The Impact of the Russia-Ukraine War on Oil Prices in Germany

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ABSTRACT

This thesis is investigated the high prices of oil we are facing today as in the end of the year of 2022 and beginning of the year 2023 and looked at the factors the contributed to the rise in oil prices and their contribution size like the Russian-Ukraine war and the Covid-19 pandemic then going around it to see how much of an impact it is. This research is a qualitative research framework that is designed to provide a comprehensive and extensive explanation of my observations as a researcher using grounded theory as the methodology.

This thesis is a cause-and-effect relationship that takes Germany and looks at qualitative data gathered using the grounded theory model that will eventually help to reach the goal. The data is collected from secondary sources such as academic articles, reports from energy and financial organizations, government publications, economic statistics, and news articles.

Keywords: Oil Prices, Economic, Russia, Germany, Covid, Geopolitics, Grounded Theory.

ÖZ

Bu tez, 2022 yılı sonu ve 2023 yılı başı itibariyle bugün karşı karşıya olduğumuz yüksek petrol fiyatları araştırılmakta ve Rusya-Ukrayna gibi petrol fiyatlarının yükselmesine katkıda bulunan faktörlere ve katkı büyüklüklerine bakmaktadır. savaş ve Covid-19 salgını daha sonra bunun ne kadar etkisi olduğunu görmek için etrafını dolaşıyor. Bu araştırma, metodoloji olarak gömülü teoriyi kullanan bir araştırmacı olarak gözlemlerimin kapsamlı ve kapsamlı bir açıklamasını sağlamak için tasarlanmış nitel bir araştırma çerçevesidir.

Bu tez, Almanya'yı ele alan ve nihai olarak hedefe ulaşmaya yardımcı olacak temelli teori modeli kullanılarak toplanan nitel verilere bakan bir neden-sonuç ilişkisidir. Veriler, akademik makaleler, enerji ve finans kuruluşlarının raporları, hükümet yayınları, ekonomik istatistikler ve haber makaleleri gibi ikincil kaynaklardan toplanır.

Anahtar Kelimeler: Petrol Fiyatları, Ekonomi, Rusya, Almanya, Covid, Jeopolitik, Temelli Teori.

DEDICATION

I dedicate this project to Almighty Allah for the opportunity he gave me to undertake this project, to my parents for their support and effort, my brother and sister, and my two best friends back home. To my father who is my role model in life and everything I want to become as a man. To my mother who is my world, my friend, and the person I always go to in a time of need. Hoping to make them proud with this thesis and my graduation from a university as powerful and prestige as the EMU.

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My first appreciation goes to my supervisor Assoc. Prof. Dr. Hasan Güngör who helped me by his supportive and teachable approach, my dad and mom who without them secondly after the Almighty Allah I won't be the man I am today. I would like to thank all the listed from the bottom of my heart.

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Chapter 1

INTRODUCTION

1.1 Background of the Study

Oil price is an important worldwide macroeconomics indicator. It is quoted by practically all news outlets worldwide and acts as an indicator for economic perspectives, currency fluctuations, inflation, and political developments.

Difiglio, C. (2014) mentioned in his research that world oil prices have occasionally reached levels that have hampered global economic growth, such as in the aftermath of the 1973 oil embargo. This crisis coincided with a significant shift in how oil was priced.

As well as Stevens, P. (2018) in his research it was covered that oil is a major internationally traded energy source. Transporting oil and oil products is relatively simple and inexpensive due to the economies of scale, this helps to explain why oil is a genuinely worldwide energy source with a unified market compared to other ones such as gas. Since the 1970s oil price shocks there has been a focus on the link between oil prices and global GDP growth. Oil prices fluctuations in the 1970s and 1980s appear to have had an impact on OECD economic development which led to higher oil prices pushing away money from OECD and toward OPEC.

Geopolitics and oil are extremely linked, in the case of this study it is the geopolitical importance of Ukraine for Russia in oil trade. (International Association of Oil Transporters (IAOT). 2015), the Druzhba pipeline is the biggest oil pipeline in the world with a length of 5500 kilometers and a capacity of 1,2-1,4 million barrels a day with the possibility for up to 2 million barrels a day. As for the southern branch of this pipeline is what's important here as it runs through Ukraine to supply European countries which Germany is one of them.

Because Russia is one of the world's top oil producers and exporters of energy, its involvement in the war might have an indirect impact on the rest of the globe. In terms of economic importance Russia is the world's third largest producer of oil, behind only the United States and Saudi Arabia. In January 2022, Russia's total oil output was 11.3 million barrels per day, with crude oil accounting for 10 million barrels per day and natural gas liquids accounting for 340 thousand barrels per day (IEA, 2022). given that therefore, Russia is an important player in the global oil market, since it can meet a large amount of the world's demand for this energy source.

Liadze et al (2022) did a study to find the economic cost of the war and how the sanctions imposed by NATO by the White House in the United States have attacked Russia's capacity to export oil and gas, resulting in an increase in energy costs. This has resulted in higher oil prices which will hamper global growth. Increasing oil costs may shift revenue from consumers to producers, thus reducing demand. Meanwhile, the additional revenue of energy producers will not be spent immediately, implying that the oil price shock shifts income from spenders to savers, so dampening global GDP. That is why the war has a great economic cost on countries worldwide, including

in this study Germany as the war have contributed to percentage of the increase in their oil price.

1.2 Statement of the Problem

Europe heavily relies on Russian oil thus the war has had an indirect effect on their oil prices and contributed to a worldwide inflation. Russia holds a great power in controlling oil prices worldwide especially in Europe and the problem with that is like said before oil prices are macroeconomic indicators which means the more theses prices increase the more damage is done to the economy. Germany is a great example as the country imports the most of its oil from Russia compared to other countries it imports from as found by (Reuters 2023).

1.3 Research Methodology

This research work will use a qualitative research approach, which is used to answer the questions of why and how by gathering meaning and understanding through rich text/document. This approach integrates more subjective human experience rather than just focusing on purely subjective external reality which is quantitative approach. The methodology used is going to be the grounded theory methodology, which is used by collecting data on a certain topic and developing a theory about it inductively (John H. Finch 2002). This will be explained more in chapter two.

