Available Online
Journal of Social Sciences Advancement
www.scienceimpactpub.com/jssa
DOI: https://doi.org/10.52223/JSSA24-050418-116

Oil prices and Exchange rates Spillover Effects over SAARC Countries: A case of Russia-Ukraine War

Muzammil Khurshid[1], Muhammad Azeem[2] and Sadia Tariq[1]
[1]Department of Banking and Finance, University of the Punjab, Gujranwala Campus, Pakistan.
[2]Department of Management Sciences, University of Central Punjab, Gujranwala Campus, Pakistan.

ARTICLE INFO

ARTICLE HISTORY
Received: October 19, 2024
Accepted: December 27, 2024
Published: December 31, 2024

KEYWORDS
Exchange rates; Oil prices; Russia-Ukraine war; SAARC; VAR-BEKK-GARCH model; Volatility spillover

ABSTRACT

Russia-Ukraine war has caused global economic disruptions, particularly in oil prices and currency exchange rates. These changes can significantly affect the economies of SAARC countries, which rely on oil imports and are vulnerable to exchange rate fluctuations. The primary aim of this study is to examine the volatility spillover effects between oil prices and the exchange rates of SAARC countries during the Russia-Ukraine war, using the VAR-BEKK-GARCH model. The data for the study covers the period from February 24, 2022, to April 3, 2023. The findings reveal that most SAARC countries, such as Bangladesh, India, and Pakistan, are heavily dependent on oil imports. The study also indicates that the Russia-Ukraine war has had a severe impact on the exchange rates of these countries, demonstrating significant volatility spillover effects between oil prices and exchange rates in the SAARC region. Furthermore, the study concludes that geopolitical conflicts, such as the Russia-Ukraine war, have heightened instability in oil prices, exerting considerable pressure on the exchange rates of oil-importing countries within the SAARC region.

Corresponding Author: Muzammil Khurshid (Email: muzammil.khurshid@pugc.edu.pk)

INTRODUCTION

The Russia-Ukraine war has caused significant disruptions to international energy markets because Russia is an oil-exporting country. Oil prices reached a peak in mid-2022 due to the Russia-Ukraine war which affected the whole world particularly oil-importing nations like the SAARC region because these economies heavily depend on oil imports. The fluctuations in oil prices due to the Russia-Ukraine war have influenced the exchange rates of SAARC countries. SAARC countries are emerging economies that have a high dependence on oil imports. Since these economies are connected by markets around the world, the economies of these countries could suffer effects that go beyond the energy cost in and of themselves like changes in exchange rates because of these price fluctuations. India is considered as third largest oil-importing country and has to face a high current account deficit due to the high exchange rate between the Indian rupee and the US dollar (Khraief et al., 2021). The rest of the major SAARC countries like Pakistan, Bangladesh and Sri Lanka are also experiencing economic instability and severe depreciation in their currencies. As a result, these economies are facing inflation, trade deficit and political instability (Filis et al., 2011).

The economies of SAARC nations, including India, Pakistan, Bangladesh, Sri Lanka, Nepal, Bhutan, Maldives, and Afghanistan, are particularly susceptible to external shocks. This vulnerability is due to their dependence on capital flows and imports, especially oil, whose fluctuating prices can destabilize exchange rates, lead to trade imbalances, increase inflation, and decrease investor confidence. These risks are exacerbated during periods of geopolitical tension, such as the ongoing Russia-Ukraine conflict, which has severely disrupted global oil markets. Authorities must therefore remain vigilant about potential spillover effects on oil prices and exchange rates resulting from such conflicts (Baranidharan & Alex, 2020).

SAARC countries rely heavily on oil imports for energy, transportation, and industrial needs. The situation is further complicated by the diverse economic structures of SAARC nations. For instance, while India has a relatively diversified economy, smaller economies like Bangladesh and Sri Lanka are more vulnerable to external shocks due to their limited economic resilience. Such diversity necessitates context-specific approaches to address the risks to economic stability arising from oil price fluctuations and exchange rate volatility (Nazlioglu et al., 2015).

This research is significant as it seeks to unravel the complex interactions between oil prices and exchange rates in SAARC countries within the context of the Russia-Ukraine conflict. The conflict has heightened uncertainty in global oil markets, which disproportionately affects oil-dependent economies like those in the SAARC region. Understanding

the extent and mechanisms of volatility spillovers between oil prices and exchange rates is vital for several reasons (Abas et al., 2017).

First, the study fills a critical gap in existing literature. While much attention has been devoted to exploring the impact of oil price volatility on exchange rates in major emerging markets, such as the BRICS nations, the SAARC region has received scant attention. Given their unique economic structures and dependence on imported energy, studying SAARC economies offers valuable insights into how global events impact these countries, enriching academic discussions on financial market integration, volatility transmission, and the broader implications of geopolitical events on developing economies (Nazlioglu et al., 2015).

