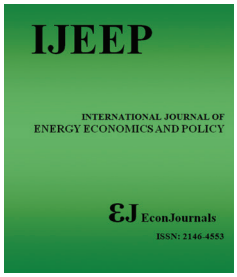

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Brent and Urals Oil Price Control Mechanisms

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ABSTRACT

The article considers the main mechanisms for controlling the formation of oil prices, including Brent and Urals brands. Based on the analysis of trends in the oil market and their dynamics over the past decades, the authors identify factors affecting pricing in the oil market, different oil market price control systems, and their dynamics. Our results show that there is a substantial price gap in the world oil market between the Brent reference grade and the Urals crude grade, while the formation of the Urals brand price is opaque. Comparing the key characteristics of different systems of price control in the oil market, we revealed that under the influence of external and internal factors, the system of control over pricing in the oil market underwent significant changes throughout its existence. The authors conclude that at present, there are real prerequisites for the institutional correction of the global oil market in terms of strengthening the administrative levers of developed countries control over exchange and OTC pricing mechanisms.

Keywords: Oil Market, Brent Brand, Urals Brand, Oil Price, Pricing Factors, Pricing System, Pricing Control Mechanism
JEL Classifications: G23, L52, O24

1. INTRODUCTION

The oil sector is important for both developed and developing countries' economies, having a significant impact on the country's state budget, trade, and balance of payments. In this regard, the analysis of methods and tools for the formation of oil prices, the search for ways to improve pricing and control mechanisms are especially relevant.

Large oil-producing Powers seek to meet their own domestic resource needs and export substantial quantities of oil. Therefore, the creation of an effective, organized oil market is an urgent need. One of the main negative results of the absence of such a market is the poorly developed trade and pricing mechanism in developing countries' oil market. This complicates the liberalizing of the domestic market and influences the state and oil companies' level of export prices. At the same time, an important associated problem is the insufficient development at the moment of the derivative financial instruments segment, which allows companies to ensure financial and other types of risks. It is also necessary to note the dependence of the formation of prices for Russian oil grades on large multinational companies' policies regulating world exchange sites' activities.

The development of independent trading platforms and payment for goods in the country's currency has repeatedly been put forward as an important direction in developing the oil and gas industry. The formation of value considers demand and supply and is only based on the results of trading on domestic platforms. In Russia, the Urals brand futures were launched for open trading to move away from binding on the Brent price. However, until now, the Urals price is dependent on trading on foreign sites and is set based on the cost of the Brent marker grade.

The impact of systemic factors on market pricing causes increased competition in the ability to control resource sources. At the same time, due to the constant possibility of a supply deficit, the risk component in the oil price will be at a high level, leading to the likelihood of increased global competition for oil pricing mechanisms.

As a result of the influence of oil prices on socio-economic and political processes, their impact on the pace of economic development, investment attractiveness, and the price of shares of oil companies, etc., is observed. The oil price is also always taken into account in the formation of prices for various energy sources. This, in turn, determines the pace of development of the oil industry and the economies of consumers and oil producers countries.

It should be noted that a large empirical literature has emerged over the past decade investigating the oil price-exchange rate nexus in both advanced and emerging economies (Bouoiyour et al., 2015; Ceylan et al., 2020; Chen et al., 2016; Khraief et al., 2021; Shahbaz et al., 2020; Turhan et al., 2014; Yang et al., 2017; Zhang et al., 2017). There is considerable evidence of a connection between the exchange rate and the price of oil.

The relationship between oil price shocks and financial markets is being explored (Demirer et al., 2020) by examining the effect of oil shocks on the sovereign bond markets of a large number of advanced and emerging economies and exploring the impact of oil shocks on the degree of connectedness among international financial markets. They show that oil price shocks serve as a driver of connectedness patterns across global financial markets. However, the effect on connectedness depends on the nature of the oil market shock and the countries' economic characteristics.