1.4 Objectives of the Study

1. The objective of this study is to analyze the impact that the Russia-Ukraine war has done to oil prices in Germany by introducing as possible every data that is related to the impact.
2. To research and find if there are any other factor or factors that has/have also an impact on oil prices in Germany.

1.5 Organization of the Study

There are five chapters in thesis. Chapter one is the introduction which includes: the role oil prices play in macroeconomics, how a war is related to changes in oil prices, research method, the problem, and objectives of the study. Chapter two covers the method and research approach used in this study.

Chapter three focuses on the theoretical framework to give the full information and data needed. Chapter four focuses on findings and analysis. Chapter five is the conclusion and discussion of this research.

Chapter 2

METHODOLOGY

2.1 Background for Grounded Theory

This study uses a qualitative research approach, especially the grounded theory method, to investigate the rise in Germany's oil prices while looking at the impact from the Russia-Ukraine war to see if it had any role to play in it.

Sociologists Barney Glaser and Anselm Strauss wrote a book about grounded theory that is called the discovery of grounded theory, (Glaser, B. G., & Strauss, A. L. 1967). In which their distinctive research strategy went opposed to the then dominant social science techniques that relied on theory verification. Instead of employing a theory in the beginning of their research to lead to collecting data around it, Glaser and Strauss' technique begins with collaborative data collection and analysis in order to develop theory that "emerges" and is founded upon empirical evidence.

2.2 Justification for Using Grounded Theory

"It is a capital mistake to theorise before one has data" . . . Sherlock Holmes. This study has a main goal of finding the exact impact that the Russia-Ukraine war had on German oil prices whether it is a positive or negative impact. It does not have an existing theory and wants to go around it. Just like the Sherlock Holmes quote in the beginning of this paragraph, the most suitable method for a study of this kind is the grounded theory method, as it is collecting and analyzing data first then generating a theory from the reflect of the data collected.

As John H. Finch (2002) illustrated in his study knowledge claims are additions to theoretical knowledge that can become established (or grounded) over multiple iterations that aim at understanding at more general levels rather than specific examples of phenomena.

2.3 Data Collection Methods

The type of data acquired for a study should be appropriate for the research subject and research participants. Grounded theory approaches have been intimately identified with interview studies (primary sources); nevertheless, they may be used with a variety of data sources, including ethnographic field notes, written personal narratives, and documents (secondary sources) (Clarke, A. E.1998). But due to the lack of access to these connections this study is going to go with the secondary data collection method, which is the information gathered from academic articles, reports from energy and financial organizations, government publications, statistics, and news articles.

2.4 Data Analysis Procedures

The goal of using the grounded theory data analysis producers is to create mid-range theories. The work progresses toward theoretical formulations with each step of grounded theory analysis (Jørgensen, U. 2001).

2.4.1 Open Coding

Seidel, J. V. (1998) describes the qualitative data analysis process by dividing it into three stages: Noticing, collecting, and thinking about intriguing things. In general, noticing entails taking notes based on observation, collecting events or interviews, capturing documents, and so on. So, when looking over the data during the analysis phase, you frequently highlight relevant areas and assign a descriptive label or 'code' to them. This is the first procedure of coding, and it is known as Open Coding.

Charmaz, K. (2008) defined open coding as a procedure that requires a detailed examination and investigation of the data. As they gather and analyze data at the same time, grounded theorists' attention shifts from the study area to data analysis during this phase of coding. Grounded theorists code as they collect data. Specific types of grounded theory coding urge researchers to concentrate on potential interpretations of data and to stay near to the data while actively investigating it.

2.4.2 Axial Coding

Corbin, J., and Strauss, A. L. (1988) explained axial coding as a method of identifying the dimensions of a category, linking categories to subcategories, establishing links between them, and piecing the data back together into a single unit after it had been fragmented during the initial coding.

Birks, M., and J. Mills (2011) referred to axial coding as intermediate coding and defined it as the second coding step. As the researcher picks a certain analysis path, when coding gets more focused. The categories are integrated as linkages between categories and subcategories. In this procedure data fragmented into substantive codes are now reassembled as a rawer concepts in order to try to and explain the phenomena identified in the data.

2.4.3 Selective Coding

Charmaz, K. (2008) defined this stage as the third and last step and explained it as an analysis that enables researchers to filter and combine massive volumes of data, which speeds up their job. Grounded Theorists examine their specialized codes to see which ones best describe the objective of their study.

Glaser and Strauss (1967) defined selective coding as the process of combining categories to create and enhance a theory. Its aim is to connect axial-coding categories to a core category that reflects the research's principal subject. To identify the primary category and its relationship to the other categories.

Chapter 3

THEORETICAL FRAMEWORK

3.1 Introduction

The theoretical framework is the structure that may hold or support a research study's hypothesis. The theoretical framework defines and introduces the theory that explains why the research problem under consideration exists. A. Gabriel, (2008).

3.2 Understanding the Impact of the Russia-Ukraine War

The European union is Russia’s most valuable importer as in 2019 Russia exported oil and gas to the European union that were valued at E200 billion each (Pisani-Ferry. J, 2022). Following the war, a ban on Russian oil imports drove up the world oil prices causing a supply shock especially in Europe, the effects of which can be offset by engaging in trade with supplemental suppliers. Khudaykulova et al. (2022).

3.2.1 Economic Consequences of the War

Khudaykulova et al. (2022) studied the macroeconomic consequences of the Russian energy embargo on imports are defined by the importance of gas, oil, and coal for industrial manufacturing demands, as well as the elasticity of resource substitution, Russia is the world's largest producer of oil and gas, and international sanctions have caused gas and oil prices to rise and output to be curtailed. Increased oil prices are the outcome of a threat to energy supply, as evidenced by literal hypotheses indicating that geopolitical risks and threats impact crude oil futures returns. Geopolitical risks, acts, and threats have a major negative influence on the process of deciding oil prices.

