EXAMINING SPILLOVER IMPACT OF THE RUSSIA UKRAINE WAR ON THE STOCK RETURNS OF KAZAKHSTAN AND TURKEY

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ABSTRACT

This study looks into how the Russia Ukraine war affected the stock returns from Kazakhstan and Turkey who was both indirectly involved in the war. Unit root test confirmed all the variables are stationary. Impulse response function was used to see the responsiveness from a shock in a certain variable, while variance decomposition was employed to analyze the proportion of variance from other variables to the interest variable experiencing a shock. The results in the short run indicate that there is little spillover from Russian Stock Returns on Returns with little or no response in the long term to the war of Russia and Ukraine. On the other hand, Kazakhstan does have greater spillover on Turkish Stock returns as compare to Russia during the war.

Keywords: Russia & Ukraine conflict, Impulse Response Function, Muslim countries, Variance Decomposition.

1. **Introduction**
2. When Russia recognized the Donetsk and Luhansk regions of Ukraine as independent states on February 21, 2022, it intensified the ongoing war with Ukraine. Dispatching Russian soldiers to these regions as peacekeeping forces further fueled the tensions. Russia's actions were considered a declaration of war by many world leaders. Consequently, the European Union, the United States, and the United Kingdom began to impose trade restrictions on Russia. In 2020, Russia's largest trading partner was EU, which accounted for 37.3% of Russia's international trade in goods (Mbah and Wasum 2022). As per (Pedersen, Gøtske et al. 2022)report, Russia exported 27% of crude oil, 46.7% of solid fuels, and 41.1% of natural gas supplied to EU during the period. The intertwining relationship between Russian and Western economies gives credence to the idea that the added geopolitical tensions and sanctions would adversely affect both economies, and particularly the Russian economy that is

deeply reliant on the European countries for oil, gas, food, raw materials, and trade.

3. This prompts us to analyze how participants in the European stock market responded to this fact. Previous studies that examined the correlation between political uncertainty and the financial market suggest that the return on investment and risk tolerance of a financial asset is considerably lower due to apprehension of political volatility.When Russia recognized the Donetsk and Luhansk regions of Ukraine as independent states on February 21, 2022, it intensified the ongoing war with Ukraine. Dispatching Russian soldiers to these regions as peacekeeping forces further fueled the tensions. Russia's actions were considered a declaration of war by many world leaders. Consequently, the European Union, the United States, and the United Kingdom began to impose trade restrictions on Russia. In 2020, Russia's largest trading partner was EU, which accounted for 37.3% of Russia's international trade in goods (Mbah and Wasum 2022). As per (Pedersen, Gøtske et al. 2022)report, Russia exported 27% of crude oil, 46.7% of solid fuels, and 41.1% of natural gas supplied to EU during the period. The intertwining relationship between Russian and Western economies gives credence to the idea that the added geopolitical tensions and sanctions would adversely affect both economies, and particularly the Russian economy that is deeply reliant on the European countries for oil, gas, food, raw materials, and trade.

4. This prompts us to analyze how participants in the European stock market responded to this fact. Previous studies that examined the correlation between political uncertainty and the financial market suggest that the return on investment and risk tolerance of a financial asset is considerably lower due to apprehension of political volatility.The financial markets of the Gulf Cooperation Council countries experienced the phenomena's effects on diverse industries and countries.

5. Moreover, the unexplained mysteries surrounding the disappearance of the Saudi journalist Jamal Khashoggi has negatively impacted the stock returns in the Saudi Stock Exchange according to (Bash and Alsaifi 2019).

