# The Economic Impact of the Russian-Ukrainian War on the Energy Industry

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**ABSTRACT**

This article mainly analyses the impact of the Russian-Ukrainian war on the energy industry at this stage. This article is written in the background from the Russian invasion of Ukraine on 24 February 2022, and the current political situation and its subsequent impact on the future of oil trade is variable. Historically, oil prices have been closely linked to political tensions. The recent war between Russia and Ukraine has affected political tensions across the Europe. The impact of geopolitical risks and sanctions policies on Russia's oil trade exports. Due to the war and the epidemic affecting the oil price supply and demand relationship, the oil price fluctuates, and the impact of price risk and foreign exchange risk on oil companies is mainly analyzed. Our analysis is only based on the current development of the Russian-Ukrainian war, and there may be unforeseen changes in the future.

***Keywords:*** *Russian-Ukrainian war, political tension, economic sanction, oil price volatility, futures contract.*

## 1.INTRODUCTION

In the process of an increasingly integrated global economic market, crude oil is considered a commodity. Oil price volatility is strategically crucial for the global economic system. Affected by various factors, it tends to experience greater price volatility than more stable investments. In addition to the general relationship between supply and demand for other commodities. The political stability in oil-exporting countries and their neighbours. The causes of ancient price fluctuations are essential for traders and policymakers. Such macro effects are mentioned in the third part of this article. Historically, oil prices have been closely linked to political tensions. The recent war between Russia and Ukraine affects political tension throughout Europe, which has been the main factor influencing oil prices in recent months [1]. Since 2020, the large-scale outbreak of the epidemic has suppressed the economic recovery in Europe to a certain extent. The European Central Bank has adopted an ultra-loose monetary policy to support countries in fighting the epidemic. However, simultaneously, this has also caused high inflation, lower interest rates, and soaring energy prices in Europe, which has also led to a rise in energy bills for end-consumer households.

The Russian-Ukrainian conflict in 2022 also caused European oil prices to fluctuate violently under the influence of geopolitical risks, deviating from the normal trend. At the macroeconomic level, the conflict between Russia and Ukraine has not only impacted the market prices of European oil and other commodities but also engendered an imbalance in the supply and demand structure of oil in the European region. Western countries have also adopted an unprecedented and stringent sanctions policy, restricting Russia's oil export trade, and Russia's economic development has been inhibited. Additionally, due to abnormal fluctuations in oil prices and unstable supply and demand structures, the oil industry usually fails to operate normally and develop as expected. Since the outbreak of the war in Russia and Ukraine, oil prices have experienced two distinct fluctuations.

The paper analyses the reasons for each phase of volatility. The main risks (price risk and exchange rate risk) faced by oil companies as well as non-oil


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companies (airlines) when hedging are also analysed, and the role of derivatives trading in the oil trading market is illustrated using futures contracts as an example.

## 2.REASONS FOR OIL PRICE VOLATILITY

There are several reasons that affect oil prices. Oil prices are influenced by the global economic outlook, economic policies, regulatory uncertainty in oil-intensive countries, and political stability in oil-exporting countries and their neighbours. The causes of ancient price fluctuations are essential for traders and policymakers. Such macro effects are mentioned in the third part of this article. Historically, oil prices have been closely linked to political tensions. The recent war between Russia and Ukraine affects political tension throughout Europe, which has been the main factor influencing oil prices in recent months [2].

### *2.1. The main reasons for oil price volatility*

Oil is considered a commodity, this article tends to research larger fluctuations in price than more stable investments. There are several influences on oil prices. We will outline some typical factors below.

- The organization of producer will make adjustment decision according to the international situation. The most Representative organization of Petroleum Exporting Countries (OPEC).
- Basic supply and demand affect prices.
- The political tension in oil-producing countries impact pricing, which is also the main analysis part of this article
- The introduction costs influence prices, along with storage capacity.

#### *2.1.1. The decisions about output made by producer countries*

The Organization of Petroleum Exporting Countries (OPEC) which is consists of thirteen producer countries until 2022: Algeria, Angola, Congo, Equatorial Guinea, Gabon, Iran, Iraq, Kuwait, Libya, Nigeria, Saudi Arabia, the United Arab Emirates, and Venezuela. In that case, OPEC occupies almost 80% of the world's supply of oil reserves. The consortium sets production levels to meet global demand and can influence the price of oil and gas by increasing or decreasing production [3].

#### *2.1.2. The laws of supply and demand influence prices*

The laws of supply and demand will cause oil prices to change. There are two situations to discuss. On the one hand, the basic Commodity Fundamentals are when supply exceeds demand and prices fall. On the other hand, when demand outpaces supply. While supply and demand impact oil prices, a futures contract for oil is a binding agreement that gives a buyer the right to buy a barrel of oil at a set price in the future, which will be mentioned in the fourth part.