Orhan, E. (2022) wrote in the journal of international trade that Because of the war, worldwide prices have skyrocketed, particularly for natural gas and oil. Food prices have also risen, with wheat, of which Russia and Ukraine contribute for 30% of world exports, hitting record highs. The war's influence will be felt through three keyways. First, increased commodity costs, such as food and energy, will continue to push up inflation, reducing the value of income and weighing on demand. Second, surrounding economies will confront disruptions in trade, supply networks, and remittances, as well as an unprecedented surge in refugee flows. Third, weaker company confidence and more investor uncertainty will put downward pressure on asset values, tightening financial conditions and potentially contributing to capital outflows from developing countries.

Jagtap et al. (2022) found by collecting data from the world data center in May of 2022, that agriculture accounts for over 70% of Ukraine's land, which is comparable to other European countries such as the United Kingdom. This comprises cultivated land (grains, technical crops, forages, potatoes and vegetables, and fallow), gardens, orchards, vineyards, meadows, and pastures.

Ozili, P. K. (2022) studied the global economic of the Russia Ukraine war and illustrated in his research that Commercial flights around the Ukraine-Russian border will be restricted, and increased security checks at refugee camps in neighboring countries will cause a disruption in cargo flow and border operations, as cross-border goods and supplies may be halted or delayed as border officials process refugees before attending to cross-border goods. This will exacerbate the disruption in the global supply chain and raise import prices. And when he investigates the impact on the oil and gas prices, he found that Prior to war, energy costs were rising due to a variety of

causes including the COVID epidemic, restricted energy sources, and mounting tensions between Russia and Ukraine. During this time, oil prices remained constant in the US$80 to US$95 range. Following the war, oil prices surpassed USD$100 per barrel. As a result of the war, European oil marketers and oil firms may have problems acquiring energy supplies from Russia, as Russia is the world's second-largest oil producer and exports the majority of its crude to European refineries.

3.2.2 Germany Oil Prices

- Oil Crisis Shocks Over the Last 23 Years

The figure. (Macrotrends, 2022) below shows the ups and downs of crude oil prices worldwide per barrel from the years 2000 to 2020. Using the diagram, we are going to explain the oil price changes by referring to mainly four different crises.

Figure 1: Oil Prices 2000-2023

Price drop in 2000-2001: The year 2000 started with $49.24 per barrel and the price increased slightly until November 2000. Then the decrease continued hitting rock bottom in December 2001 with oil prices $33.79 per barrel. This crises/price drop was caused because of the 9/11 attack that happened in the US as the it developed

recessionary trends that effected the oil market making demand for fuel drop. As Fan, Y., & Xu, J. H. (2011) states, “Because of the booming international trade which also is called the 9/11 attack and the information technology revolution, petroleum has become a global commodity and world oil markets have been gradually unifying into a global market. Second, the oil markets are becoming increasingly related to the macroeconomic and financial markets, exhibiting a prominent financial attribute. Oil prices are no longer fully subject to the impact of the supply and demand relationship.” These are the two reasons behind the shock between 2000-2001.

Price drop in 2008-2009: Oil price kept increasing steadily until it reached an all-time high in June 2008 hitting a price of $192.50 per barrel and right after that oil prices faced a decrease that kept going until January of 2009 again hitting a rough drop of $59.39 per barrel. (Khartit, K. 2022) explained that this decrease was a result of the 2008 global financial crisis where for the years 2008-09 the global recession happened resulting in a drop in demand for fuel.

Price drop in 2014-2016: After the last drop oil prices went up with ups and downs but in July 2014 a new harsh decrease started to happen for it to hit the lowest in January 2016 hitting a bottom of $42.83 per barrel. Stocker et al. (2018) explained this decrease that started in mid-2014 and ended early 2016 was because of a growing supply glut that failed to deliver the boost to global growth that many had expected.

Price drop in 2020: The year 2020 is when fuel prices started to decrease to a new low level because of the Covid-19 pandemic. In April of 2020 we saw the full impact of the pandemic in fuel prices, were they reached $22.10 a barrel from $60.12 a barrel. This decrease was due to the aftermath of the lockdown protocol that happened that

year in most countries worldwide, causing a huge barley non exist level of demand with high existing supply.

Prices in 2021-2023: In 2021 life as in the lockdown was finished in the majority of the world so the majority of people worldwide can go out as they like. That return to normal life caused a fast increase in demand for oil compared to the previous year, so oil prices being increased was an expected thing to happen. Oil prices reached in December that year $81.15 per barrel.

The year 2022 is when the war talked about in this study happened. Oil prices increased from $94.32 per gallon in January to $118 a barrel in May. This study investigates into this to find if the war had an impact on that rise in Germany and if it did how big of an impact it was.

- German Oil Prices in Relation to Russia

This section establishes the significance of understanding the relationship between the war and the German oil prices. And this will be shown by introducing the following:

1. Geopolitical Tensions: Russia and the EU's energy connection has resulted in a profound interdependence: the EU has a significant demand for Russian natural gas, while Russia depends on access to the EU's energy market. Nonetheless, in addition to the EU and Russia, transit countries play an important role in the gas links between the two. Energy is transferred from Russia to Europe via land transit states such as Ukraine and Belarus. Ukraine is strategically important owing to its placement between Europe and Russia, serving as a critical transitional zone between the two.

Mukhametshina (2015) conducted a thesis study on energy security in Russia and Europe, where he emphasized the importance of the Bratstvo and Soyuz pipelines. These pipelines are critical in bringing natural gas from Russia to Europe, since they pass through Ukraine before splitting into two to service various sections of Europe. Ukraine used to be the transit route for up to 80% of Russia's natural gas shipments to Europe. With the completion of the Nord Stream pipeline, this figure has dropped to 50%-60%. The Nord Stream pipeline, which began operations in 2011, connects Russia and Germany by running beneath the Baltic Sea. Its route traverses the Exclusive Economic Zones of Russia, Finland, Sweden, Denmark, and Germany, as well as the territorial waters of Russia, Denmark, and Germany (Nord Stream, 2015). This project serves as a notable example of constructive mutual cooperation in the field of energy security, as it strengthens the supply security by bypassing Ukraine. Currently, Ukraine transports 16% of Russian natural gas used in Europe. That example, if Russia accounts for 32% of total European gas consumption, half of Russian supplies are vulnerable to transit hazards.