6. Caldara and Iacoviello have further delved into geopolitics and its implications studying what they termed GPR which is the threat of wars, terrorism, and other international conflicts and its consequences on the economy(2022). GPR is responsible for downturns in investment, employment, equity returns, bond spreads, and volatility in stock markets (Rigobon and Sack 2005; Choi 2022). Such factors have a profound affects on many businesses and financial markets. Geopolitical risk (GPR), which is the threat of international warfare and terrorism has also been analyzed (Caldara and Iacoviello 2022). GPR negatively impacts companies and financial markets in numerous ways including international investments, employment chances provided, equity market returns, financial market conditions and volatility. The evolving conflict between Russia and Ukraine is unusual in many important aspects when compared to earlier political

strife and conflicts like the Russian invasionof Crimea in 2014These include the Gulf War and the Iraq War. His character is also unique. First, Russia's invasion of Ukraine, although focused on Europe, created a geopolitical threat and shook the global economy. For example, according to the geopolitical risk index created by Caldara and Iacoviello (2022), geopolitical danger peaked at the time of Russia's invasion of Ukraine. In addition, concerns have been raised that the invasion's potential impact on financial intermediation and trade could lead to a slowdown in economic development and rising prices around the world. For this reason, the impact of this crisis is far greater and more severe than the impact of previous political disasters.

6.2.   Research Objectives:

The objective of this research is to identify how Russian and Ukraine war has created spillover effects on stock market near to Russia and Ukraine while Kazakhstan and Turkey are considered for this, specifically which are indirectly affected with the war by having close relations either with Russia or Ukraine. This paper aims to identify how Russian Stock Market has spillover effect on Kazakhstan Stock Market and Turkey Stock Market as both countries are indirectly affected by this war.

6.3.   Significance of Research:

Kazakhstan& Turkey are developing countries which are indirectly affected with war of Russia and Ukraine and are near to these conflicted countries and there is no any study suggested spillover effects of war on these countries stock market combined. Therefore; it is important to check how Russian Stock Market has created spillover effects on Stock Markets of Kazakhstan and Turkey

7. Literature Review

Following the unprecedented global health crisis, a new threat to financial stability has emerged in the form of a hybrid war between world powers. The ongoing political conflict between Russia and Ukraine as of February 24, 2022 is expected to cause instability in Eastern Europe and around the world for decades to come. The war is unique in terms of its scale, geopolitical influence, and alliances between the warring parties (Caldara and Iacoviello 2022). From an economic perspective, Russia is an important emerging market. It is deeply involved in international trade and has unique energy ties with major European and Asian countries, including China and Japan.

Russia is the world's third largest oil producer and, due to its energy-driven economy, is heavily dependent on gas, metals, and mining exports. Although Russia experienced a number of crises in the 2010s, including the oil surplus, the economic spending associated with the annexation of Crimea, and the international sanctions of 2015, this latest crisis is special. The Russian economy is affected by the nature of the economic crisis, as it is almost completely isolated from the West and its allies as a result of the continued severe financial, economic and trade sanctions imposed by the West.

The financial instability of such a country leads to a broader investigation of how the war affected international financial markets, major commodities such as oil and

gold, and other asset classes of increasing importance, such as Bitcoin and Ethereum. Therefore, in order to monitor the severity of the transmission of shocks between markets, we decided to study the impact of the Russian-Ukrainian conflict on the volatility spillovers and its dynamics between the world's major financial markets before and during the war.

In this paper, we use the variance decomposition technique of (Koop and Korobilis 2014) and the DY-connectivity approach of (Diebold and YÃ„ Â±lmaz 2014) to analyze the dynamics of the intensity of shock propagation. We evaluate the period from January 2017 to March 2022, including recent major financial and economic crises before and after the COVID-19 pandemic, as well as political and military upheavals affecting the global economy.

The main conclusions are: (i) the results of the pairwise spillover analysis show strong connections between different markets, such as correlations between European stock markets; (ii) during the Russia-Ukraine war, spillover effects across international financial markets increased dramatically. (iii) The directional spillover results show that the Japanese stock market was the largest net change receiver both before and after the Russia-Ukraine crisis, while the French and German stock markets were the largest net change senders. (iv) During the conflict, the role of the US (Chinese) stock market shifted from a volatility sender (receiver) to a volatility receiver (sender).