Second, the research has significant policy implications. Policymakers in SAARC nations must understand how oil price volatility influences exchange rates to implement effective fiscal and monetary policies during geopolitical crises, such as the Russia-Ukraine war. By anticipating and mitigating adverse effects like inflation and trade imbalances, policymakers can stabilize their economies and enhance resilience. This is particularly critical for SAARC countries, which often face limited policy options due to their economic development constraints and vulnerabilities.

Third, the findings of this research are relevant to the business and investment communities in the SAARC region. By providing insights into the interplay between oil price shocks and exchange rate dynamics, businesses can make informed decisions regarding pricing, cost management, and investment strategies. This understanding is particularly valuable for industries heavily dependent on energy or exposed to foreign exchange risks. Overall, the study aims to enhance economic stability in the SAARC region by providing actionable insights into how global oil market dynamics affect local exchange rates during geopolitical crises.

South Asia, as represented by SAARC, accounts for approximately 23% of the global population and 15% of the world's arable land. Although its share of global GDP is around 6% (measured by purchasing power parity), the region plays a relatively modest role in international trade and investment flows (Jain & Singh, 2009). Despite being one of the slowest-growing regions in the 1960s and 1970s, South Asia has emerged as one of the fastest-growing regions since the 1980s, with GDP growth rates averaging 5.4% between 1980 and 1999 and 6.8% between 2000 and 2008 (Abas et al., 2017).

Higher domestic savings have driven much of this growth, with gross capital formation nearly doubling from 15.1% in the 1960s to 29.1% by 2008, contrary to global trends that saw a slight decline during the same period. However, many SAARC nations, such as Afghanistan, Nepal, Bhutan, and Bangladesh, struggle to finance their resource needs without external aid, making them vulnerable to fiscal deficits and external shocks (Sawhney, 2010). The region's fiscal position varies significantly across countries, with some, like the Maldives, experiencing severe deficits due to natural disasters, and others, like Bhutan, being sensitive to changes in public expenditure (Erum et al., 2016). Pakistan, Sri Lanka, and Bangladesh have also faced fiscal challenges, often requiring policy adjustments to manage deficits (Sandeep & Nanda, 2011).

Volatility spillover effects are closely associated with the flow of information in financial markets (Ross, 1989). Asset returns and prices can exhibit instability when information arrives in clusters. Research on volatility spillovers provides critical insights into how information is transmitted across markets and assets, revealing intricate interdependencies. For instance, the global oil price serves as a proxy for the state of the global economy, influencing financial markets worldwide. Studies show that volatility transmission patterns vary before, during, and after crises, highlighting the interconnectedness of global markets (Nazlioglu et al., 2015).

Policymakers and investors must understand the factors driving local market fluctuations and the linkages between markets to make informed decisions that mitigate negative impacts. As financial markets become increasingly interdependent, local markets are more susceptible to global shocks. Recognizing these dynamics is essential for developing effective investment strategies, risk management practices, and policy frameworks (Bekaert et al., 2002). Research has shown that stronger financial linkages between countries not only influence economic growth rates but also affect the volatility and stability of economies (Levine, 1997).

Volatility spillovers have long been a subject of interest in finance and macroeconomics due to their implications for risk management, portfolio optimization, and policy formulation. Understanding how volatility in one market or asset influences others is crucial for maintaining financial stability and making informed decisions. The interconnectedness of global financial markets means that shocks in one sector can have far-reaching effects, underscoring the importance of monitoring and managing these spillovers to ensure market stability (Hong, 2001).

The study's results are expected to provide a nuanced understanding of how geopolitical events like the Russia-Ukraine conflict affect the dynamics between oil prices and exchange rates in SAARC countries. By shedding light on these relationships, the research aims to contribute to economic stability and resilience in the SAARC region, helping policymakers, businesses, and investors navigate the challenges posed by global uncertainties.

LITERATURE REVIEW

Commodity price shocks, particularly in crude oil, have been central to academic discussions due to their significant impact on the broader economy. Researchers like Khurshid and Uludag (2017) argue that oil price shocks negatively the economy of the country and stock prices. They explored the connection between oil price fluctuations and financial markets. Zankawah and Stewart (2020) emphasize the role of global money supply in determining oil prices. Their research links the worldwide real M2 to oil price trends, particularly during the market rebound from 2009 to 2011.

The study by Ahmed et al. (2019) suggests that each country reacts differently based on specific policies and economic conditions, thus requiring tailored reforms to limit the adverse effects of oil price shocks. A more recent study by Mehmood et al. (2024) focused on oil prices' long-term negative impact on economic growth across SAARC countries from 1995 to 2023. While short-term effects were less severe, oil prices' volatility was identified as a key factor affecting economic stability. The study recommends reducing dependency on oil by investing in renewable energy sources to ensure sustainable growth. Ahmad et al. (2022) examined the volatility of crude oil prices and its effects on macroeconomic indicators in South Asia. Their findings, using the Vector Auto Regression (VAR) approach, show that oil price fluctuations significantly affect GDP, inflation, and exchange rates in these economies. The study concludes that reducing reliance on oil and shifting towards green energy could mitigate the negative economic impacts of oil price volatility.