#### *2.1.3. The political tension in oil-producing countries impact pricing.*

Oil prices have been closely linked to political tensions. From a global perspective, political instability in the European causes oil prices to fluctuate as the region of the worldwide oil supply. Political stability is a significant factor for oil-exporting countries and their neighbors, such as Russia and Ukraine. The causes of ancient price fluctuations are essential for traders and policymakers. Such macro effects are mentioned in the third part of this article. The recent war between Russia and Ukraine affects political tension throughout Europe, which has been the main factor influencing oil prices in recent months.

#### *2.1.4. The introduction costs influence prices, along with storage capacity*

Production costs can cause oil prices to rise or fall as well. At the same time, oil is relatively cheap to extract in some areas like the Middle East. In the world market, once the supply of cheap oil is exhausted, the oil price will be affected and conceivably arise. In European, Russia, and Ukraine also play the same role, the oil production in Russia and Ukraine also directly affects the price of oil. Under the political tension circumstance, with so much oversupply in the industry, a decline in production decreases overall supply and increase.

### *2.2. How specifically the Russian-Ukrainian war affect oil prices in the European region and how did the European market react to the Russian-Ukrainian war in different stages.*

As mentioned above, we can conclude that crude oil and its derivatives, which affected by events that could disrupt the flow of oil and products to markets. The most typical example is war. These types of events can lead to actual disruptions or uncertainties about future supply and demand, which is the essential reason why the war caused oil prices to fluctuate. [4]

Before we examine the impact of war on oil prices, we need to understand that oil production capacity and equipment using petroleum products as the main source of energy are relatively fixed in the short term. It will recover and develop new sources of supply or change production after being affected by the war in the long term. Also, it is difficult for consumers to switch to other fuels or improve energy efficiency in the short term. In this case, significant price changes are necessary for rebalancing physical supply and demand after the system shock. For the degree of political tension. The reaction of the European market can be established with the concomitant inferences for portfolio allocation and diversification. The European market will react to the Russian-Ukrainian war at different stages.

Historically, the impact of war on oil prices can be divided into serval stages. In empirical research, the relationship between oil prices and the stock market is affected by the war and this influence is concentrated in the initial (preparatory) phase of a war event. [5] In the early stages of preparation, for the investors and market agents, the information about the impending war was collected in their basic reports. For the impact on this stage, not all the markets studied here are concern about the impact of the war from real military battles and operations. This could be tentatively interpreted as a sign of market efficiency and early adjustments to major geopolitical events. This tendency for investors and market agents to have a deeper and more lasting impact, and to adapt quickly [5].

## 3. THE MACROECONOMIC IMPACT OF THE RUSSIAN-UKRAINIAN WAR ON THE OIL INDUSTRY

As the main body of this military conflict, Russia and Ukraine are both countries that Western countries are highly dependent on for energy supplies such as oil and natural gas. The tight oil supply chain and changes in the energy supply and demand structure caused by the war not only affected Russia's oil export trade but also led to sharp fluctuations in the price of oil in the European market and global prices. Western countries have also taken measures to avoid geopolitical risks. A series of sanctions policies to varying degrees.

### *3.1. Supply and demand structure and price volatility*

On February 24, 2022, Russia and Ukraine launched a military conflict, and the prices of Brent crude oil and New York crude oil futures both exceeded the $100 per barrel mark, reaching a maximum of $105.79 per barrel, the highest value in the past seven years. Rising prices for crude oil and oil products are likely to be one of the most immediate effects of the war on the industry. Diesel prices have risen 50 percent since 2022 as of March 4, according to OPIS data. As a raw material for the chemical industry, oil prices fluctuated violently due to the outbreak of war, and rising costs also affected the normal operation of the industry.

Oil prices are not only affected by market supply and demand but also by the geopolitical risk of war. A positive shock in oil prices, without simple state control, is commonly regarded as having the potential to reduce economic development, lead to increased inflation, and generate trade inequity between these countries5. The severe sanctions imposed on Russia by Western countries have restricted the trade flow of oil, whose supply and demand structure is in an unstable state. Oil prices also face the risk of falling after skyrocketing and will eventually be adjusted to be determined by the supply and demand structure.

The reduction of Western countries' energy dependence on Russia means that the EU needs to try an energy transition to replace oil, which will further inhibit Russia's export trade and even adjust the oil import and export structure of this European region. However, as an important chemical fuel, the important position of oil in people's livelihood, industry and agriculture cannot be replaced in a short time. In 2022, Western sanctions against Russia have exacerbated the global supply and demand imbalance for oil, and this geopolitical risk has pushed up oil's risk premium.