Our findings have interesting implications for portfolio risk managers. As we have shown, the spillover effects of stock market volatility are amplified by ongoing conflicts. Understanding the drivers of volatility spillovers is important to effectively manage the impact of geopolitical uncertainty on the risk of the respective portfolios. Conversely, authorities can also take measures to ensure financial stability and monitor the impact of growing geopolitical concerns on commodity prices and, therefore, inflation trends. (Ahmed, Hasan et al.) By 2022, European stock markets were hit hard by Russia's recognition of two autonomous regions in Ukraine. According to (Fang and Shao 2022, Hussain, Shah et al. 2023), the Russian-Ukrainian war will affect commodity markets through both financial and economic channels. This study adds new information to the literature by analyzing how the Russian-Ukrainian situation affected the Australian stock market.

We predict that the Russian-Ukrainian situation had a significant negative impact on the Australian stock market for both economic and behavioral reasons. The basis of the economic argument for the stock price reaction to the Russian-Ukrainian conflict is the observation that the situation had many negative effects on trade, investment, and consumer confidence, and increased economic uncertainty (Fang and Shao 2022). As a result, the crisis may lead to a decline in consumer spending and investment, which in turn may lead to a decline in corporate profits and a fall in stock prices. Due to imposed sanctions and disruptions to the supply of products and resources, the crisis may also affect international trade and investment (Ahmed, Hasan et al. 2022). Furthermore, the behavioral explanation of stock price reactions to the Russia-Ukraine crisis is based on the idea that market participants and

individual investors are influenced by psychological and emotional factors in addition to rational factors such as risk and return. According to this theory, market behavior can be influenced by variables other than logical calculations, such as cognitive biases, emotions, and social and cultural influences (Jacobs 2016).

8. Research Methodology:

This research causal in nature and reveals quantitative method and contains secondary data of stockmarket indices of Kazakhstan, Turkeyas indirectly affected countries. And Russia from 24th March 2022 to 31st May 2023. Further; spillover effects will be identified through Impulse Response Function, VarianceDecomposition technique, unit root will be used for data stationarity. Also lag selection criteria is used through VAR.

9. Data Analysis:

4.1. Table No.1 Unit Root Test

Variables	ADF T-Statistics	Order	Prob-Value
Russian Stock Returns	-13.62734	Level	0.0000
Kazakhstan Stock Returns	-4.911979	Level	0.0000
Turkish Stock Returns	-15.6243	Level	0.0000

Interpretation: The above Table No.1 of Unit Root Test is used to check stationarity of data and based on ADF test; results shows that all variables are stationary at level order as t-statistics of all variables Russia Stock Market Returns, Kazakhstan Stock Market Returns and Turkey Stock Market Returns are greater than ± 1.96 and Prob Values are less than 0.05 which are -13.62734, -4.911979, -15.6243 respectively, hence we reject null hypothesis that has unit root.

9.2. Graph No.1 Impulse Response Function (Kazakhstan to Russia)

Response to Cholesky One S.D. Innovations ± 2 S.E.

Response of KAZAKHSTANINDEX to RUSSIAINNDEX
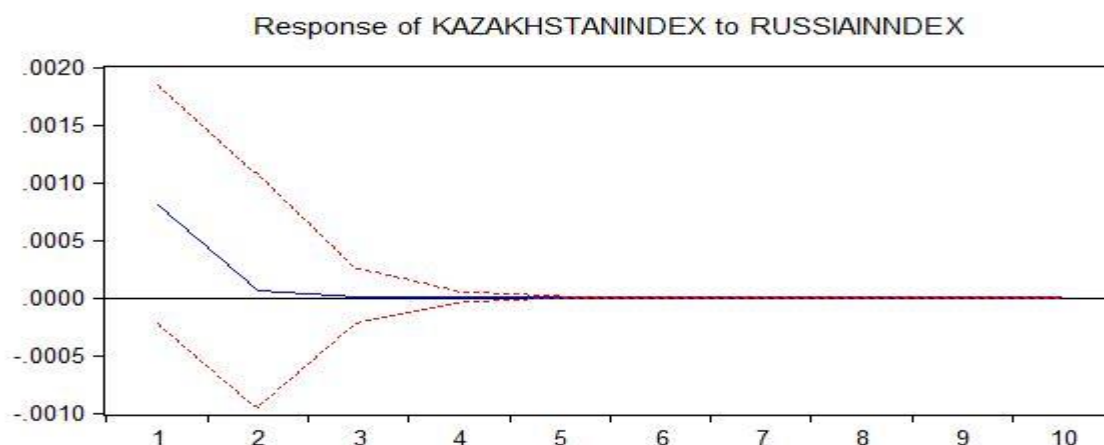
Interpretation: The above Graphical representation is about Impulse Response Function to check response of Kazakhstan Stock Market Returns towards Russian Stock Market Returns during the period of Russia Ukraine war. The impulse response function based on Cholesky indicates that Kazakhstan stock market declines with Russian stock market as response to shock in targeted i.e Russian Stock market in early

