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Geopolitical Risks Influencing Oil Price Behaviour Globally

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ABSTRACT

Oil has been a significant source of energy for the global economy since the last industrial revolution and serves as the primary energy source for both industries and transportation. The study also mentioned that oil price volatility has main points for both policymakers and also for macroeconomics due to its overall specific macroeconomic implications. The study has examined that geopolitical risk is highlighting a number of uncertainties and major threats that are directly arising from many aspects. In addition to this, it has been analysed in this paper that the oil markets globalization has effectively built an interconnected system where a number of geopolitical risks that are involved in even one region can have different effects throughout the world. Geopolitical risks focus on shaping the behaviour of global oil prices, influencing the dynamics like economic growth, supply chains and market stability. This study focuses to analysing how political instability, supply chain disruptions and trade policies affect oil prices through using a mixed-method approach, which combines primary quantitative data, survey analysis through IBM SPSS and secondary quantitative through thematic analysis. The findings of the study indicate that geopolitical crises are inducing some significant volatility in the prices of oil, with asymmetric impact between different forms of geopolitical events. The study also shows a strong relationship between factors like supply chain disruptions, political instability and fluctuations in the prices of oil.

Keywords: Geopolitical risks, oil price behaviour, economic uncertainty, supply disruptions, trade policies, political instability, and energy market volatility.

1. INTRODUCTION

1.1 Context and Importance of Oil in the Global Economy

Oil has been a keystone of the global economy since the industrial revolution, further serving as the main energy source for many industries and transportation. The unique role of oil has been extended to powering many vehicles and accurately generating electricity. This is also effectively serving as a significant raw material for many industrial processes along with petrochemicals as well. The strategic significance of oil is evident within its ability to accurately drive urbanization, industrialisation and also effectively drive technological advancements. Both developed as well as developing nations are exhibiting almost a heavy dependence on both oil exports and oil imports (Matteoiacoviello.com, 2025). While, many oil-exporting countries such as Saudi Arabia, Venezuela and also Russia mainly rely on the revenues of oil to fund their different national budgets and also including many social programs.

1.2 Introduction to Oil Price Volatility

Oil price volatility has been on epf the main points for both policymakers as well as macroeconomics mainly because of its overall specific macroeconomic implications. The fluctuating prices of oil have almost a direct influence on the rates of inflation. While the prices of oil rise then ultimately the costs of both production and transportation will increase, and it is also directly leading to higher customer prices for many services and goods. This particular phenomenon has been notably seen mainly during the 1973 OPEC oil embargo. It has further triggered energy crises worldwide and also led to surging inflation within many countries that are oil importing.

The effect of oil price volatility has been extended to values of currency specifically for many countries that are mainly reliant on both oil or even oil imports. For many oil exporting nations such as Russia or Saudi Arabia also, the higher prices of oil has been strengthening the currencies because of constantly increasing exchange earnings (Eia.gov, 2025). While, in terms of growth of GDP, the oil price volatility is ultimately creating uncertainty for both consumers as well as businesses. The high price is the factor that can directly suppress the growth of the economy through decreasing consumer spending. At the same time, low prices can also benefit many oil-importing countries through reducing revenues.

1.3 Geopolitical Risks and Their Link to Oil Prices

Geopolitical risk is mainly indicating a number of uncertainties along with threats that directly arise from many aspects. These aspects include political instability, and several conflicts and these are also emerging due to several trade policies along with diplomatic tension (Eia.gov, 2025). All these are directly disrupting market dynamics and also have a direct impact on the global economy. All these risks are specifically significant within the context of the multiple oil markets as they mostly originate within several producing regions.

1.4 Historical Impact of Key Geopolitical Events on Oil Prices

The history associated with the oil market has been replete with different examples of how several geopolitical events have been the key areas in shaping the numerous price trends. It has been seen that the 1973 OPEC oil embargo has been the reason that has directly led to dramatic changes associated with oil prices. It also sent many shockwaves across economics worldwide (Slav, 2025). At the same time the Gulf Wars within the 1990s disrupted the supplies of oil that are mainly from the Middle East. It is a region that is very responsible for specific areas of production at a global level.