In the short term, the shortage of crude oil supply caused by Russia's sanctions will enlarge the supply and demand gap in the crude oil market, which will push up oil prices. In the long run, facing sanctions, Russia will not sit still. The Central Bank of Russia stated that it would manage to develop domestic financial infrastructure and enhance the SPFS system. In addition, Russia will alter the primary direction of trading and evolve the Asian market. As a result, Western countries' trade restrictions on Russian oil and other resources will be gradually digested.

### *3.2. Sanctions Policy and Trade Shock*

As an essential supplier of resources such as oil and natural gas in Europe, Russia's economic development is also heavily related to the export trade scale of these commodities, which also means that the Russian economy is sensitive to the price fluctuations of these commodities in the European market and the international market. The EU countries have imposed large-scale economic sanctions on Russia's energy supply, undoubtedly in order to get rid of their dependency on Russian energy imports. However, the gap between Russia's geographical and material advantages and the inherent energy shortages of other countries cannot be ignored. Although Russia has also taken counter-sanctions measures, facing such severe sanctions, limitations on Russian trade and a downturn in the economy is still inevitable.

In 2014, the crisis in Russia-Ukraine relations intensified, and Western countries imposed sanctions on Russia and Ukraine to varying degrees, among which trade restrictions and commodity embargoes have exerted the strongest sanction effects [6]. In February 2022, another military conflict between Russia and Ukraine took place. Western countries promptly imposed large-scale economic sanctions such as an oil embargo on Russia's energy supply, among which, the most severe measure is that Russia has been kicked out of the SWIFT payment system, which means that Russian financial institutions are blocked from trading with the global banking system, thus affecting cross-border trade and leading to the insufficient supply of oil and oil products in Europe. As of March 31, the United States, Canada, the United Kingdom, and Australia have banned oil imports from Russia, while the European Union, Russia's largest customer, is also considering restrictions on Russian crude imports.

Trade restrictions can raise costs for target countries, but they can also hurt sanctioning countries. Countries with strong economic ties are particularly hit by lower growth prospects. Consequently, the adverse influence of the sanctions policy on the economy is not unidirectional. The compression of the overseas trade of the Russian oil industry is undoubtedly damaging to its national economy. At the same time, impairing energy reliance on Russia signifies that the EU has to try energy transition and consume new energy to supersede oil, which will further inhibit Russia's export trade and even adjust the oil import and export structure of the European region.

Nevertheless, evaluations of the effectiveness of economic sanctions have also been mixed. Dreger expressed doubts about the effectiveness of the sanctions policy in resolving the 2014 Russian-Ukrainian military conflict a structural VAR model to study the impact of economic sanctions on the economies of Russia and Europe, indicating that there was no powerful evidence to prove that Western countries' economic sanctions against Russia have a depressing effect on Russia's economic growth [7].

## 4. The impact of oil price volatility on the oil industry and derivatives

In this paragraph, we mainly analyse the impact of the Russian Ukrainian war on oil price fluctuations, as well as the derivatives (take futures as an example) that oil companies may use and the risks they face when hedging.

### *4.1 Analysis of oil price fluctuation: supply and demand*

Since the Russian invasion of Ukraine on February 24, 2022 to the middle of April, the oil futures price has fluctuated sharply twice. The first phase is from February 24 to March 8. Oil prices rose from \$92.81 a barrel to \$123.70. Due to the outbreak of war, there is uncertainty in the supply of oil. High uncertainty will lead to the delay of oil production or consumption decisions, which increases the impact on oil prices.[1] The second stage is from March 8 to now. Although the oil price experienced several fluctuations during this period and decreased compared with the first stage, it still showed an upward trend compared with the price before the outbreak of the war. Oil prices fell from \$123.70 a barrel to \$103.50. China is the world's largest oil importer. Due to the influence of COVID-19, China has imposed restrictions on the main production areas and residents in the mainland to reduce the spread of the epidemic, thereby reducing the consumption demand of petroleum and reducing the oil price to a certain extent.

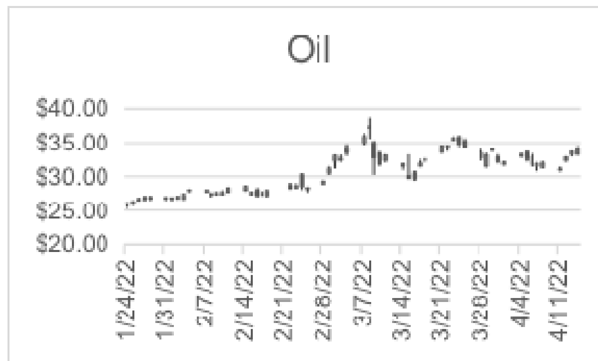


Figure 1. Oil price fluctuation

### *4.2 Two major risk exposures faced by oil companies*

Oil companies face many small risks, such as liquidity risk, credit risk and so on. Since the outbreak of the Russian Ukrainian war has had a serious impact on the international trading market, in this paragraph, we mainly analyze the impact of oil price risk and exchange rate risk on oil companies.