Another pipeline with a geopolitical importance is the Trans Adriatic Project (TAP), a new initiative. In 2012, the TAP pipeline competed with Nabucco West for Azerbaijani gas. TAP, if built, would allow for the transportation of 10 billion cubic meters of gas per year, with the possibility to extend to 20 billion cubic meters. The route would pass through Greece and Albania before crossing the Adriatic Sea and arriving in southern Italy. The TAP project has the potential to attract significant foreign direct investment and support economic growth in participating countries such as Greece and Albania (Julia,

K. 2013). TAP runs through Albania and will link up with another pipeline which reaches the Adriatic coast, this will help Croatia and supply Bosnia with a good amount that is not controlled by Russia (Yorucu, et al. 2018).

Lastly the Druzhba pipeline is a vital oil transit route connecting Russia to numerous European countries, particularly Germany. It is crucial since it supplies a large share of Germanys crude oil imports. As a result, any outages or concerns with the Druzhba pipeline will have an influence on Germany oil prices. 60% of Druzhba's oil travels to Europe via its northern branch (to Germany and Poland) and 40% via its southern branch (to the Czech Republic, Hungary, and the Slovak Republic). Because Germany and Poland have agreed to halt pipeline oil imports from Russia by the end of 2022, and seaborne oil is completely banned, a predict for future crude shipments to the EU to be approximately 200-250 thousand barrels per day, a nearly 90% decrease from the pre-invasion era (Babina et al. 2023).

2. Oil Dependency: The term of oil dependency in this concept refers to Germany's reliance on Russian oil imports to satisfy its domestic energy demands. When there is a considerable drop or total halt of Russian oil imports, it can have an impact on German oil prices and energy security.

In November 2021 looking at (Statista 2023). Germany imported 835 thousand barrels per day of Russian oil. (Figure 2) shows Germany crude oil imports in thousand tonnes from April of 2022 till march of 2023. As shown in the figure when the war started that when a steady decline started and that led to having zero oil imports.

To understand this impact, I looked at (Reuters 2023) to find that in the year 2022 Germany imported a full of 88.2 million tonnes of crude oil. From that total Russia accounted for 22.4 million tonnes, the United States for 12.1 million tonnes, and Kazakhstan for 9.1 million tonnes. Which means that Russia is Germany's biggest oil supplier and with the international sanction Russia trading oil to Europe that means that Germany lost its biggest provider of a huge amount of oil and finding, and alternative is not as easy as it sounds.

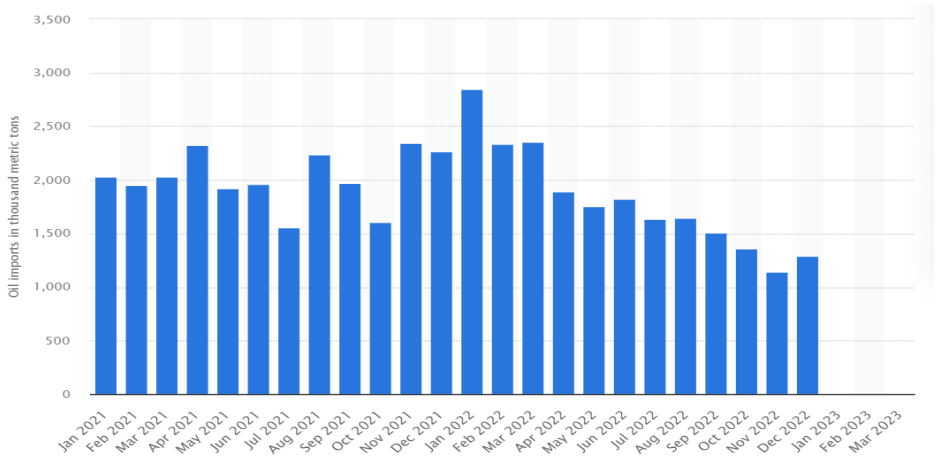


Figure 2: German imports for Russian oil.

3. International Sanction in Relation to Germany: Mahlstein, et al. (2022) did a study using the global trade analysis project to estimate the economic effect of the sanction on Russia's oil trade. Germany who is an allied country for Russia is affected by its trade embargo. GPD decreased by 1.20%, that's 0.76% in import embargo and 0.44% in export embargo. As for real income the sanction resulted in a decrease by 1.16%. The ban on Russian oil led to this decline in Russia's exports to Germany and Europe as a whole which resulted in an impact on global oil supply.

3.3 Covid-19

The COVID-19 pandemic has left an indelible imprint on the global economy, posing unprecedented challenges and disrupting factors. The illness, which was caused by a new coronavirus, not only posed a serious threat to public health but also had far-reaching implications for a variety of businesses and markets. Among the industries worst hit by the crisis, the oil industry was at the forefront, with considerable price and demand changes. In this talk, we will look at the economic impact of COVID-19 and its direct association with oil prices, demonstrating the pandemic's complicated ties with the energy industry.

3.3.1 Economic Consequences

Deb, et al. (2022) used the empirical methodology to examine the causal effect of containment measures on economic activity in relation to Covid-19. They discovered that the pandemic caused significant short-term economic losses, and that containment measures had, on average, very large impacts on NO2 emissions, equivalent to a loss of about 10% in industrial production over the 30-day period following the implementation of containment measures. Meanwhile, the relaxation of containment measures results in a recovery in economic activity (7 percent gain in industrial production), which is less than the losses generated by the lockdowns in absolute terms. Other indices of economic activity show that containment measures have had a negative influence on flights, energy consumption, retail, and transport mobility.

Choi et al. (2022) on the other hand used the global Trade Analysis Project (GTAP) model for their study on the economic consequences of the Covid-19 pandemic. The study found that Except for investment, all economic indicators fell, with exports falling the most. Global GDP fell by around 1% in OP, while this drop more than

quadrupled to 3.38% in PE. Exports fell 9.75% in PE. In industries like Tourism, it saw the greatest drop in output under PE, at 10.59%, while "Transportation and Communications" experienced the least drop, at roughly 2%. The dip in tourist production can be related to a sharp drop in industrial export sales as well as a drop in international transportation service exports. Overall, these findings corroborated COVID-19's negative impact on the world economy.