1.5 Globalization and Interconnected Markets

The oil market globalization has accurately built an almost interconnected system where a number of geopolitical risks that are also even one region can have many effects throughout the world. For example, it has been seen that many disruptions that are within Middle Eastern oil production often directly lead to price hikes within many regions including Asia, and Europe, and it also includes the Americas because of the integrated nature associated with global trade (Eia.gov, 2025). The reliance that is mainly on international oil trade has accurately underscored the global market vulnerability related to global markets to many regional instabilities. Speculative trading within financial markets is playing a significant role in the volatility of oil prices.

1.6 Significance of Research

The study seeks to effectively address the significant gap within getting a clear understanding of how many geopolitical risks are influencing the price behaviour of oil at a global level. However getting an understanding regarding the impact of many geopolitical risks has been very significant for both practical application as well as academic research. This research is also accurately contributing to the energy field economies. It is further offering many deep insights into the mechanisms by which many events are shaping oil behaviour. From a practical view, the research holds specific implications for investment decisions and also formulation of policy. Additionally, many businesses that are mainly dependent on oil like airlines, several logistics companies along with different manufacturing industries can effectively mitigate the risk by using the study. It allows them to anticipate the price fluctuations along with plan contingencies.

Research Objective Statement: To accurately investigate how multiple geopolitical risks including different wars, multiple sanctions, and also political instability are affecting oil prices worldwide, recognising patterns within oil price behavior within the time of increased risk

2. LITERATURE REVIEW

Symmetric and Asymmetric Effects of Geopolitical Risks on Energy Markets

GPR "Geopolitical risks" directly influence many energy markets, further with both symmetric along with major asymmetric effects. However it has been identified that Symmetric effects mainly imply that both positive and also many negative shocks associated with geopolitical aspects almost have the same magnitudes of impact. On the other hand, asymmetric effects directly suggest many differing impacts. For example, it has been explored by Yuen, 2022, that multiple acts and even threats of several geopolitical risks have driven the prices of oil. It further emphasized the overall asymmetric nature of all these impacts. At the same time, Chowdhury et al. (2025) have accurately highlighted multiple transmission dynamics related to GPR in emerging energy markets. It is also showing that many geopolitical events mostly lead to a number of short-term volatility but also it may stabilize within the long term.

Methodologies

Nonlinear ARDL Models: These models have been significant and are also adapting even at accurately capturing short-term as well as long-term asymmetries.It is in the relationship between many geopolitical risks and several oil prices (Özçelik, 2023). For instance, the paper has accurately used nonlinear ARDL in order to systematically analyze how several geopolitical shocks have been propagated by energy markets.

GARCH Models: GARCH "Generalized Autoregressive Conditional Heteroskedasticity" models have been mainly used to accurately predict volatility within oil prices mainly because of several geopolitical risks (Yang et al. 2021). At the same, they are specifically effective within modelling data time-series that are only with clustered volatility.

DSGE Frameworks: **DSGE "**Dynamic Stochastic General Equilibrium" models are accurately providing a significant perspective related to macroeconomics. This further incorporating the overall impacts of many geopolitical risks on prices of oil even in a general equilibrium phase (Zhang, Fang & Chen, 2022). All these models are very significant and valuable for both policy analysis and also significant for accurate forecasting.

Short-Term vs. Long-Term Impacts

Short-Term Impacts: There are many geopolitical events that mostly have almost immediate spikes within the oil prices because of supply disruptions or also due to market panic. It has been identified that geopolitical risks are ultimately increasing the prices of the oil. While their direct influence on several macroeconomic fluctuations has found to be almost limited.

Long-Term Impacts: Over many times, most of the markets have tended to accurately adjust to many geopolitical shocks. However, it has been seen that the initial reactions to several geopolitical threats are considered as significant. It is also essential to consider that their long-term effects on oil prices are almost moderated through mechanisms of the market.

3. RESEARCH QUESTIONS AND HYPOTHESES

3.1 Research Questions

RQ 1: How do geopolitical risks impact global oil price fluctuations?

RQ 2: What are the influences of supply chain disruptions on oil price volatility?

RQ 3: Do international trade policies contribute to long-term instability in oil prices?