### (1)Oil price risk:

Oil price fluctuations will have a serious impact on the company's cash flow, potential revenue, profit, and operation. Russia and Ukraine are important suppliers of energy, metals, and other raw materials. The outbreak of war makes the supply of resources uncertain and makes the price show an upward trend [8]. The rising price of raw materials will translate into higher manufacturing and operating costs, which will eventually increase the inflation expectation of enterprises.

### (2)Foreign exchange rate risk

At this stage, most of the transactions in the market are conducted in US dollars. Many European users pay in euros or other currencies, so they are extremely sensitive to the exchange rate fluctuations between currencies. At the same time, most oil companies' businesses are transnational, which means that exchange rate fluctuations have a deep impact on cash flow.

### *4.3 Futures contract in the oil market.*

The main purpose of investors or companies using derivatives is to transfer risks. The most used derivative contracts are forward contracts, futures contracts, and options. In this paragraph, we mainly introduce the use of futures contracts in the oil trading market. Futures contract refers to the obligation of the holder to buy or sell oil at a specific price at a specific time in the future. Traders usually buy and sell futures contracts when they encounter changes in the price of oil. But they don't need to deliver oil. They just need to close their positions when the contract expires.

## 5. Impact of oil price fluctuation on energy industry and analysis of hedging policy

### *5.1 Market Status*

In this paragraph, we analyze the impact of oil price volatility on the hedging policies of the non-oil sector (air travel) and non-oil companies (air travel), using the non-oil sector (air travel) as an example. It is well known that Ukraine and Russia are major energy producers. Russia is the world's third-largest oil producer and the world's second-largest oil exporter, exporting up to 5,225,000 barrels of oil per day. More than half of this will be sold to Europe. Many non-energy sectors, such as the air travel industry, are highly exposed to the volatility of crude oil prices. However, the recent military conflict between the two countries has led to considerable fluctuations in crude oil prices and has affected many non-energy sectors. There is uncertainty as to whether crude oil can be supplied in a stable and sustainable manner due to many factors, including geopolitical factors. The world feared that the war would lead to the West continuing to impose stricter sanctions on Russian oil, and many countries began to panic about buying strategic stocks. Crude oil prices soared to a 14-year high of $140 per barrel on March 8 and have since fallen. The share price of British Airways IAG, on the other hand, has both shaken down since the outbreak of the Russian-Ukrainian war (February 24) and, after reaching a short-term low on March 7 following an 11% plunge (a cumulative fall of almost 30%), British Airways' share price has started to bottom out in a short period of time, gradually regaining a rational share price [9].

### *5.2 Data Analysis*

The share price of British Airways IAG is highly volatile. Non-energy sectors, such as the airline industry, are highly influenced by the price of oil. Non-energy companies such as airlines can similarly effectively hedge their exposure to future oil prices by arranging oil offtake contracts to determine the price, quantity and delivery date of future oil sales. From the outbreak of war on February 24 to mid-April, oil prices experienced two sharp swings. The first phase lasted from February 24 to March 8. Oil prices fluctuated due to the uncertainty of oil supply, rising from US$51.73 per barrel to US$85.13 per barrel. The share price of British Airways IAG fell from 157.38p to 112.02p. The second phase was from March 8 to the present [10]. Although the oil price experienced several increases, it showed a downward trend, from US$85.13 per barrel to US$53.15 per barrel. And the share price of British Airways IAG has gradually recovered from 112.02p to 133.82p.


Figure 2. IAG share price fluctuation

## 6. Conclusion

In conclusion, it is important for investors and market agents to understand how the European market reacted to the war in the Russian-Ukrainian crude oil market during this period. In addition, it is essential to study whether there are differences in the response of the European and other crude oil markets in world regions. Obviously that the main impact of the Russian-Ukrainian war was concentrated in the European market. This article will mainly focus on discussing the effect on the European market. The rest of this article is structured below. The second and third parts will examine the relationship between oil and stock prices from a macro and micro perspective. From a macro perspective, this paper mainly analysed the impact of Western countries' sanctions policies on oil prices, market supply and demand structure, and the development of oil-related enterprises, as well as the negative influence of sanctions on Russia's trade scale and economic advance. However, this article remained sceptical about the effectiveness of sanctions. Since this military operation has not yet ended, this article did not systematically analyse the degree and effectiveness of these inhibitions on the Russian economy and oil industry. Oil price fluctuation is influenced by oil supply and demand. Since the outbreak of the Russian-Ukrainian war, oil prices have experienced two stages of fluctuations [10]. They are caused by the uncertainty of supply and the decrease in demand. Oil companies mainly face oil price risk and exchange rate risk when hedging, and in this article, we explain the futures contracts in the oil market.

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