3.3.2 Covid-19 and Oil Prices

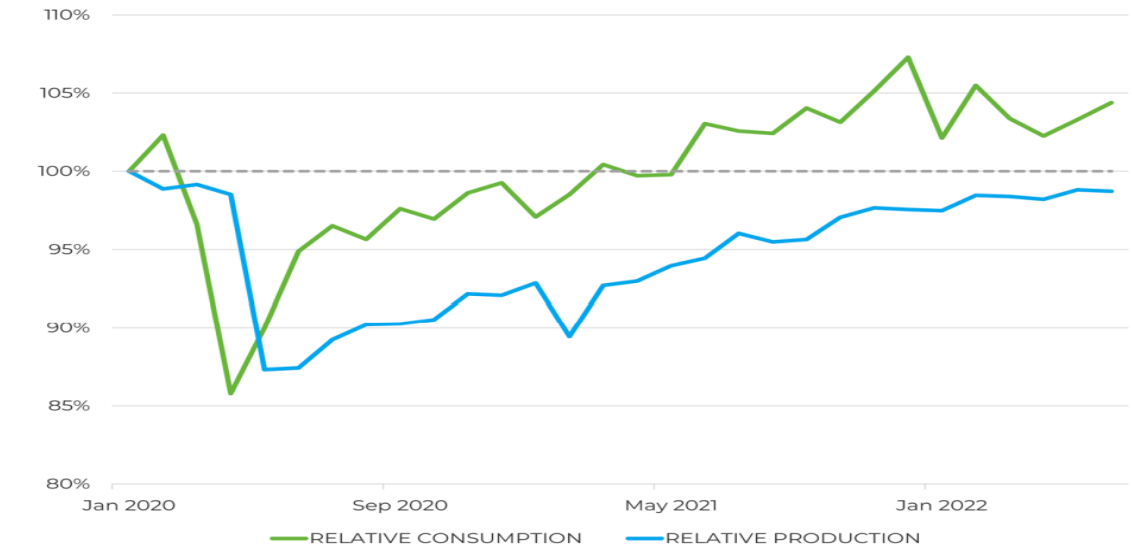
Kumeka et al. (2022) found in their study that in the post Covid-19 pandemic period, a shock to crude oil prices appears to cause a strong negative response by currency rates. This demonstrates that the post Covid-19 pandemic era, during which crude oil prices have plummeted, has played a role in the weakening of the currencies of these chosen oil producing nations. Covid-19 is a proclamation as a worldwide pandemic, and the plunging crude oil prices that have resulted in currency devaluation have also had a detrimental impact on the stock market activity of the oil producing nations. The main oil-importing nations, such as the United States, the United Kingdom, France, Germany, Canada, and China, have seen sustained slowdown in the key sectors of their economies during the Covid-19 era. Their drastic reduction in production operations has resulted in a drop in demand for crude oil, exacerbating the stock market's uncertainty. Furthermore, the US dollar, the reference currency, has greatly risen since Covid-19 was declared a pandemic, explaining the considerable causation flowing from exchange rates to stock markets.

Kingsly, K., & Henri, K (2020) mentioned in their study that not only has the virus disrupted Chinese manufacturing supply networks, but it has also exacerbated the global cyclical recession, with Eurozone and German industrial production both falling

in recent months. The trend of reducing industrial production is much more visible across all fuel categories, from gasoline to diesel, which declined by 2.9% and 3.8%, respectively. Crude oil imports have decreased by 13.4%, causing the economy to develop at a slower rate. Furthermore, as a result of the weaker currency, inflation would rise in developing and emerging countries, and worsening in external situations will hinder the impact of economic reforms agreed in the current extended loan facility with the IMF.

Nyga-Łukaszewska, H., & Aruga, K (2020) reached a conclusion that is in summary, their findings show that the COVID-19 pandemic had an impact on crude oil markets in the United States, with both short-run and long-run effects. The cumulative number of COVID-19 cases in the United States has had a direct negative influence on crude oil prices. Furthermore, the COVID-19 outbreak has shown that the oil market is fickle and vulnerable. Its volatility has typically been caused by crude oil economic factors associated with low price elasticity of supply. In contrast to previous energy shocks, the oil market was not dominated by low-price elasticity of demand this time.

Figure 3, Below obtained from Lee, M (2022) research shows that consumption level of petroleum was already rising long before the Russian invasion on Ukraine, with the consumption level rising with it as well, these two situations caused a rise in the prices of fuel.



Source: EIA, Short Term Energy Outlook, June 2022; JEC Calculations.

Figure 3: Petroleum levels of Consumption and Production

This caused prices to rise by first shifting the supply curve to the right which means just an increase in quantity supply (production) and a shift for the demand curve to the right as well, that is the increase level of demand as in consumption, which results to the equilibrium price to increase to a new one.

3.3.3 Covid-19 and the Russian-Ukraine War

The Impact of COVID-19 Pandemic on the Economic Security of Russia and European Countries is a study done by (Walkowiak et al. 2020), and it showed that Russia is one among the nations suffering financial losses as a result of the COVID-19 epidemic. The overall financial expense on crude oil extraction at sea is $ 44 per barrel, and on land - $ 42 per barrel, with the average price being $ 42. From February 2020, the price of a barrel of crude oil will fluctuate about $40. The current epidemic may trigger irrevocable changes in the Russian economy because to a shortage of financial resources as a result of low global oil prices. Demand for crude oil has decreased in the assessed European nations after the COVID-19 pandemic outbreak. From April through July 2020, this phenomenon will be apparent.

Chapter 4

FINDINGS AND ANALYSIS

4.1 Introduction

This chapter sets the stage for the analysis and findings of the research, which used the grounded theory technique to investigate the impact of the Russia-Ukraine War on German oil prices. The following sections will provide valuable insights into the complex relationship between geopolitical events and energy markets by delving into the complexities of the data collected, offering a comprehensive understanding of the specific case of German oil prices in the aftermath of the conflict.

4.2 Data Analysis Process Using Grounded Theory

In this section we present the analysis process using the grounded theory model. The analysis process will be done in three steps starting with open coding then axial coding and finally before going to the results selective coding. This section provides an overview of each stage and highlights the key objectives.