3.2 Research Hypotheses

H1: Geopolitical risks have a significant positive influence on oil price volatility.

H2: Supply chain disruptions increase oil price fluctuations, particularly in major oil-producing regions.

H3: Trade policy changes have a long-term effect on oil market instability.

4. RESEARCH METHODOLOGY

This study adopts a mixed-method research approach, integrating primary quantitative and secondary quantitative to explore the relationship between geopolitical risks and oil price behaviour. In order to better understand the topic, the study used an exploratory research design, which aimed to examine and assess the results from a variety of viewpoints (Al-Ababneh, 2020, p.78). A questionnaire was distributed through Google form to the 71 participants to analyse geopolitical risk perceptions on the volatility of oil prices. The survey involves Likert-scale questions measuring supply chain disruptions, political instability, trade policies and speculation. The collected data was examined by using IBM SPSS, which includes analysis like reliability analysis, descriptive statistics, correlation analysis and regression & ANOVA analysis. IBM SPSS is integrated for the evaluation of findings through statistical measures (Rahman & Muktadir, 2021, p.301). For Secondary Quantitative data through Thematic Analysis, the study includes previous research on oil market reactions to geopolitical risks, historical oil price trends and policy reports. Sources like OPEC, IMF, World Bank, and the Caldara and Iacoviello Geopolitical Risk Index.

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5. DISCUSSION

5.1 Primary Quantitative

Reliability test

Table 1: Reliability test

Reliability Statistics	
Cronbach's Alpha	**N of Items**
.929	**9**

For assess the internal consistency of survey, a Cronbach's Alpha reliability test conducted across all of the variables. The results yield a high-reliability score of 0.929 across 9 items, indicating strong internal consistency. This suggests that the instrument of the survey effectively captures perceptions of the geopolitical risks influencing the prices of oil.

Demographic statistics

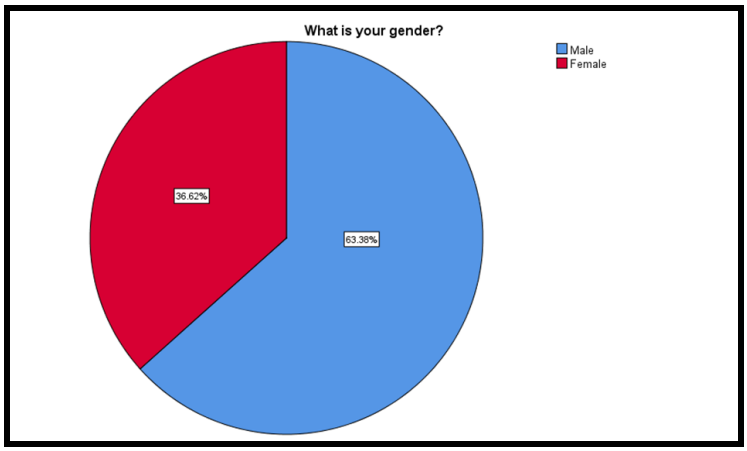

Figure 1: Gender demographics (Source: IBM SPSS)

As the graph above illustrates, of the 71 participants, 63.4% were male, and 36.6% were female. This distribution aligns with the discussion of industry expectations, where economic research fields and energy markets have a high male representation.

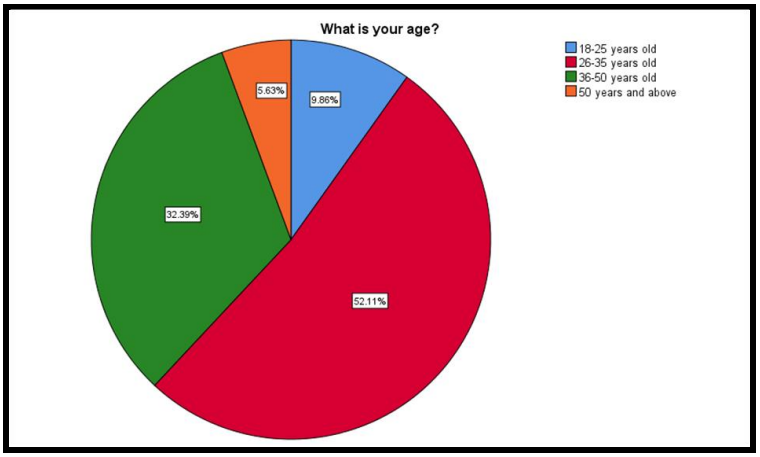

Figure 2: Age demographics(Source: IBM SPSS)

