

**Research Article**

## **Oil Curse of Russia: Search for Dependence of Quotations RUB/USD on the Price of Brent Crude Oil**

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**ABSTRACT:**

This paper analyzes the relationship between the price of Brent crude oil and the ruble / dollar rate. One of the basic problems of data analysis is solved - the search for the relationship of two quantities. For example, four data periods of 1 year duration each are taken. The interim date between the periods is November 10, 2014 - the date when the Central Bank of the Russian Federation abolished the current exchange rate policy mechanism.

**Keywords:** Oil curse, Brent Crude Oil, Ruble Rate, Russia, Central Bank.

**[I] NTRODUCTION**

The figurative Russian expression "to be on an oil needle" means that the lion's share of the national budget revenues is formed due to taxes and duties on the sale of oil and gas for export.

In 2011-2014, against the backdrop of rising oil prices above \$ 100 a barrel, symptoms of Dutch disease (the Groningen effect) began to appear [1]. This is the negative effect of the strengthening of the real exchange rate of the national currency on economic development as a result of the boom in a separate sector of the economy.

On November 10, 2014, the Central Bank of the Russian Federation released the ruble into "free float". The Bank of Russia de facto abolished the current exchange rate policy mechanism. The floating corridor of the value of the bi-currency basket and regular interventions on the corridor borders and beyond were abolished.

"As a result of the implementation of the decision, the ruble course will be formed under the influence of market factors, which should enhance the effectiveness of the monetary policy of the Bank of Russia and ensure price stability. In addition, a new approach to conducting transactions in the domestic foreign exchange market will facilitate faster adaptation of the economy to changes in external conditions and increase its resistance to negative shocks" – the Bank of Russia points out.

On Monday, December 15, 2014, there was a sharp collapse of the ruble by more than 8%. This fall was a record since January 1999, and the media called this day a "black Monday". The next day, on Tuesday, December 16, followed by an even larger fall of the ruble: the dollar and euro rates reached 79 and 98 rubles, respectively. By

analogy with "black Monday", this day was called "black Tuesday".

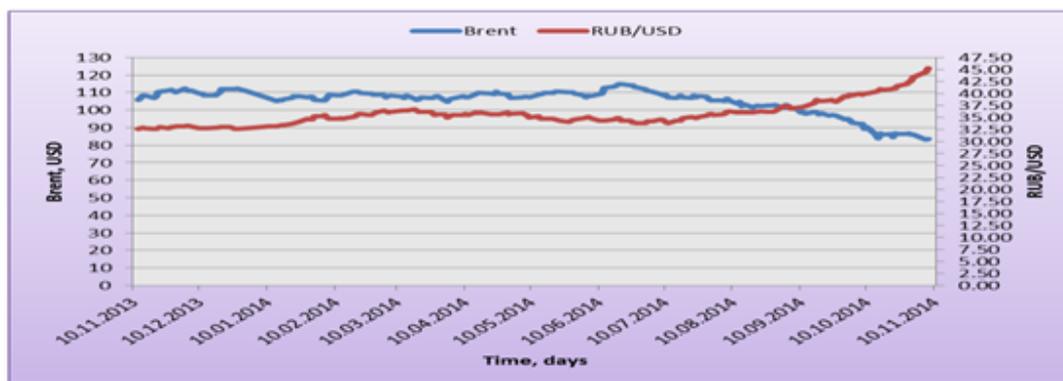
With the decline in the world price of oil (and, after it, of the gas tied to it), the state loses so much money for its expenses, which it cannot compensate from other sources - the economy decelerates due to a decrease in effective demand [2].

**[II] SUBJECTS AND METHODS**

To illustrate the dependence of the Russian economy on world oil prices, quotations of the US dollar and Brent crude oil prices were downloaded for the period from 10.11.2013 to 10.11.2014 (Figure 1), i.e. one year before the decision by the Central Bank to abolish the exchange rate mechanism. In total, 4 sampling periods are taken:

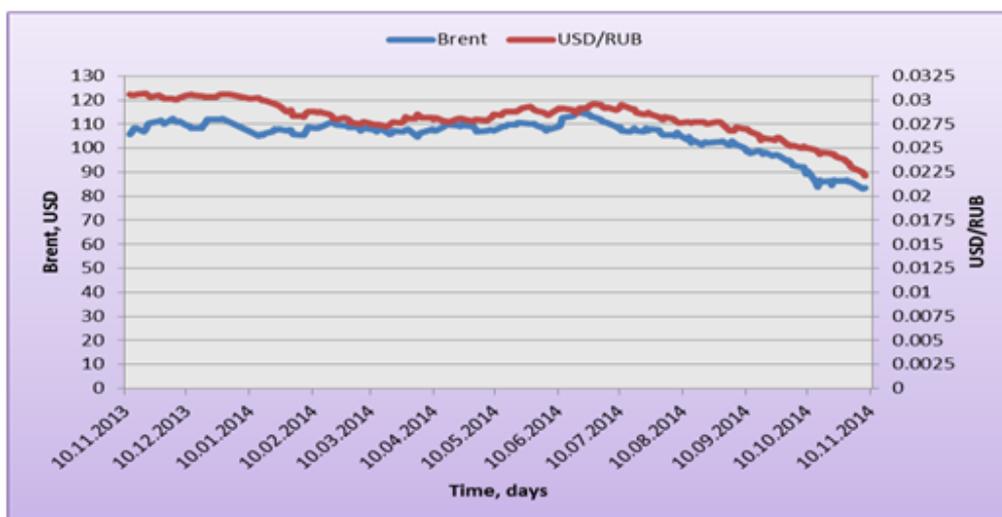
**Table 1:** Data sampling periods.

Period	Sample time
1 period	from 10.11.2013 to 10.11.2014
<b>10.11.2014 – The Central Bank of Russia abolished the exchange rate mechanism</b>	
2 period	from 10.11.2014 to 10.11.2015
3 period	from 10.11.2015 to 10.11.2016
4 period	from 10.11.2016 to 10.11.2017



**Fig. 1:** The graph of RUB / USD and Brent crude oil prices for the period No.1.

For clarity and comparability of dimensions, the author transforms the values of the subsidiary vertical axis of quotations from RUB / USD to USD / RUB (Figure 2). There is a clear correlation of graphs. In the numerical value, the correlation coefficient is 88.14%.



**Fig. 2:** The graph of quotations USD / RUB and the price of Brent oil for the period No.1.

The following are graphs for the periods 2,3,4 (Figures 3,4,5)

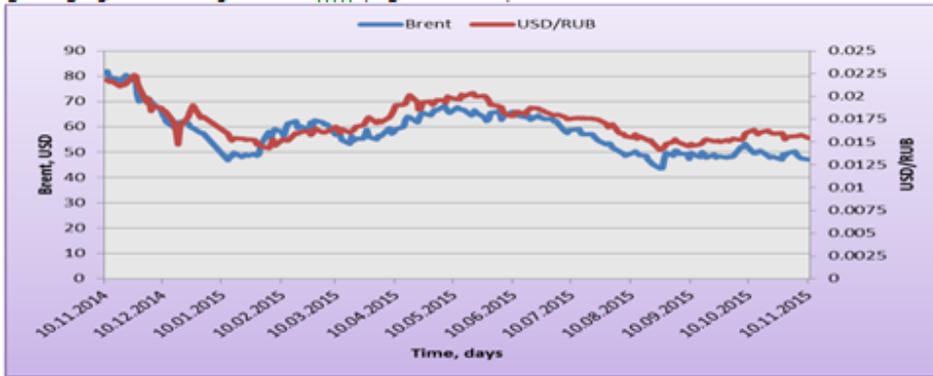


Fig. 3: The graph of quotations USD / RUB and the price of Brent oil for the period No.2.

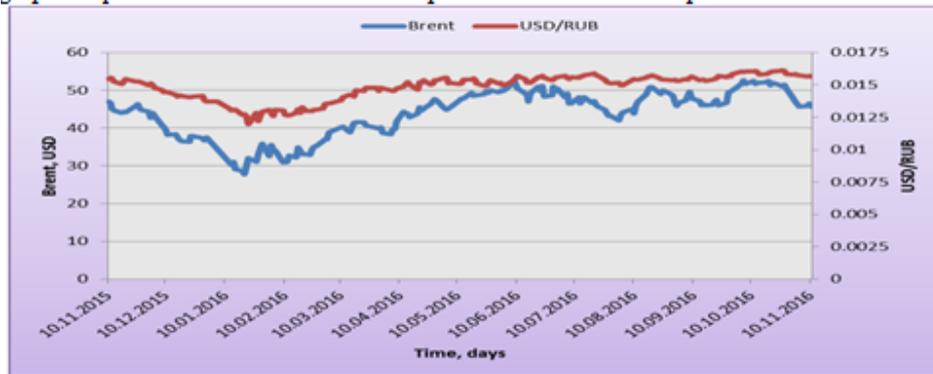


Fig. 4: The graph of quotations USD / RUB and the price of Brent oil for the period No.3.