4.2.1 Open Coding

The codes in the following open coding table represent the identified concepts or themes from the secondary sources.

Table 1: Result for Open Coding

Code	Description

Geopolitical tension	The mention of political conflicts between Russia and Ukraine in relation to oil prices.
Economic impact	Insights into the effects of the conflict on the economy.
Market speculation	References to speculative trading impacting oil prices. (The exports of Russian oil to Germany/Europe). If it was either due to the war or the pandemic or both.
Demand fluctuations	Discussion on changes in oil demand influenced by the war and the pandemic.
Oil supply disruptions	Indications of interruptions in oil supply due to the war and the pandemic.

4.2.2 Axial Coding

The following table is what is called the axial coding process, which shows the derived categories based on the connections between the codes.

Table 2: Result for Axial Coding

Category	Subcategories
Direct impact factors on oil prices.	Oil supply disruptions, Demand Fluctuations.
Market dynamics.	Market speculation, Geopolitical tension.
Economic consequences.	Economic impact.

4.2.3 Selective Coding

The following selective coding table presents the core category that captures the main theme or theory emerging from the analysis of the data.

Table 3: Result for Selective Coding

Code Category	Description
The Russia Ukraine war and its Impact on oil prices in Germany. As well as, showing if the pandemic had any impact as well.	A comprehensive understanding of how the Russia Ukraine war impacted oil prices in Germany, how the war is related to these high prices. Considering the direct factors that impacted the prices, the market dynamic, and the economic consequences.

These coding techniques help in making sense of the qualitative data collected and generate insights and explanations related to the research questions.

4.3 Findings

In this section we will introduce to you the findings that was got from every data collected in chapter three for how the Russia-Ukraine war impacted the German oil prices. Each result will be introduced under a different section. The sections will be named by the category found in axial coding.

4.3.1 Direct Impact Factors on Oil Prices

- **The Russia-Ukraine War**

The Russia-Ukraine war and the subsequent international sanction imposed on Russia's oil trade have had a significant impact on Germany, particularly in terms of oil prices and energy security. This section aims to explore the economic impacts of the conflict on Germany's oil dependency, considering the decline in Russian oil imports and the challenges of finding alternative suppliers.

Oil Dependency and Russian Oil Imports: Germany heavily relies on Russian oil imports to meet its domestic energy demands. In November 2021, Germany imported 835 thousand barrels per day of Russian oil, indicating the significant importance of

this source (Statista, 2023). However, with the onset of the war, a decline in Russian oil imports can be observed, eventually leading to a complete halt in oil imports as seen in (Figure 2).

Effect on Oil Prices and Energy Security: The impact of the war and the trade embargo on Russian oil exports to Germany has had profound implications for oil prices within the country. Russia is Germany's largest oil supplier, accounting for 22.4 million tonnes out of the total 88.2 million tonnes of crude oil imported in 2022 (Reuters, 2023). The international sanctions and subsequent ban on Russian oil exports disrupted this crucial supply, leaving Germany in search of alternative sources.

Challenges in Finding Alternative Suppliers: Finding immediate and suitable alternatives to replace the significant volume of Russian oil imports poses a challenge for Germany. While the United States accounted for 12.1 million tonnes and Kazakhstan for 9.1 million tonnes in Germany's crude oil imports in 2022, these quantities are insufficient to compensate for the loss of Russian oil (Reuters, 2023). The process of identifying and establishing new trade relationships with alternative suppliers is complex and time-consuming, further exacerbating the impact on Germany's oil prices and energy security.

Consequences for Oil Prices in Germany: The decline in Russian oil imports and the challenges in finding alternative suppliers have led to an increase in oil prices in Germany. The reduced availability of Russian oil has created a supply-demand imbalance in the German market, where demand outweighs supply. As a result, importers and consumers face higher prices for oil, affecting various sectors of the economy, including transportation, manufacturing, and household energy expenses.

- **Covid-19**

This section of the findings discusses the economic consequences of the COVID-19 pandemic on oil prices in Germany. By examining the research findings in chapter three of Kumeka et al. (2022), Kingsly and Henri (2020), and Nyga-Łukaszewska and Aruga (2020), we aim to understand the key factors and mechanisms through which the pandemic affected crude oil markets and subsequently influenced oil prices in Germany.

Global Economic Slowdown and Reduced Demand: The COVID-19 pandemic led to a worldwide economic slowdown, with major oil-importing nations, including Germany, experiencing significant disruptions in their key economic sectors (Kumeka et al., 2022). The reduction in industrial production, particularly in the Eurozone and Germany, resulted in a decrease in demand for crude oil (Kingsly and Henri, 2020). As industries scaled back operations and travel restrictions were implemented, the demand for petroleum products, such as gasoline and diesel, declined, contributing to an overall decrease in crude oil imports.

Currency Devaluation and Stock Market Uncertainty: The sharp decline in crude oil prices during the post-pandemic period had adverse effects on the currencies of oil-producing nations, including those exporting oil to Germany (Kumeka et al., 2022). The devaluation of currencies further impacted the stock market activity of these oil-producing nations, leading to increased uncertainty in the global stock markets. The economic slowdown and reduced demand for crude oil aggravated the uncertainty, negatively affecting the stability of the oil market (Kumeka et al., 2022).

Price Elasticity of Supply and Demand: The COVID-19 pandemic exposed the vulnerability and volatility of the oil market, which has historically been influenced by low price elasticity of supply (Nyga-Łukaszewska and Aruga, 2020). Unlike previous energy shocks, the primary factor affecting oil prices during the pandemic was the low price elasticity of demand. The restrictions on travel and reduced economic activity significantly impacted demand, causing a downward pressure on oil prices.

Implications for Germany: Germany, as a major oil-importing nation, experienced the ripple effects of the global economic slowdown and reduced demand for crude oil. The decline in industrial production and overall economic activity contributed to a decrease in crude oil imports and a slower rate of economic growth (Kingsly and Henri, 2020). Furthermore, the currency devaluation in oil-producing nations and the resultant stock market uncertainty had indirect implications for Germany's oil prices, as it is part of the interconnected global market.