Exploring abnormal returns in crude oil spot and futures markets around OPEC conference and U.S. Strategic Petroleum Reserve (SPR) announcement dates between 1983 and 2008, Demirer and Kutan (2010) found that the persistence of returns following OPEC production cut announcements creates substantial excess returns to investors who take long positions on the day following the end of OPEC conferences.

(Elsayed et al., 2020) examine the spillover mechanism of volatility shocks across future markets. These authors investigate the time patterns of volatility spillovers between the energy market and stock prices of seven major global financial markets: clean energy, conventional energy, information technology corporations, equity markets, and United States economic policy index. The investigation's period varied from December 28, 2000, to December 31, 2018.

The study's main findings conclude that oil shocks are exogenous, and the contribution of oil market volatility to global financial markets is insignificant.

Among developing countries, Russia's oil market, as the largest oil-producing country, deserves special attention. So, (Bouoiyour et al., 2015) consider the nexus between oil price and Russia's real exchange rate conditioning upon potential control variables at well-specified horizons and on a frequency by frequency basis. This research also accounts for the possible transient linkages and signal discontinuities. (Vasiljeva et al., 2019) analyze the possibilities of rationalizing conditions to ensure the crude oil market pricing through exchange trade development. The scientific search's main objective was to justify state oil purchase as the main factor in improving the Russian oil exchange market liquidity at the present stage of its development. The paper of (Polbin, 2017) estimates terms of trade shock influence on the Russian output, gross investment, and consumption using VECM model with exogenous variables. Empirical results demonstrate that a permanent oil price increase led to a short-run economic boom followed by a negative contribution to economic growth. Chernyaev and Kreydenko (2018) believe that Russian oil and gas industry (OGI) is working now in exhausted industrial potential mode. It faces significant problems preventing its development and threatening Russia's energy security.

Our assessment of the literature highlights that research areas studying the interaction between oil prices, energy and financial markets, and foreign exchange rates consider a two-factor component. This paper's contribution is that price control mechanisms consider a number of both external and internal factors affecting pricing in the oil market. Trends in the global oil market and their dynamics are analyzed.

The authors conclude that, at present, there are real prerequisites for the institutional correction of the global oil market in terms of strengthening the administrative levers of control of developed countries over exchange and OTC pricing mechanisms.

The rest of the paper proceeds as follows. Section 2 presents our methods and methodology used in conducting the research and writing the paper, showing their practical application in data analysis. In Section 3, we describe our data set, based on which we analyze the dynamics of prices in the oil market, as well as the characteristics of pricing control systems. Finally, in Section 4, we conclude, discusses policy implications and possible prospects for oil market pricing.

2. METHODS

As basic research methods, we used a systematic approach, comparative and statistical analysis of indicative values of oil prices, external and internal factors of influence on pricing.

The work analyses the price quotations for Brent and Urals oil grades and their fluctuations from production volumes by leading hydrocarbon exporting countries, compares the key characteristics of various pricing control systems in the oil market, considers the prerequisites for changes in the system of oil price formation.