The graphical representation above indicates that the sample consisted of 71 respondents, categorised into four age groups. The majority (52.1%) were 26-35 years old, followed by 36-50 years old (32.4%). The youngest group (18-25 years old) accounted for 9.9%, while only 5.6% were 50 years and above. This distribution illustrates that most of the respondents are belong to working-age population, who are more likely to engage in the trend of the economic and energy market.

Descriptive Analysis

Table 2: Descriptive Statistics

Descriptive Statistics		
	Mean	Std. Deviation
"Fluctuations in oil prices significantly impact a country's economy, affecting fuel costs, inflation, and overall market stability, making it important to predict and monitor oil price trends".	2.72	.988
"Political instability, wars, and international sanctions directly influence global oil prices, leading to significant market uncertainty and frequent price fluctuations".	2.83	1.195
"The presence of geopolitical tensions in key oil-producing regions, such as the Middle East or Russia, disrupts global oil supply chains and contributes to long-term price volatility".	2.85	1.179
"Changes in international trade policies, such as tariffs or export restrictions on oil, create uncertainty in global oil markets and lead to unpredictable price swings".	2.79	1.182
"Major geopolitical crises, like military conflicts or diplomatic breakdowns, trigger speculative trading in oil markets, further amplifying price fluctuations".	2.87	1.218
"Oil supply chain disruptions, including production halts, refinery shutdowns, or blocked transport routes, lead to increased oil prices worldwide".	2.62	1.313
"Natural disasters, cyber-attacks, or infrastructure failures in key oil-producing nations severely impact global oil supply and contribute to price volatility".	2.54	1.193
"The reliance on specific oil-exporting countries increases the vulnerability of global markets to supply chain shocks, affecting long-term oil price stability".	2.65	1.243
"Government-imposed restrictions on oil exports or sudden production cuts by major oil-producing nations significantly impact oil prices in both the short and long term".	2.66	1.095

The above tabular representation illustrate that the descriptive statistical analysis revealed that most respondents agreed that risks of geopolitical affect the behaviour against prices of oil. Mean score for the geopolitical risk variables are mainly ranged from 2.72 to 2.87, and its standard deviations stand between 0.988 and 1.313, suggesting a moderate variability in responses.

Correlation Analysis

Table 3: Correlation analysis between DV and IVs

Correlations	
	"Fluctuations in oil prices significantly impact a country's economy, affecting fuel costs, inflation, and overall market stability, making it important to predict and monitor oil price trends".

Pearson Correlation	"Political instability, wars, and international sanctions directly influence global oil prices, leading to significant market uncertainty and frequent price fluctuations".	.673
	"The presence of geopolitical tensions in key oil-producing regions, such as the Middle East or Russia, disrupts global oil supply chains and contributes to long-term price volatility".	.722
	"Changes in international trade policies, such as tariffs or export restrictions on oil, create uncertainty in global oil markets and lead to unpredictable price swings".	.658
	"Major geopolitical crises, like military conflicts or diplomatic breakdowns, trigger speculative trading in oil markets, further amplifying price fluctuations".	.741
	"Oil supply chain disruptions, including production halts, refinery shutdowns, or blocked transport routes, lead to increased oil prices worldwide".	.522
	"Natural disasters, cyber-attacks, or infrastructure failures in key oil-producing nations severely impact global oil supply and contribute to price volatility".	.493
	"The reliance on specific oil-exporting countries increases the vulnerability of global markets to supply chain shocks, affecting long-term oil price stability".	.488
	"Government-imposed restrictions on oil exports or sudden production cuts by major oil-producing nations significantly impact oil prices in both the short and long term".	.637

The correlation analysis for the above tabular representation showed a strong positive relationship between geopolitical risks and oil price fluctuations. The highest correlation was observed between geopolitical tensions in key oil-producing regions and oil price volatility ($r = 0.722$, $p < 0.001$). Political instability, trade policies, and supply chain disruptions also showed statistically significant correlations with oil price fluctuations, supporting the hypothesis that geopolitical risks directly impact oil price behaviour.