period or in short run period as blue lines comes down with red lines representing 95% confidence interval and goes parallel with Russian stock market but in long run it doesn't response to returns of targeted stock. The overall response of Kazakhstan is that it is affected during short run period.

9.3.   Graph No.2 Impulse Response Function (Turkey to Russia)

Response to Cholesky One S.D. Innovations ± 2 S.E.

Response of TURKISHINDEX to RUSSIAINNDEX
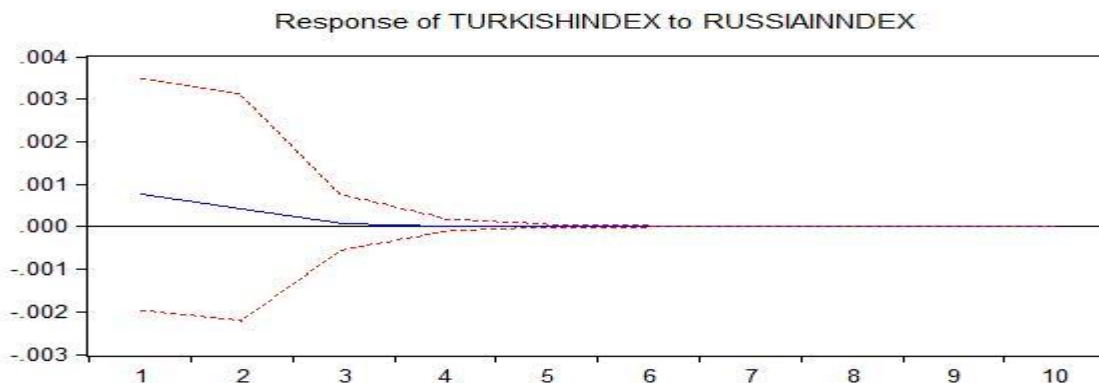
Interpretation: The Graph is about Impulse Response Function to determine response of one country or variable to the shock in another variable. The Cholesky method of impulse response function shows that Turkish stock returns are affected with the shock in Russian stock market during war and returns of Turkish Stock Market declines with shock in Stock market of Russia but only in short run but does not respond to Russian stock market in longer period. It is indicated that returns of BSE (Turkish Stock Exchange) is affected only is starting period of war but goes straight in longer period based on 95% confidence interval as blue line is in between red lines.

9.4.   Table No.2 Variance Decomposition of Russia

Period	S.E.	RUSSIAINNDEX	KAZAKHSTANINDEX	TURKISHINDEX
1	0.018645	100	0	0
2	0.019003	99.74262	0.000575	0.256805
3	0.019017	99.72752	0.001258	0.271219
4	0.019017	99.72686	0.001305	0.271832
5	0.019017	99.72684	0.001307	0.271856
6	0.019017	99.72684	0.001307	0.271857
7	0.019017	99.72684	0.001307	0.271857
8	0.019017	99.72684	0.001307	0.271857
9	0.019017	99.72684	0.001307	0.271857
10	0.019017	99.72684	0.001307	0.271857

Interpretation: The above table of variance decomposition shows contribution of stock market during shock period, this table is indicating Russian Stock Market Returns which shows that the conflict between Russia and Ukraine has 100% affected returns of Russian Stock market as it shows own shock of Russia. Whereas, a shock in Kazakhstan and Turkish Stock Market returns doesn't explain any variance of fluctuation in Russian Stock Market Returns in period one. Further, from period 2 to

10 or short run to long run Russian stock market returns are showing 99.72% variance in its own market returns showing its own shock and any shock in Kazakhstan and Turkish stock market returns explain very little or no variance of fluctuation in Russian stock market returns that is 0.000575% to 0.001307% and 0.256805% to 0.271857%. The overall variance decomposition explains that Russian stock market is affected by its own shock and stock market of Muslim nearby countries don't account any proper shock or variance in it.