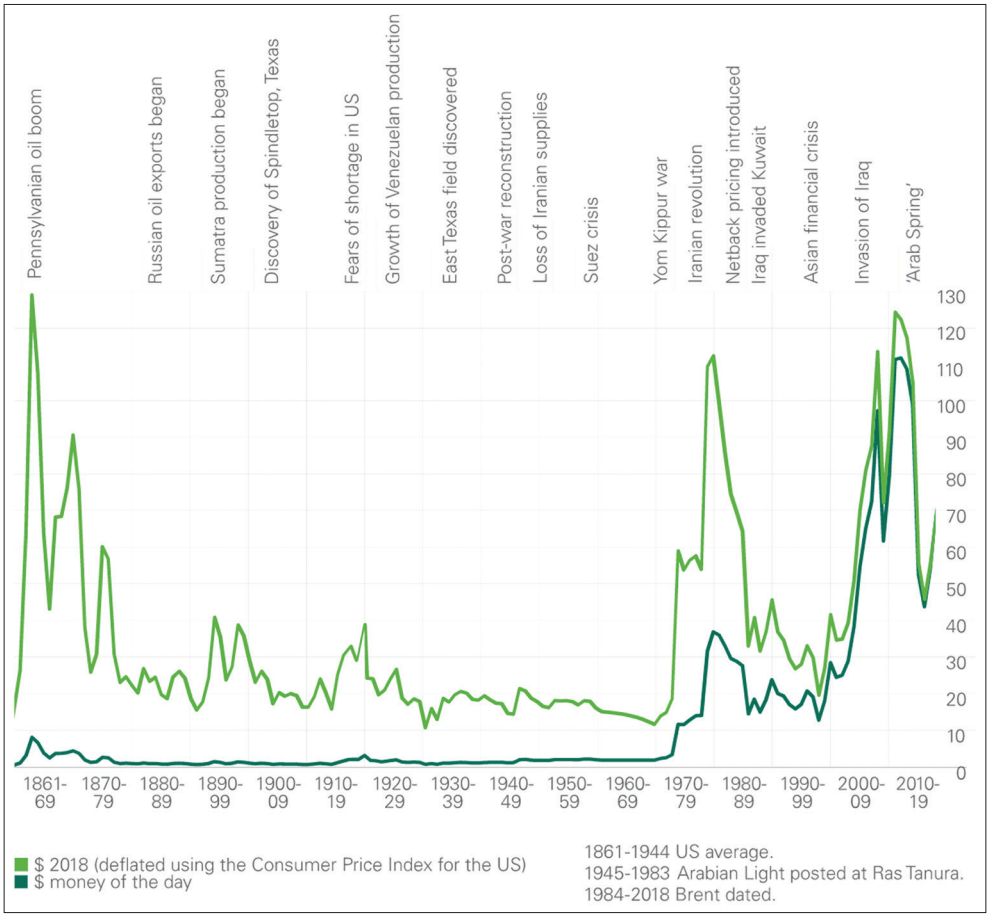
During the study, topical statistical and analytical resources were considered (data from the Organization of Petroleum Exporting Countries, the EIA International Energy Agency, the Russian Ministry of Energy), estimates, and oil and gas experts' forecasts.

The price dynamics of the oil market are influenced by both minor and short-term factors, as well as the dominant trends of a long-

Table 1: Stages of oil market price dynamics, 1970s-the present

Stage	Period	Name of a stage	Characteristic
I	1970-1985	1	67,24
II	1986-1998	3	61,73
III	1999-the present	8	58,37

Figure 1: Oil price dynamics, 1861-2019



term nature observed in the world market. The study of economic and non-economic factors determining the price of oil was carried out by Fattouh et al. (2013). World oil prices largely depend on the political situation (Figure 1).

As Figure 1 shows, the oil market's price dynamics have fluctuated significantly over the last half-century, and its very nature has changed compared to the previous century. From the beginning of the 1970s to the present, three main price stages can be distinguished in the oil market (Table 1).

Considering the first stage, it should be noted that sharp price changes took place under the influence of external, non-market factors (military operations that affected several states, restrictions on oil supplies, etc.). The dynamics of oil demand was a «mirror» reflection of the dynamics of prices for this energy carrier: the sharp increase in oil prices was accompanied by a similarly sharp slowdown in growth and even a decrease in demand for it, which occurred amid a slowdown in GDP.

In the same period, OPEC (The Organization of the Petroleum Exporting Countries) countries began to apply the system of long-term contracts developed by them, which replaced the sales system within the framework of a vertically integrated system of international oil companies. The establishment of control by oil-producing countries over the field of production and exploration leads to significant changes in the oil industry sector. Contractual relations replaced oil exploration and production concessions. Expropriated contracts were then concluded based on the FOB (Free on Board) price since transportation by tankers remained with international oil companies. New national oil companies have appeared. Large oil companies have lost control of oil prices. At the same time, OPEC countries at their meetings began to set oil prices by announcing official sale prices. In such a situation, long-term contracts gave a certain degree of reliability of supply.