4.3.2 Economic Consequences

- **The Russia-Ukraine War**

The Russia-Ukraine war has had profound economic consequences, particularly on oil prices and global supply chains. This section aims to provide a comprehensive understanding of how the war has impacted oil prices in Germany. Drawing insights from various studies, including those that were found in chapter three and conducted by Khudaykulova et al. (2022), Orhan (2022), Jagtap et al. (2022), and Ozili (2022), we examine the macroeconomic implications, increased commodity costs, disruptions in trade and supply networks, and the effects on the global supply chain.

Macro Effects of the Energy Embargo and Increased Oil Prices: The international sanctions imposed during the war, including the Russian energy embargo, have led to

a rise in gas and oil prices. Russia's significant role as the world's largest producer of oil and gas has resulted in curtailed output and increased prices. The threat to energy supply and the presence of geopolitical risks and threats have influenced crude oil futures returns, leading to increased oil prices (Khudaykulova et al., 2022). The impact of these price increases extends beyond the immediate conflict and affects oil markets globally.

Impact on Commodity Costs and Inflation: The war has caused a surge in worldwide prices, particularly for natural gas and oil. Additionally, food prices, including wheat, have reached record highs, as Russia and Ukraine contribute to 30% of global wheat exports (Orhan, 2022). These increased commodity costs, combined with energy price hikes, contribute to higher inflation rates. Rising inflation reduces the value of income and weighs on demand, impacting consumers' purchasing power and economic stability.

Disruptions in Trade and Supply Networks: The war and its aftermath have caused disruptions in trade, supply networks, and remittances. Surrounding economies, including Germany, are affected by these disruptions, leading to challenges in maintaining smooth trade flows. Increased refugee flows further strain trade networks, contributing to disruptions in cargo flow and border operations. Import delays and halts as a result of heightened security checks and processing of refugees further exacerbate the disruption in the global supply chain, leading to higher import prices (Ozili, 2022).

Impact on Germany's Energy Security: The war and associated international sanctions have implications for Germany's energy security. Russia, being the world's

second-largest oil producer, exports a significant portion of its crude to European refineries. The conflict may hinder European oil marketers and firms from acquiring energy supplies from Russia, leading to potential supply shortages and challenges in sourcing alternative energy (Ozili, 2022). This further contributes to upward pressure on oil prices in Germany.

- **Covid-19**

The economic consequences of the COVID-19 pandemic on oil prices in Germany, drawing upon the research findings of Deb et al. (2022) and Choi et al. (2022). By analyzing the empirical methodology and the Global Trade Analysis Project (GTAP) model, this section aims to gain a deep understanding of how the pandemic has influenced various economic indicators and, in turn, affected oil prices in Germany.

Short-Term Economic Losses and Containment Measures: Deb et al. (2022) found that the implementation of containment measures in response to the pandemic led to significant short-term economic losses. These measures had a profound impact on economic activity, particularly on industrial production, resulting in a loss of approximately 10% over a 30-day period. The restrictions on mobility and business operations negatively affected key sectors such as flights, energy consumption, retail, and transport mobility. The decline in industrial production during the lockdown period had repercussions for the demand and pricing dynamics of crude oil.

Global Economic Contraction and Declining Exports: Choi et al. (2022) employed the GTAP model to investigate the broader economic consequences of the COVID-19 pandemic. Their study revealed a substantial decline in various economic indicators, with exports experiencing the most significant contraction. Global GDP fell by around 1% in the outbreak phase (OP) but more than quadrupled to 3.38% in the peak of the

pandemic phase (PE). Exports registered a significant drop of 9.75% during the PE. Industries heavily reliant on international trade, such as tourism, witnessed a sharp decline in output, which can be attributed to the reduction in industrial export sales and international transportation service exports. These findings highlight the global economic downturn caused by the pandemic and its repercussions on trade-dependent economies like Germany.

Implications for Oil Prices in Germany: The combined effect of short-term economic losses, declining industrial production, and reduced global demand had direct implications for oil prices in Germany. The slowdown in economic activity and the contraction in exports impacted the energy sector, leading to decreased energy consumption and lower demand for crude oil. Additionally, the restrictions on mobility and travel had adverse effects on the transportation industry, further dampening oil demand. The overall negative impact on the world economy and the decline in global GDP during the PE phase contributed to a broader downturn in oil prices, affecting Germany as an oil-importing nation.

4.3.3 Market Dynamics

- **The Russia-Ukraine War**

Geopolitical tensions arising from the Russia-Ukraine war have had significant implications for oil prices in Germany. This section focuses on the impact of these tensions on the Druzhba pipeline, a critical oil transit route that supplies a substantial portion of Germany's crude oil imports. By understanding the dynamics of the Druzhba pipeline and the agreements to halt pipeline oil imports from Russia, we can assess the economic consequences on oil prices in Germany.

The Importance of the Druzhba Pipeline: The Druzhba pipeline serves as a vital oil transit route, connecting Russia to several European countries, including Germany. Germany heavily relies on this pipeline to meet a large share of its crude oil import requirements. As a result, any disruptions or concerns regarding the Druzhba pipeline can significantly impact oil prices in Germany (Babina et al., 2023).

Effect on Crude Oil Shipments to Germany: The Druzhba pipeline's northern branch supplies around 60% of its oil to Germany and Poland, while the southern branch serves the Czech Republic, Hungary, and the Slovak Republic. Notably, Germany and Poland have agreed to cease pipeline oil imports from Russia by the end of 2022, and seaborne oil shipments are completely banned. As a result, future crude shipments to the European Union (EU) are expected to decrease dramatically to approximately 200-250 thousand barrels per day, representing a nearly 90% reduction compared to the pre-invasion era (Babina et al., 2023).

Impact on Oil Prices in Germany: The disruption in crude oil shipments through the Druzhba pipeline, particularly to Germany, will have significant implications for oil prices in the country. The decreased availability of Russian oil due to the pipeline halt will create a supply-demand imbalance in the German market. As a result, importers and consumers in Germany can anticipate a surge in oil prices.

Economic Consequences: Higher oil prices in Germany will have various economic consequences. The manufacturing sector, which relies on oil for production processes, will face increased input costs. This can lead to reduced profitability and potentially higher consumer prices for goods reliant on oil-derived inputs. Additionally,

households and businesses will experience higher energy costs, impacting disposable income and potentially dampening domestic consumption.