Banik and Roy (2021) studied the effects of exchange rate uncertainty on bilateral trade among eight SAARC countries. Azhar et al. (2015) explored the impact of exchange rate volatility on FDI in South Asia. Their study found a negative relationship between exchange rate fluctuations and FDI inflows. This supports previous research suggesting that exchange rate stability is crucial for encouraging foreign investment. Jain and Singh (2009) examined how oil prices influence real exchange rates in countries like Venezuela and Japan. Research by Hameed et al. (2021) found that oil price shocks have a greater impact on exchange rate volatility in oil-exporting countries compared to oil-importing countries. Sawhney (2010) studied the influence of the exchange rate on the volatility of crude oil prices, highlighting the primary role of the US dollar in international crude oil trade. Further research in the literature reveals a broad focus on the relationship between oil markets and exchange rates, particularly the effects of oil prices on currency rates and vice versa. Studies by Nazlioglu et al. (2015) suggested that oil prices and exchange rates have a long-term relationship, with oil price fluctuations being a key driver of exchange rate movements. Research by Ahmed et al. (2019) indicated that changes in exchange rates have an immediate impact on oil prices. Additionally, some studies have examined interactions between oil markets and financial markets, especially stock markets, but the relationship between the US dollar exchange rate and crude oil prices remains understudied.

Similarly, Sandeep and Nanda (2011) investigated intraday relationships between oil price volatility and the US dollar/euro exchange rate, revealing that exchange rate volatility affects oil price volatility, particularly through intraday jumps. A more recent study by Zankawah and Stewart (2020) explored the impact of oil price changes on Ghana's stock market and exchange rate, using multivariate GARCH models. They found that changes in oil prices significantly affected Ghana's exchange rate, regardless of whether oil prices were treated as endogenous or exogenous. The study also highlighted the importance of hedging strategies to protect investors from the volatility caused by oil price shocks.

Although a large body of literature investigates the relationship between oil and exchange rates, most studies assume symmetric responses to oil price changes, not accounting for possible asymmetries. Asymmetric effects are especially important in understanding how oil price increases versus decreases influence currency markets. Banik and Roy (2021) provide contrasting views on oil price shocks. They argues that oil price shocks can significantly impact economic performance by inhibiting investment and consumption, while Levine (1997) suggests that such shocks can stem from changes in demand, with exogenous political events complicating the analysis of oil price changes.

Hong (2001) refined this by proposing a VAR model that incorporates real oil prices, oil supply, and a demand proxy to better understand oil price shocks. The literature indicates that oil price shocks can affect exchange rates in both symmetric and asymmetric ways, with different impacts based on the magnitude and direction of the price changes.

Baranidharan and Alex (2020) examined the spillover effects of exchange rates on the South African stock market from May 2009 to May 2020, using data from the Johannesburg Stock Exchange (JSE). Their analysis revealed that while exchange rate fluctuations had a significant but minimal negative impact on the JSE index, there was no observable causal effect over the long term, suggesting cointegration. The study emphasized that investors should consider exchange rate factors for long-term investment decisions, while policymakers should support export-oriented businesses to stabilize stock markets. Rai and Garg (2022) studied the impact of COVID-19 on volatility spillovers between exchange rates and stock prices in BRICS countries, finding significant risk transfers and negative correlations during the pandemic, which led to decreased stock returns due to capital outflows. Geng and Guo (2022) explored the impact of VIX and oil prices on exchange rate volatility in Belt and Road Initiative (BRI) countries, noting differing effects in the short and long term. Chen et al. (2022) examined asymmetries in volatility spillovers between

crude oil prices, exchange rates, and gold prices across BRICS nations, showing differing interconnections between markets. Balcilar and Usman (2021) analyzed spillovers of exchange rates and oil prices among BRICS nations, revealing significant but small impacts, with Russia being the most affected. Wen et al. (2020) focused on risk spillovers between crude oil prices and exchange rates, finding more pronounced effects in oil-exporting countries, especially after the 2008 financial crisis.