At the second stage, there is a relative stabilization of oil prices and even a decrease in them, which stimulated an increase in oil demand. During this period, OPEC countries are increasingly actively intervening in the oil market's functioning to regulate and control it following their strategic position. This is especially true of Saudi Arabia, which, at the United States' insistence, has assumed the function of stabilizing oil prices by changing its volumes supplied to the global market. However, at the same time, economic growth begins to accelerate both in the world as a whole and in rapidly growing developing countries (especially Asian ones), which is accompanied by a significant increase in oil demand.

In 1998, oil prices began to rise rapidly, which is associated with the refusal of Saudi Arabia to act as an adjuster of oil prices and the country's transition to a new path of strategic development. This was accompanied by the increasing trend growth of the world economy and the accompanying acceleration of oil demand growth.

The formation of derivatives markets had a significant impact on the pricing mechanism. And if the first futures contracts (Pennsylvania, 1860), which were permits for the operation of the pipeline, lost their relevance by the beginning of the twentieth century, then in the 1980s, a new stage in their development came when futures contracts appeared in a completely different format.

3. DATA AND RESULTS

The key factors determining the level of oil prices in world markets are

- The dynamics of the world economy, taking into account its energy intensity;
- The ratio of oil demand and supply at the world level and within the country;
- The structural characteristics of production and the conditions for oil production (geographical, climatic, remote fields, etc.);
- The export and import of oil in various countries, as well as the development of technology and technical means for the production and processing of traditional and non-traditional hydrocarbons and energy from renewable sources;
- The relative level of competitiveness of other types of fuels;
- The position of oil-producing states concerning the oil sector, political and geopolitical factors.

As a result of the influence of oil prices on socio-economic and political processes, their impact on the pace of economic development is observed, including countries with growing demand for natural resources (India, China, Brazil, a number of ASEAN countries, etc.). In addition, the price of oil is always taken into account in the formation of prices for various energy sources, which, in turn, determines the pace of development of the oil industry and the economies of countries - both consumers and oil producers.

Due to the impact of a combination of factors on pricing in the oil market, the impossibility of its predictability and equilibrium, prerequisites arose for strengthening administrative levers of state control by developed countries over pricing mechanisms in the world oil market.

And while long-term trends in price dynamics in the real oil market are associated with the influence of fundamental factors, the short and medium-term dynamics are significantly associated with financial market players' behavior. In particular, the speculative interests of exchange players in the short term can have a significant merger on the formation of oil prices. Thus, the development of the global oil market is associated with high price variability. In the current financial globalization conditions and large-scale capital movements, including speculative ones, the pricing mechanism has lost its effectiveness.

The control system of oil market pricing has undergone significant changes throughout its existence under the influence of external and internal factors, taking into account socio-economic, political, structural changes, changes in oil market players (Table 2).

Over the past 10-15 years, the oil market has undergone significant changes. So, peaking in July 2008 at $140 per barrel, oil prices peaked in the face of the global financial crisis and broke the $35 per barrel mark at the end of 2008. Subsequently, prices recovered and fluctuated at about $100 per barrel. During this period, the development of increasingly expensive and technologically complex fields began, and the theory of «peak oil."[1] and received new confirmation in the conditions of consistently high prices for black gold.

It seemed that the increase in global demand for oil and the gradual exhaustion of the cheapest fields led to the onset of an era of expensive oil (in 2013, the price of oil exceeded $100 per barrel). However, the subsequent fall in oil prices in 2014, triggered by a sharp increase in US shale oil production, refuted this (Figure 2).