9.5.　　　Table No.3 Variance Decomposition of Kazakhstan

Period	S.E.	RUSSIAINNDEX	KAZAKHSTANINDEX	TURKISHINDEX
1	0.008509	0.900373	99.09963	0
2	0.008518	0.903858	99.03769	0.058454
3	0.008518	0.904008	99.037	0.058991
4	0.008518	0.904013	99.03699	0.058997
5	0.008518	0.904014	99.03699	0.058997
6	0.008518	0.904014	99.03699	0.058997
7	0.008518	0.904014	99.03699	0.058997
8	0.008518	0.904014	99.03699	0.058997
9	0.008518	0.904014	99.03699	0.058997
10	0.008518	0.904014	99.03699	0.058997

Interpretation: The above table of variance decomposition for Kazakhstan shows that Kazakhstan stock market returns are affected about 99% with any shock within Kazakhstan from short run period to long run period. Whereas, any shock in Russian stock market contributed 0.900373% in stock returns of Kazakhstan as in results of war in period one, also from period 2 to 4 there is 0.903 to 0.904% showing little fluctuation or explaining little variance in returns of Kazakhstan in short run period but in long run it explains about 1% variance in said returns from period 5 to 10. Whereas on the other hand, Turkish stock returns explain a very little or no variance in Kazakhstan from period 1 to 10 ranging from 0.05854% to 0.0588997%.

9.6.　　　Table No.4 Variance Decomposition of Turkey

Period	S.E.	RUSSIAINNDEX	KAZAKHSTANINDEX	TURKISHINDEX
1	0.022353	0.113773	0.524276	99.36195
2	0.022401	0.149529	0.665762	99.18471
3	0.022401	0.150965	0.666974	99.18206
4	0.022401	0.151018	0.666983	99.182
5	0.022401	0.15102	0.666983	99.182
6	0.022401	0.15102	0.666983	99.182
7	0.022401	0.15102	0.666983	99.182
8	0.022401	0.15102	0.666983	99.182
9	0.022401	0.15102	0.666983	99.182
10	0.022401	0.15102	0.666983	99.182

Interpretation: the above table of variance decomposition shows that when there is any shock or impulse in Turkey it affects 99.36% of stock returns as its own shock and any shock in Russian market and Kazakhstan market shocks contribute only 0.11% and 0.52% respectively in Turkish stock exchange returns. Whereas within 5 periods it is affected very less by Russian stock market only 0.15% variance in fluctuation is explained by Russia stock market during war and 0.66% variance in fluctuation is explained by other Muslim country Kazakhstan in short run period. In long run period from 4 to 10 period both Russia and Kazakhstan contribute a very little margin of variance with any shock in their respective markets. Hence it is indicated that in only short run shock in Russia has affected Turkish Stock market returns that's also very little even Kazakhstan affect little bit greater than Russia so it is concluded that Turkish market is affected a very little during Russia and Ukraine war during war period as shown in Impulse response function.

10. Conclusion

This research aimed at finding spillover effects of Russia and Ukraine war on Muslim countries stock markets that are developing and near to Ukraine and Russia. The results were conducted by using Impulse response function to find authenticity and variation during period and variance decomposition was used to find contribution of shock in Russia stock market on stock returns of Turkey and Kazakhstan. The results indicated very little variance explained by Russia on both countries of interest i.e Turkey and Kazakhstan, also it was indicated that Kazakhstan has greater influence on Turkey rather than Russian in short run. Also, there was a very little and no response of Russia stock market in long run on both Muslim countries. Further it is suggested to work on other Muslim countries located in southern Europe as only Turkey was taken due to data constraints or oil exporting countries as Russia is affected heavily in this context.

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