METHODOLOGY

In this research study, to determine the connection between the price of oil and the volatility of exchange rates in SAARC countries in the Russia-Ukraine war of 2022-2023, an analysis of the econometrics for these periods has been used. Yahoo Finance provides real-time information about the fluctuations in currency rates in Pakistan, India, Sri Lanka as well as Bangladesh and oil prices are assessed with the help of West Texas Intermediate (WTI) the most widely used benchmark on international oil markets. The study will examine SAARC countries because of their distinct economic frameworks as well as their varying levels of dependence on imports from oil; both reasons make them particularly vulnerable to shocks external to them like the Ukraine-Russia conflict. In examining 2022-2023 the study aims to reveal the patterns of volatility spillover that may not be apparent in shorter periods. Results of the study will show the importance of changes in oil prices to the exchange rate dynamic and will provide the policymakers in these countries with a crucial understanding. Employing sophisticated statistical tools to provide accurate and reliable outcomes that are representative of every country in the SAARC area.

In this study, the daily information on oil prices and exchange rates of SAARC countries during Russia Ukraine war have been used. Data has been taken from 24 February 2022 to 03 April 2023 with a total no. of observations of 288. The source of data collection is the website of exchange rates, Yahoo Finance, and the source of data collection of Oil prices is the website WTI. We calculated the returns by using these equations:

$$\sigma t2=\alpha 0+\sum i=1q\alpha i\varepsilon t-i2 \quad (1)$$

Here, σt2 at time t, the conditional variance is represented by σt 2.

α0 is a constant.

These are the ARCH coefficients, α i.

The model's lag order is denoted by q.

The squared residuals from the model are denoted as ε t−i **2.

$$\sigma t2=\omega+\sum i=1p\beta i\sigma t-i2+\sum j=1q\alpha j\varepsilon t-j2 \quad (2)$$

Here, at time t, the conditional variance is represented by σ t 2.

A constant is ω.

The GARCH coefficients are β i.

These are the ARCH coefficients, α j.

The lag orders for the GARCH and ARCH terms are, respectively, p and q.

In both models, σt2, is a function of past squared residuals (in the ARCH model) or past squared residuals and previous conditional variances (in the GARCH model), and it indicates the conditional variance of the asset return at time t. The maximum likelihood estimation approach is used to estimate the model parameters (α'sand β) using historical data.

Table 1: SAARC countries

Pakistan	Pakistani rupee (PKR)
India	Indian rupee (INR)
Sri Lanka	Sri Lankan rupee (LKR)
Bangladesh	Bangladeshi taka (BDT)

The GARCH model technique is used to estimate of volatility spillover of exchange rates and Oil prices of SAARC countries during Russia Ukraine war. Two variables are used in this technique, exchange rates and oil prices of SAARC countries (Pakistan, India, Sri Lanka, and To check the volatility spillover effects between Oil prices and exchange rates, we applied the Unit roots test to ascertain the station ability or non-stationarity of a time series, jarque bera test that figuring out if the skewness and kurtosis of a given dataset fit normalcy and ARCH-GARCH modeling to check the forecast volatility spillover of SAARC countries during Russia Ukraine war.

Table 2: Data Description

Variables	Description	Source
Exchange Rate	The exchange rate is used to convert one currency into one that is more suitable for the other. Their significance is apparent in international finance and commerce because they determine what amount of one currency can be exchanged with another.	Yahoo Finance
Oil Prices	West Texas Intermediate (WTI) which is used as the primary global benchmark for oil prices could be used as an indication of the price of oil in different markets around the world.	WTI (West Texas Intermediate)

The data on exchange rates was obtained using Yahoo Finance in this study for reliable, current analysis. Exchange rates are essential to the role in international finance as well as commerce, determining their value with one another as well as influencing the global dynamics of trade. Understanding the relationship between exchange rates is important during conflicts between Russia and Ukraine as they affect financial exchanges between countries. Recognizing the relationship between exchange rates will assist in analyzing financial relationships between them more accurately and precisely. Yahoo Finance provided reliable exchange rates used in this study as the basis for the analysis. Since oil prices play an important part in this study, West Texas Intermediate (WTI) is the world reference point. WTI acts as an indicator of price changes in the oil market across markets around the world and assists in understanding the wider economic implications - crucial when geopolitical crises occur, such as the Russian-Ukraine War. It also provides an understanding of their larger impacts on exchange rates across SAARC countries. The data was all directly extracted from WTI to guarantee the most accuracy and relevance to the research study.

RESULTS & DISCUSSION

Skewness measures the distribution's asymmetry. A longer right tail is indicated by positive skewness and a longer left tail by negative skewness. India, for instance, has a very high positive skewness of 8.062015, which suggests that its distribution is strongly skewed to the right. Kurtosis quantifies how flat or peaky a distribution is about a normal distribution. When compared to a normal distribution, a sharper peak (leptokurtic) is indicated by a high kurtosis. According to the table, Sri Lanka has a highly peaked distribution with an extremely high kurtosis of 9.86973. A normality test is the Jarque-Bera test. The data for each nation and the "Oil" variable may extremely depart from a normal distribution, according to a JB statistic of 0.0000. This table displays the total number of 287 observations for the Exchange rates "variable" in each nation and the "Oil" variable.