Regression Analysis

Model Summary

Table 4: Model Summary

Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Change Statistics

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					R Square Change	F Change
1	.828[a]	.686	.645	.589	.686	16.893

a. Predictors: (Constant), Government-imposed restrictions on oil exports

The study's model summary assessed the linear regression between the study's dependent and independent variables, especially with the goal of investigating into the relationship between the oil price behaviour and geopolitical risks index, and supply chain disruption. The regression model yields R-squared value of 0.686, illustrating, 68.6% of oil price fluctuations are explained through trade policies, geopolitical risks and supply chain disruptions. It suggests that the geopolitical factors play an important role in determining the behaviour of oil price.

ANOVA

Table 5: ANOVA

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	46.866	8	5.858	16.893	.000[b]
	Residual	21.500	62	.347		
	Total	68.366	70			

a. Dependent Variable: Oil price Behaviour

b. Predictors: (Constant), Government-imposed restrictions on oil exports

The importance of the linear relationship between the study's independent and dependent variables is demonstrated in the above table. The above table indicates that ANOVA results confirmed that the overall model is statistically significant, the value of $F = 16.89$, $p < 0.001$, shows that the independent variables collectively influence the fluctuations in the oil price.

5.2 Secondary Quantitative

Role of Geopolitical Risk within Oil Market Dynamics and Freight Rates

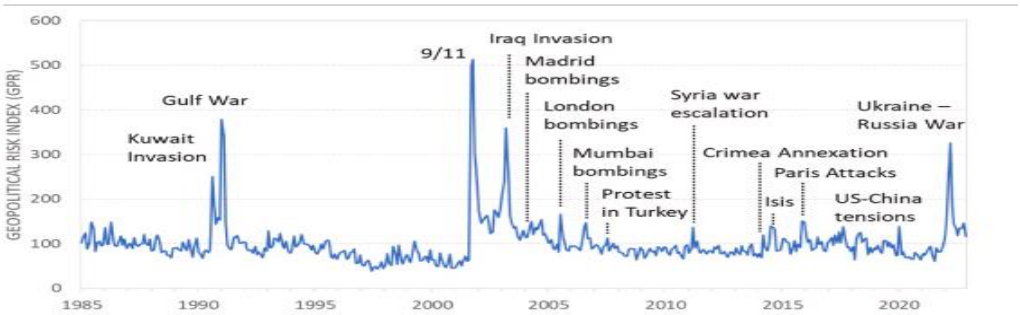

Figure 5.2.1: Geopolitical Risk Index (Source: Monge et al. 2023)

Many geopolitical events mostly lead to immediate spikes that are within prices of oil mainly due to fears associated with supply disruptions. The above graph is accurately illustrating the fluctuations that exist within geopolitical risks that are mainly from the year1985 to the recent year 2022 and it has been directly measured by the GPR. In 1990 to 1991, the Kuwait Invasion along with Gulf War has been the reasons that has increased geopolitical risks. In 2003, the Iraq Invasion marked another major peak and in 2014 (Monge et al. 2023). The Crimea Annexation along with the ISIS rise has led to several geopolitical risks. It has impacted production of oil in various regions.

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In 2022, the Ukraine-Russia War has directly resulted within the highest peak that has further underscored the great influence even in the energy market at a global level. The Russia–Ukraine war has caused a specific surge within crude oil prices. It is also with prices of WTI crude have been increasing by approximately 52.33% and also prices of Brent crude oil by around 56.33% mainly during the particular event (Zhang et al. 2024). Furthermore, many geopolitical conflicts have been amplifying the price volatility and fundamentally exchanges several price trends.