The decline in oil prices in the future (2015-2016) was also facilitated by factors such as an increase in interest rates in the United States and, accordingly, an increase in the price of

1 In 1956, Shell geologist King Hubbert formulated a theory in which it was assumed that oil production in the United States would reach a point when production volumes would reach a maximum and begin to decline. Hubbert's forecast that the peak of production in the United States will come in 1970 has been confirmed. The onset of a global peak in oil production was expected in the 1995-2000s

Table 2: Dynamics of control system of oil market pricing

Years	Control system	Characteristic
1930s-1960s	Group of international oil companies Seven Sisters (Exxon, Mobil, Gulf, Texaco, Standard Oil of California, British Petroleum, Royal Dutch/Shell)	Fixed oil prices, dollar as value, and unit of account. Almost complete control over oil, actions under the Aknakarri Agreement (1928).
Late 1960s-1971	National control of developing countries	Rejection of free exchange of dollars for gold, devaluation of the dollar, formation of free-floating rates and prices
1970s-1980s	Control of 12 OPEC member countries	Prices began to be «announced» by OPEC. Giant price hikes. Removal of state control over oil prices inside the United States
Late 1980-late 1990s	Global oil markets, OPEC	The influence of fundamental factors (demand, supply, production, etc.) has intensified. New suppliers entered the market, and proven reserves increased, energy efficiency increased, oil consumption decreased. Dependence on OPEC has decreased. Oil prices fell.
2000s	Financial markets	Oil consumption exceeded production, including thanks to developing countries in Asia. Prices have increased significantly.

the dollar; the decision of Saudi Arabia and OPEC countries to maintain production volumes, lifting sanctions on Iran, and slowing economic growth in China. It should be noted that the volatility of oil quotes has increased significantly. According to many experts, the increase of volatility is associated with the development of the market's financial segment and the growth of trade in paper oil. Price spikes are multiple of marginal changes in physical supply and oil demand. To a large extent, this has led to an interest in finding ways to adapt oil pricing mechanisms, particularly from rapidly developing economies experiencing growing demands for black gold imports.

As for Brent crude oil, the main pricing grade, the price reached a minimum value of $29.32 per barrel in 2016 and a maximum of 84.96 in 2018 (Figure 3), without returning to the previous price level.

Until the mid-1980s, the reference-grade of oil in the framework of deliveries at official OPEC prices was Middle Eastern Arabian Light oil. However, due to the development of exchange trading in oil futures, new global markers are emerging - WTI (futures trading launched in 1983) and Brent (futures trading began in 1988).

Despite the competition in the oil market and not the largest production volumes of the field, it was North Sea Brent oil that took a leading position in the formation of pricing. This was facilitated by full compliance with the requirements for marker grades. First of all, these are satisfactory physical characteristics. The presence of several sellers in the market, the production of two large companies (Royal Dutch Shell and ExxonMobil), as well as ensuring the safety of supplies, also played a large role. In this regard, at present, about two-thirds of oil exports are at prices focused on Brent oil quotes.

The most famous Russian oil brand is Urals, which mixes several varieties mined in different regions (Ural, Volga region, Western Siberia). One of the main goals of launching Urals futures for open trading was to move away from binding to the Brent price so that the formation of value takes into account demand and supply and only based on the results of trading on Russian platforms. The development of independent trading platforms and ruble payments for goods has repeatedly been put forward as an important direction in developing the oil and gas industry. However, despite the efforts made, the Urals price is still dependent on trading on foreign sites and is set based on the Brent marker variety cost. In this regard, Urals oil is traded in dollars at a discount to Brent's price, with the amount of discount exceeding the difference due to the difference in oil quality.