Table 3: Descriptive Statistics

Country	Pakistan	India	Sri Lanka	Bangladesh	Oil
Mean	219.5334	79.92744	343.5921	95.47194	91.68913
SD	28.48311	2.412077	36.57957	7.51746	14.27639
Min.	174.6071	74.633	197.9032	83.74468	66.61
Max.	283.8298	82.997	366.5432	106.6861	123.64
Skewness	1.262258	8.062015	0.1137407	5.825326	-1.381386
Kurtosis	2.799844	1.787098	9.86973	1.551023	1.942924
JB	0.0000	0.0021	0.0000	0.0000	0.0000
No. of obs	287	287	287	287	287

Table 4: Dickey-Fuller test for unit root

Countries	Test statistics	1% Critical	5% Critical	10% Critical
Pak	-0.059	-3.457	-2.879	-2.570
Ind	-2.003	-3.457	-2.879	-2.570
SL	-4.762	-3.457	-2.879	-2.570
Bng	-1.780	-3.457	-2.879	-2.570
Oil	-1.623	-3.457	-2.879	-2.570

The Dickey-Fuller test performed on various SAARC countries and oil prices can provide insight into the stationarity of these factors. The Pakistan test statistic of -0.059 surpasses the critical value for all three significant levels (-3.457, -2.879 and -2.570 according to) which suggests that no unit root could be invalidated therefore the exchange rate series of Pakistan isn't stationary. India, as well as Pakistan both, showed test results that were higher than the critical values of any significance level; this means that their exchange rates were not stationary. Sri Lanka on the other however, had test results below all critical values, indicating that the idea of unit root was debunked as well as their exchange rate series were stationary.

Table 5: Regression Analysis

Variable	Coefficient	Std. Error	t-Statistic	Prob.
PAKISTAN	-0.007206	0.006300	-1.143927	0.2536
BANGLADESH	0.680492	0.019723	34.50247	0.0000
SRI_LANKA	0.000961	0.003032	0.317092	0.7514
OIL	0.176395	0.005211	33.85076	0.0000

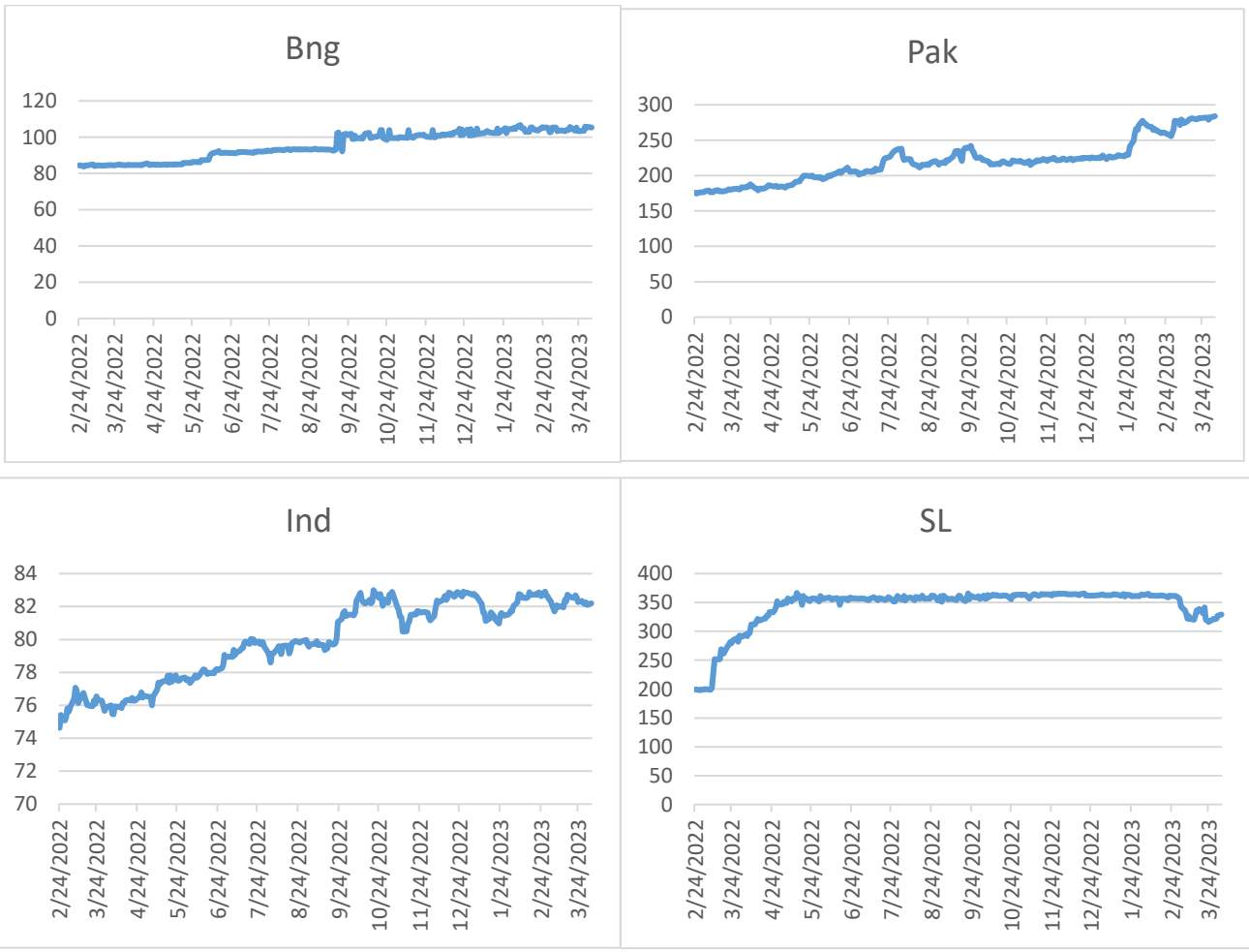
The table below contains the findings from a regression analysis that analyzed the connection between exchange rates for Pakistan, Bangladesh, and Sri Lanka with oil prices. Its interpretation is that the analyses of regression show

