. Especially, the U.S. and Canada enhanced their domestic oil production by using new methods. As mentioned before, from 2008 to 2015, US domestic oil production is doubled, mostly supply came from the unconventional resources due to decrease in operational costs.

the benchmark prices went down. In reality, cumulative costs of unconventional wells are relative higher than conventional wells, but it provides higher rate of return and shortens the payback period due to high initial production rates.

### POLITICAL FACTORS (SUPPLY SECURITY)

For example, the North Dakota Bakken Field drilling and well completion costs were accounted for \$13 million in 2012, as a result of technological innovations and competition, it fell down to \$7 million at the end of the 4Q of 2014. Decrease in costs increased the attractiveness of industry, even though

Majority of oil producer and exporter countries were formed in a strategic area, in which internal and external problems obstruct oil supply, especially in the Middle Eastern Region, where supply security has become a

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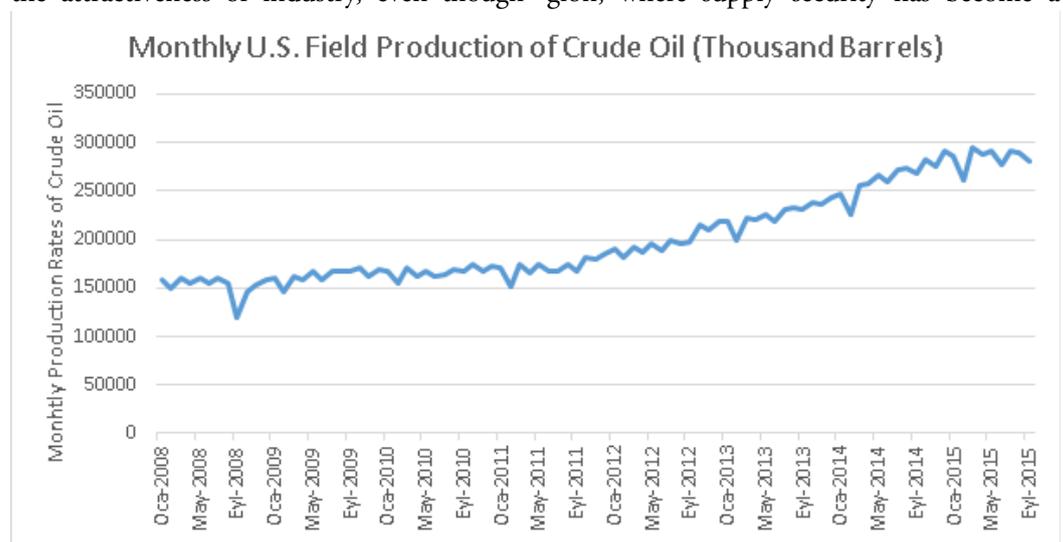


Figure 4: U.S. Field Production of Crude Oil (thousand barrels) between 2008 and 2015 (monthly), (Source: Energy Information Administration).

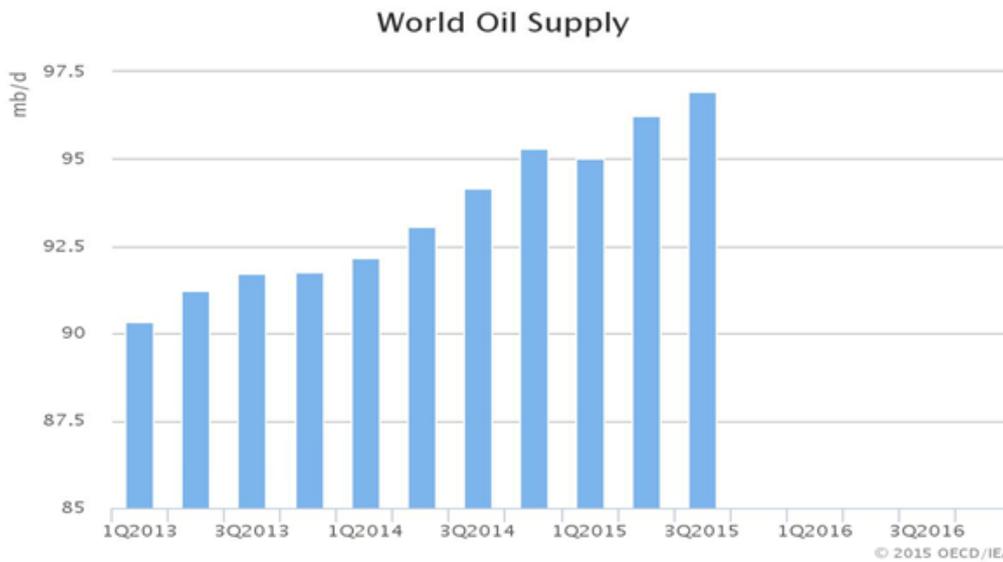


Figure 5: World Daily Oil Supply between the 1Q 2013 and 3Q 2015 (MM bbl. /day). (Source: International Energy Agency).

global threat. The existence of terrorism, lack of authority, religious and denominational issues hamper oil production and directly increase oil prices in both short-term and long-term. These kinds of problems were observed many times in history as listed below:

- Dissolution of Standard Oil
- World War I
- Great Depression Era
- World War II
- 1973 Arab – Israeli War and market shortage
- OPEC Price Control Mechanism between 1973 and 1985
- Iran Islamic Revolution
- 1985 Saudi Oil Supply against the OPEC system
- Iraq – Iran war
- Invasion of Iraq and Afghanistan after 11/9/2001
- 2008 Global Economic Crisis (Domino Effect)
- Arab Spring
- Russian attacks on Ukraine
- Threats of ISIS and Boko – Haram on refineries
- Denominational civil war of Yemen (It turned to Saudi – Iran War)

These problems stimulate high oil price and lack of supply. Currently market faces oversupply, but this will end up soon because shale oil production will reach its plateau level and then sharp decline might occur. American oil supply will decrease up to 400,000 bbl. / day at the end of the first half of 2016, which is mentioned in global reports. Additionally, some projections (including OPEC) claim that oil price will rise up to \$70 bbl. in 2017.

### CONCLUSION

Due to FED policies, the United States Dollar raised in value. Since oil transactions are done with dollar, oil price dropped.

The growth rates of developing economies' has been declining due to FED & regional monetary policies. As a result of this, consumption of oil (demand) started to decrease, which negatively impacted oil price.

Shale oil boom and new field discoveries stimulated low oil prices.

OPEC and US competition decreased oil prices and narrowed oil profits.

Escalating tensions between Saudi Arabia and Iran might change the movement of oil future market and this might be concluded with upward acceleration of benchmark prices.

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On the other hand, if the competition between the US and OPEC continues, market will encounter oil prices less than \$35 per barrel in the following months associated with oversupply.

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