When forming the price of Urals crude oil, several factors affecting it should be taken into account, namely: production, demand, exchange rates, prices on the world market (primarily Brent

Figure 2: Brent crude oil price, $ per barrel

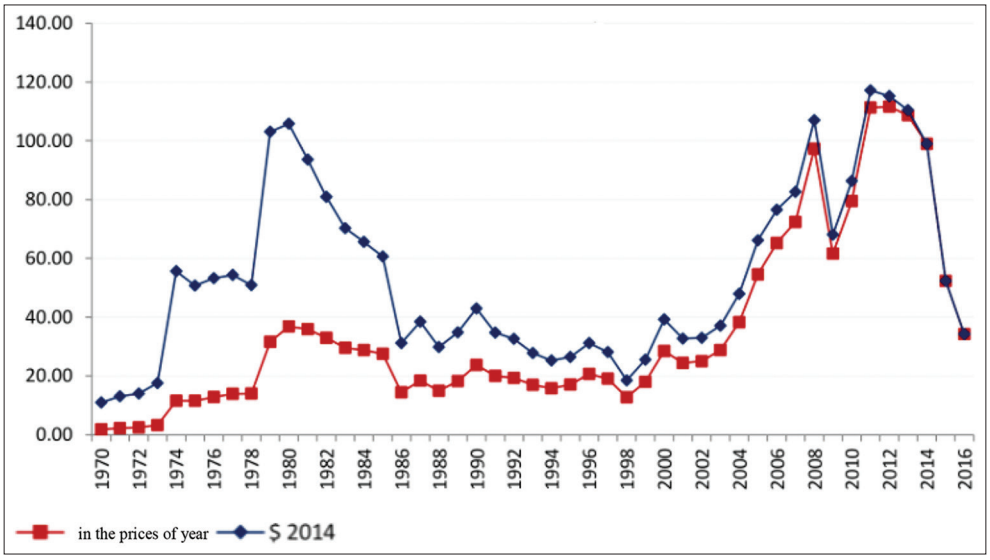


Figure 3: Dynamics of Brent crude oil price, 2010-2020, $ per barrel

Figure 4: Urals oil price dynamics, 2014-2019, $ per barrel

oil), delivery times, world crises, OPEC decisions, speculative transactions, force majeure.

As a result, the global fall in oil prices in 2014 caused a significant decrease in Urals oil prices. As shown in Figure 4, the price of Urals crude oil after falling in 2014 and, subsequently, in 2016 did not rise to the same level, despite significant growth in 2018-2019. See the Urals oil price change dynamics in 2014-2019 in Figure 4 (in USD per barrel).

5. CONCLUSIONS

The world oil market has a complex pricing mechanism, the structure, volume, and procedure determined by the sectoral specifics of the oil sector's functioning. Most of the commodity transactions on the world oil market are carried out under medium- and long-term contracts between oil producers and companies processing oil and selling the obtained oil products. Due to the difficulties of the functioning of the organizational mechanism of trade in the real oil market, the exchanges mainly focused on developing derivative financial instruments (futures, options, forward contracts), the base product of which is oil and petroleum products. Thus, the exchange market of financial instruments in modern conditions plays the role of the main pricing mechanism, determining the current price situation. Simultaneously, the exchange market does not violate the established industrial ties but primarily serves to identify «fair» prices and insure price risks.

Our main findings in this study are the following. Having analyzed the price quotations of Brent and Urals oil grades and their fluctuations from the production volumes of leading hydrocarbon exporting countries, it was revealed that at the moment, there is a noticeable price gap between the Brent reference grade and the Urals crude grade on the global oil market. At the same time, the formation of the price of the Urals brand is opaque. The final price of Urals is determined by Platts and Argus based on the descriptions of traders who have entered into contracts for Urals and focus on the Brent brand's price.

Comparing the key characteristics of different oil market price control systems, we revealed that the control systems have significant changes under the influence of external and internal factors, socio-economic, political, structural changes, and changes in the oil market players.

There are real prerequisites for the institutional correction of the global oil market to strengthen the administrative levers of control of developed countries over exchange and OTC pricing mechanisms. Implementing these adjustments will significantly reduce the ability of developing countries to participate in the system of international regulation of pricing in the oil market and, therefore, influence the oil export situation. It is necessary to form and implement a strategy for the implementation of oil trade on domestic exchanges without reference to world marker grades of oil and without reference to the policy of foreign exchanges and trading platforms to minimize these risks and create optimal conditions for the export of domestic oil to the world market.

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