the varying impact of Pakistani, Bangladeshi, and Sri Lankan exchange rates, as well as the prices of oil on the dependent variables they depend upon; in the case of Pakistan, the coefficient is -0.0072 that suggests a slightly negative correlation. The overall conclusion is the fact that Pakistan as well as Sri Lanka's exchange rate do not have a significant impact on Bangladesh's dependent variable. However, their exchange rates and oil prices play a significant part.

Table 6: ARCH & GARCH Test

Oil	Coef.	OPG Std.Err.	Z	P> |z|	(95%Conf.	Intervals)
Pak	.0031962	.01456	0.22	0.826	-.0253408	.0317332
Ind	-2.365278	.3116689	-7.59	0.000	-2.976138	-1.754418
SL	.0622994	.0097294	6.40	0.000	.0432301	.0813687
Bng	-.7871057	.1093121	-7.20	0.000	-1.001354	-.5728579
_cons	330.2842	15.4158	21.43	0.000	300.0698	360.4986
ARCH	1.050476	.2238948	4.69	0.000	.6116503	1.489302
	.0081461	.0920465	0.09	0.929	-.1722617	.1885539
_cons	3.737811	1.105511	3.38	0.001	1.571049	5.904572

The ARCH, as well as GARCH models, help analyze time-series data like the price of oil by analyzing its fluctuation over time. Your results include coefficients, standard error, and the z-values of z-values as well as p-value intervals that are based on the impact of oil upon exchange rates across Pakistan, India, Sri Lanka and Bangladesh. ARCH and GARCH results offer insight into the turbulence and impact of the oil price on the exchange rates of Pakistan, India, Sri Lanka and Bangladesh. Particularly in Pakistan, the impacts of oil on exchange rates are estimated at 0.0032 and the standard error of 0.0146 with a z-value of 0.22 and a p-value of 0.826 the results indicate that there is no impact of oil's influence on the exchange rate in this analysis. India however, on the other however, showed a correlation of -2.3653 and an S.E. of 0.33117 with a barely significant number of P values (less than 0.000) which suggests an enormously negative correlation between the price of oil and India's exchange rate. The fluctuation can likely have an immense impact on the exchange rate, resulting in a greater loss of value as increased oil prices impact the exchange rate of India more profoundly than they did before.



The graph details and is precise the major decrease in the Pakistani Rupee (PKR) in the course of the result of the war between Russia and Ukraine and underlines the economic challenges faced by Pakistan currently. When it was at its initial level at the time of the February 24th, 2022 date at the time of war, about 175 PKR was in the range of US