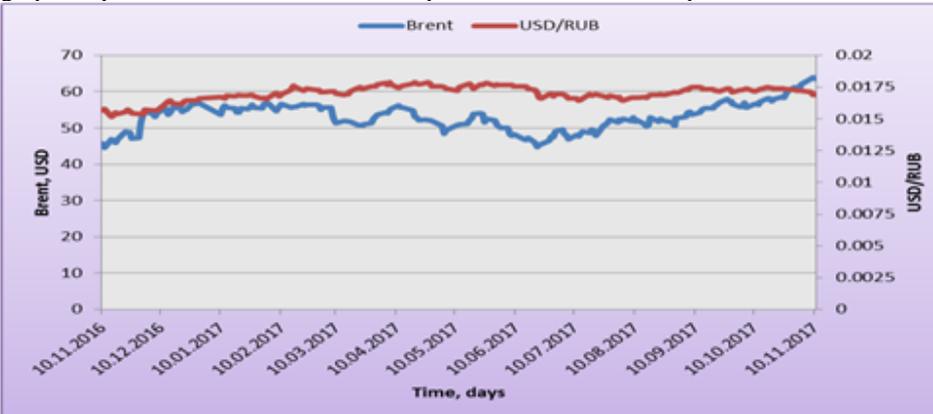
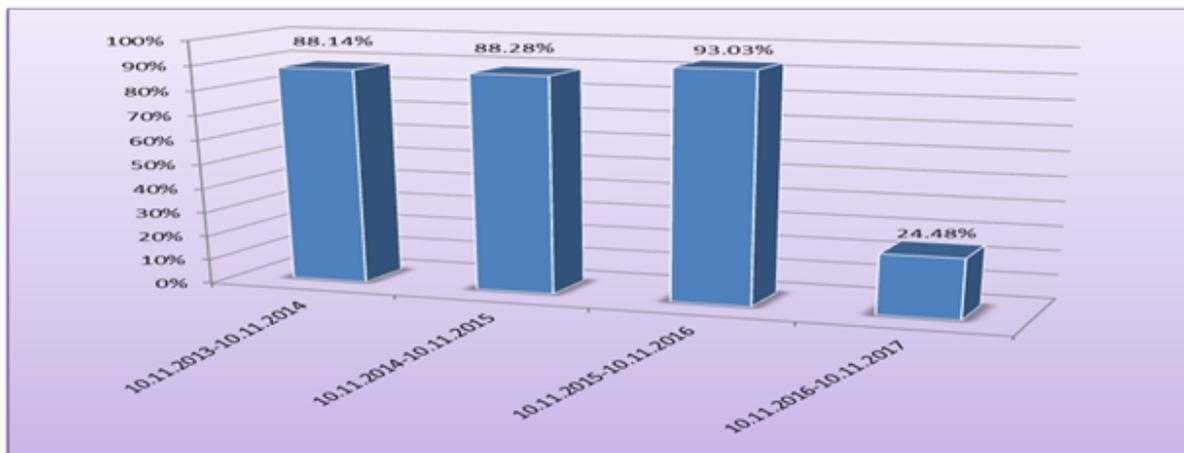


Fig. 5: The graph of quotations USD / RUB and the price of Brent oil for the period No.4.

### [III] RESULTS

Based on the plotted graphs, the values of their correlation were obtained, which are presented in Figure 6.

According to the presented diagram (Figure 6) it can be seen that the decision of the Central Bank of the Russian Federation to abolish the current exchange rate mechanism did not directly affect the strengthening of the effectiveness of the monetary policy of the Bank of Russia and to ensure the price stability of the ruble. In period No.3, the correlation even increased by 5% and exceeded 90%.



**Fig. 6:** Correlation of USD / RUB and Brent prices.

#### [IV] CONCLUSIONS

A large share of the national budget revenues is formed due to taxes and duties on the sale of oil and gas for export. During 2006-2014, it was 47-51%. At the end of 2016 this share was reduced to 34%, although in 2017 it again increased - to 44% [3].

Not a bad trend at first glance, however, it hides the fact that in 2016 the average world price of oil fell to \$ 43, and in 2017 it rose to \$ 55.

Talks about the need to "get off the oil needle" began back in the 1990s, at an oil price of \$ 9-13 per barrel. Russia survived as best as it could, passed through programs such as "oil in exchange for food," a salary of \$ 100 a month was considered quite decent, and in 200 - enviable.

Russia needs to follow the West to develop alternative energy, invest in the development of cheap windmills and solar panels, not to be afraid of its own nuclear programs.

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