- **Covid-19**

Financial Losses and Fluctuating Oil Prices: Walkowiak et al. (2020) highlight that Russia, among other nations, has suffered significant financial losses due to the COVID-19 epidemic. The study reveals that the overall financial expense for crude oil extraction at sea is $44 per barrel, and on land, it is $42 per barrel, with an average price of $42. Since February 2020, the price of a barrel of crude oil has been fluctuating around $40. The pandemic has led to a decrease in global oil prices, which has had far-reaching consequences for oil-exporting nations like Russia.

Reduced Demand and Changing Market Dynamics: The COVID-19 pandemic has resulted in a decline in demand for crude oil in assessed European countries. The outbreak of the pandemic has caused a significant reduction in economic activity, leading to decreased energy consumption and demand for oil. Walkowiak et al. (2020) suggest that this phenomenon will be apparent from April through July 2020. The decrease in demand for crude oil in European nations has had ripple effects throughout the global oil market, impacting prices and supply chains.

Implications for Oil Prices in Germany: The reduced demand for crude oil and the fluctuating global oil prices has direct implications for oil prices in Germany. As an oil-importing country, Germany is affected by changes in the global oil market. The decline in demand for oil and the decrease in global oil prices have put downward pressure on oil prices in Germany. The financial strains faced by oil-exporting nations like Russia further contribute to the complex dynamics of the oil market. These combined factors have influenced the pricing and availability of oil in Germany.

Chapter 5

CONCLUSION

The use of the Grounded Theory technique was helpful in carrying out the analysis indicated in the preceding replies. Grounded Theory offered a methodical and thorough technique to examine existing data and create theoretical insights. We were able to find major themes, concepts, and links from the submitted texts by employing this strategy. Grounded Theory enabled us to conduct in-depth analysis of the economic impacts of the Russia-Ukraine war on German oil prices, allowing us to draw connections between factors such as international sanctions, supply chain disruptions, geopolitical tensions, and their effects on crude oil imports, energy security, and inflation. This strategy provided a full grasp of the complicated economic forces at work, contributing to a more in-depth and nuanced examination of the issue.

The Russia-Ukraine war, as well as the ensuing international sanction imposed on Russia's oil trade, have had a substantial influence on Germany's oil prices and energy security. Germany's reliance on Russian oil imports, along with difficulties in locating alternative sources, has resulted in supply shortages and price increases inside the country. The interruption in oil supply networks emphasizes the importance of diversifying energy sources and strengthening energy security measures. Understanding the economic consequences of geopolitical conflicts and establishing resilient energy plans are critical for Germany and other countries to avoid the risks associated with oil dependence and supply interruptions.

The war between Ukraine and Russia has had far-reaching economic ramifications, including major effects on German oil prices. International sanctions and an energy embargo placed on Russia affected global supply systems, causing oil prices to rise. These price increases, along with growing commodity costs and interruptions in trade and supply networks, will have an impact on inflation, consumer buying power, and Germany's energy security. Understanding these economic dynamics is critical for governments and companies seeking to offset the negative consequences of geopolitical crises and energy supply interruptions.

The blockage of the Druzhba pipeline, which is critical for exporting crude oil to Germany, has directly influenced oil prices in Germany as a result of geopolitical tensions caused by the Russia-Ukraine war. The agreement to suspend pipeline oil imports from Russia, along with a total prohibition on seaborne oil exports, has limited future petroleum shipments to the EU dramatically. As a result, Germany is projected to confront a significant decline in oil supplies, resulting in increased domestic oil prices. These price rises will have far-reaching economic consequences, affecting many industries and even reducing consumer purchasing power. To avoid the risks associated with oil price volatility and supply interruptions, Germany will need to adapt to these geopolitical trends and diversify its energy sources.

The Covid-19 epidemic had a significant impact on German oil prices. The global economic downturn, lower demand for crude oil, currency depreciation in oil-producing countries, and stock market instability all played key roles in defining the oil market dynamics during this era. Understanding these economic dynamics sheds light on the issues that Germany faces as a major oil importer, as well as the importance of adaptive energy policy to reduce the effects of future disruptions. Short-term

economic losses arose from the introduction of containment measures, notably in industrial output. The worldwide economic slowdown was compounded further by falling exports. Energy consumption and demand for crude oil fell as a result of lower industrial production and restricted mobility, putting downward pressure on oil prices. These findings highlight the complex interaction between the pandemic, economic indicators, and oil market dynamics, underlining the importance of adapting policy to limit the impact of future disruptions on German oil prices. And lastly the pandemic has had substantial economic ramifications, including an influence on German oil prices. Russia's financial losses, as well as swings in global oil prices, have altered the oil market's dynamics. Lower demand for crude oil in European nations such as Germany has resulted in lower oil prices. Understanding these interdependencies is critical for understanding the pandemic's implications on the energy industry and influencing policy actions. As the globe recovers from the epidemic, Germany's energy security and resilience will be dependent on responding to the changing oil market and guaranteeing economic stability.

Even before the Russia-Ukraine war, the COVID-19 epidemic had a substantial influence on world oil prices. To grasp this, consider the economic variables at work. When the epidemic struck, several countries imposed stringent lockdown measures, resulting in a dramatic drop in economic activity. Businesses closed, travel restrictions were implemented, and many stayed at home. As a result, demand for oil fell precipitously. As demand for oil fell, the demand curve shifted to the left. Because of the oil surplus stockpiles grew, putting more downward pressure on oil prices. Storage facilities were soon filling up, forcing some companies to store surplus oil aboard ships.

Let us now look at the economic impact of these variables on oil prices. Reduced demand causes the demand curve to move to the left, indicating a drop in the amount requested. At the same time, the shift to the right in the supply curve caused by surplus production signifies an increase in amount delivered. When the amount requested falls and the quantity supplied rises, the market becomes unbalanced. To restore balance, the equilibrium price, which is the price at which quantity requested equals amount provided, must be adjusted. In this situation, the market was driven to a new equilibrium with lower oil prices due to a fall in demand and an increase in supply.

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