Dollars. This marked the beginning of its decline as the disruptions brought on by war led to issues with supply chains, which impacted economies across the globe, especially through disruptions to the oil market that had a wide impact on the entire world. Graph No. 3 illustrates the effects of the war between Russia and Ukraine on exchange rates in Sri Lanka. The graph highlights the major fluctuations in the worth of Sri Lankan currency during this time. At the beginning of the war, the exchange rate was around 200. With the progress of war and international economic concerns grew as did the risk of inflation, the rate of exchange increased to about 350. Graphic No. 4. Illustrates the effect of the Russia-Ukraine conflict and the increasing oil prices in Bangladesh currency exchange rates and particular exchange rate devaluation in this period. On the 2nd of February 2022, the Bangladeshi Taka was worth about 84. However, as the war grew more intense, the price of oil skyrocketed, slowly growing to an exchange rate of 105 around the 24th March of 2023. This increase in exchange rates suggests a decline in Bangladesh's Taka against the major currencies because of the rising prices for oil imports resulting from war's disruption of supply to the world - stressing the reserves of foreign currency which could lead to its loss of value. Graphic No. 5 offers a thorough review of the fluctuating prices for oil during the war between Ukraine and Russia, which shows the significant impact on global energy markets. When the war began on February 2, 2022, oil prices were around $92 a barrel, and then increased immediately following the outbreak of war and eventually reached $120 per barrel. The graph illustrates this price increase in detail. The initial price increases are often linked to anxiety about the possibility of interruptions in global oil supply which includes Russia being one of the major exporters. Their analysis revealed that nations with diverse energy portfolios had lesser volatility in exchange rates - the contrast is highlighted in the study's findings. Lawal, Somoye, & Babajide noted the importance of the energy policy in managing stability in the economy in times of global crisis. Our comparison illustrates its essential nature. Nazlioglu et al. (2015) carried out a study that examined the relationship between the price of oil as well as exchange rates for emerging market economies. This research further supports our findings. Their research revealed that emerging economies are particularly vulnerable to shocks in the price of oil when there is global uncertainty Their findings are in line with our research findings showing that SAARC countries (characterizing the emerging market category) were subject to significant volatility in the Ukraine-Russia conflict, as well as exchange rate fluctuations felt during the conflict as well as beyond, they highlighted the emerging market's vulnerability from shocks external to world oil markets in the course of.

CONCLUSION

This research has offered an exhaustive analysis of the impacts of volatility on the exchange rate and prices of oil within SAARC nations during the Russia-Ukraine war and reveals their tangled connection. Results show that geopolitical conflicts, such as the Russian-Ukraine war can increase instability in the oil market, which puts massive pressures on exchange rates in countries that depend on energy imports, such as those in SAARC regions such as Zambia or Sudan which import oil through SAARC regions in a way that highlights the impact that geopolitical events from outside could affect the financial well-being of countries that depend on the energy supply to be able to grow economically. The most important conclusion from the study one of the most important findings was India as well as Bangladesh's vulnerability to volatility in oil prices, particularly India and Bangladesh's substantial reduction in their value in times of conflict, because of their dependency on imported energy sources This dependency leaves the countries vulnerable to shocks from outside and hinders their ability to react effectively in times of crisis. As per this research, if there are no strategic changes in the energy policies of these countries, they could be vulnerable to shocks similar to those which could affect long-term growth as well as stability.

The study's findings of the fluctuating correlations between oil exchange rate and price also highlight the intricate interdependencies of financial systems across the globe. The fluctuation of these correlations in time, particularly when there is geopolitical conflict indicates that conventional, static models of economics may not be able to fully comprehend all the aspects of these interactions consequently, it is necessary to shift toward more advanced dynamic models that can account for changing environments and the economies. The exchange rate that Pakistan's currency was able to maintain during its battle, despite comparable external forces, offers an interesting instance of resilience to economic pressures. It could be due to the effectiveness of policy-making measures related to the management of energy as well as strategic reserves and the intervention of foreign exchange, but this should not be a reason to cause complacency. The global oil market is not stable, consequently, constant monitoring and proactive decision-making are essential to ensure peace.

There are limitations in this research for instance, its focus on an event of geopolitical significance and its use of linear models are a signal for further research. Expanding the geographical range, including nonlinear models, and analyzing the macroeconomic aspects would provide a better understanding of the interaction between the oil price and exchange rates and also provide more understanding of their intricate interactions. Furthermore, the results of this research emphasize the need for vigorous policy interventions like diversifying the reserve reserves for strategic resources in energy and regional cooperation to build resilient Ness to future global stressors. This will help protect SAARC nations to withstand the possibility of future global shocks. Athenaeum gives you a wide range of options regarding properties. The core of this study does more than contribute to our knowledge of how geopolitical factors impact the financial markets of emerging economies and, in particular, SAARC countries, but is also adamant about

the need to implement comprehensive strategies for the future to minimize the negative volatility of exchange rates impacts and to ensure stability in the economy. As the global interdependencies grow and countries' capacity to manage external shocks efficiently is becoming more crucial in ensuring economic and financial resilience. Policymakers need to recognize the importance of investing, not only in crises but also for long-term resilience by investing in diversification and energy security strategies to shield economies from the effects of uncertain global geopolitics and ensure a more secure future. These measures are the only way to bring lasting prosperity.

REFERENCES

Abas, N., Kalair, A., Khan, N., & Kalair, A. (2017). Review of GHG emissions in Pakistan compared to SAARC countries. *Renewable and Sustainable Energy Reviews, 80*, 990-1016.

Ahmad, I., Iqbal, S., Khan, S., Han, H., Vega-Muñoz, A., & Ariza-Montes, A. (2022). Macroeconomic effects of crude oil shocks: Evidence from South Asian countries. *Frontiers in Psychology, 13*, 967643.

Ahmed, K., Bhutto, N. A., & Kalhoro, M. R. (2019). Decomposing the links between oil price shocks and macroeconomic indicators: Evidence from SAARC region. *Resources Policy, 61*, 423-432.

Azhar, A., Ullah, N., & Malik, Q. A. (2015). Effect of exchange rate volatility on foreign direct investment in SAARC countries. *Middle-East Journal of Scientific Research, 23*(2), 350-356.

Balcilar, M., & Usman, O. (2021). Exchange rate and oil price pass-through in the BRICS countries: Evidence from the spillover index and rolling-sample analysis. *Energy, 229*, 120666.

Banik, B., & Roy, C. K. (2021). Effect of exchange rate uncertainty on bilateral trade performance in SAARC countries: a gravity model analysis. *International Trade, Politics and Development, 5*(1), 32-50.

Baranidharan, S., & Alex, A. (2020). Volatility spillover of exchange rate on stock market evidence from South Africa. *Asian Journal of Economics, Finance and Management*, 131-139.

Bekaert, G., Harvey, C. R., & Lundblad, C. (2002). *Growth volatility and equity market liberalization*. Retrieved from: https://citeseerx.ist.psu.edu/document?repid=rep1&type=pdf&doi=713ba30a1065159a5b191301999a17e14441b884.

Chen, Y., Xu, J., & Hu, M. (2022). Asymmetric volatility spillovers and dynamic correlations between crude oil price, exchange rate and gold price in BRICS. *Resources Policy, 78*, 102857.

Erum, N., Hussain, S., & Yousaf, A. (2016). Foreign direct investment and economic growth in SAARC countries. *The Journal of Asian Finance, Economics and Business, 3*(4), 57-66.

Filis, G., Degiannakis, S., & Floros, C. (2011). Dynamic correlation between stock market and oil prices: The case of oil-importing and oil-exporting countries. *International review of financial analysis, 20*(3), 152-164.

Geng, X., & Guo, K. (2022). The spillover effect of VIX and oil price on the exchange rate volatility among Belt and Road countries. *Procedia computer science, 199*, 765-772.

Hameed, Z., Shafi, K., & Nadeem, A. (2021). Volatility spillover effect between oil prices and foreign exchange markets. *Energy Strategy Reviews, 38*, 100712.

Hong, Y. (2001). A test for volatility spillover with application to exchange rates. *Journal of Econometrics, 103*(1-2), 183-224.

Jain, R., & Singh, J. (2009). Trade pattern in SAARC countries: Emerging trends and issues. *Reserve Bank of India Occasional Papers, 30*(3), 73-117.

Khraief, N., Shahbaz, M., Mahalik, M. K., & Bhattacharya, M. (2021). Movements of oil prices and exchange rates in China and India: New evidence from wavelet-based, non-linear, autoregressive distributed lag estimations. *Physica A: statistical mechanics and its applications, 563*, 125423.

Khurshid, M. and Uludag, B. K. (2017). Shock and Volatility Spillovers Between Oil and Some Balkan Stock Markets, Romanian Journal of Economic Forcasting, 20(4), 47-59.

Levine, R. (1997). Financial development and economic growth: views and agenda. *Journal of economic literature, 35*(2), 688-726.

Mehmood, K. A., Riaz, F., Ilyas, S., & Sadiq, Z. (2024). Oil Prices and Economic Growth in SAARC Members Countries. *Pakistan Journal of Society, Education and Language (PJSEL), 10*(2), 1-15.

Nazlioglu, S., Soytas, U., & Gupta, R. (2015). Oil prices and financial stress: A volatility spillover analysis. *Energy policy, 82*, 278-288.

Rai, K., & Garg, B. (2022). Dynamic correlations and volatility spillovers between stock price and exchange rate in BRIICS economies: Evidence from the COVID-19 outbreak period. *Applied Economics Letters, 29*(8), 738-745.

Ross, S. A. (1989). Information and volatility: The no-arbitrage martingale approach to timing and resolution irrelevancy. *The Journal of Finance, 44*(1), 1-17.

Sandeep, K., & Nanda, P. (2011). An analysis of actual and potential exports of Pakistan with SAARC countries: A panel data analysis. *Pakistan Journal of Applied Economics, 21*(1 & 2), 69-91.

Sawhney, U. (2010). Growth and structural change in SAARC economies. *International Journal of Economics and Finance Studies, 2*(2), 95-103.

Wen, D., Liu, L., Ma, C., & Wang, Y. (2020). Extreme risk spillovers between crude oil prices and the US exchange rate: Evidence from oil-exporting and oil-importing countries. *Energy, 212*, 118740.

Zankawah, M. M., & Stewart, C. (2020). Measuring the volatility spill-over effects of crude oil prices on the exchange rate and stock market in Ghana. *The Journal of International Trade & Economic Development, 29*(4), 420-439.