Effect of Geopolitical Conflicts on Oil Price Volatility

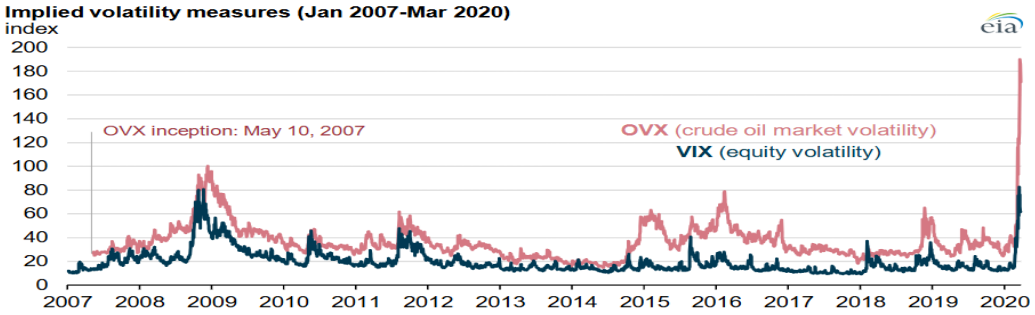

Figure 5.2.2: Implied Volatility Measures (Source: Eia.gov, 2020)

The above graph accurately represents two main key indices and these are OVX, which is Oil Volatility Index and the other one is VIX, which is the Equity Volatility Index. The y-axis measures the volatility on a particular scale that is from 0 to 200. On the other hand, the x-axis spans from 2007 to the year 2020 (Eia.gov, 2020). However, the graph is accurately highlighting a particular spike within both indices during the beginning of the year, 2020. This has also reflected the high uncertainty along with market disruptions that have been mainly merged because of the numerous geopolitical conflicts and also because of many other global events.

The several risks associated with Geopolitical factors have directly led to many expectations of the pessimistic market. It is further driving up prices of oil prices and it is mainly because of the fears associated with supply disruptions. On the other hand, the particular Freight rates have also been impacted, further evaluating the wider economic implications regarding overall geopolitical tensions (Monge, Rojo & Gil-Alana, 2023). However, on average, it has been identified that a global geopolitical shock has been one major factor that has put downward pressure directly on the price of oil.

6. FINDINGS AND CONCLUSION

6.1 Findings

The study offers valuable insight into how trade policies, supply chain disruption and geopolitical risks affect the fluctuation of the prices of oil. The study findings indicate that political instability, international sanctions and wars have a direct influence on the prices of oil through creating economic uncertainty and disrupting supply chains. Crude oil prices have significantly increased as a result of the start of the Russia–Ukraine war and the US energy sanctions that followed (Zhang et al. 2024, p.2). The price of WTI crude oil futures hit $133.460 per barrel on March 7, 2022, while the price of Brent crude oil futures hit $139.130 per barrel, the highest level since July 2008. The findings of the quantitative data of the study indicate that the geopolitical tensions in key oil-producing regions, like the Russia and Middle East, were the strongest predictors of oil price volatility, emphasising the importance of regional stability for maintaining market balance.

Supply chain disruptions emerged as a major factor, as production halts, trade restrictions and refinery shutdowns led to price swings. However, the findings of the descriptive analysis indicate that the respondents are widely recognised the role of supply constraints in exacerbating the volatility of the price. Trade policies, like diplomatic trade agreements, tariffs and export bans have long-term influences on oil market stability. ANOVA analysis validate that the changes in the policies of international trade are contributed to the oil price fluctuations, hence, the immediate impact varied based on the geopolitical conditions. The study found that financial speculation escalates influences of geopolitical risks, as the investors are react towards instability through influencing futures markets of oil and driving its further price volatility. As per the findings of Monge Rojo & Gil-Alana, (2023, p.1), the financial liquidity and oil prices are

significantly correlated over time when GPR is high. The study result emphasise need of a strong global energy policies, enhanced regulations in market and diversified energy sources for mitigate affect of geopolitical instability.

6.2 Conclusion

The research concludes that the geo-political risk is influenced through global oil price behaviour and with the factors such as disruption of supply chain, international sanctions and trade policies of market. The quantitative analysis explore that the political instability in the area of oil production substantial influences on fluctuations of price, emphasise importance of geopolitical stability for energy security. From the standpoint of policy implications results illustrate that for lessen dependency on the volatile oil markets, governments and energy regulators have to adopt diversification measures, which includes improved trade agreements, investments in strategic oil reserves and alternative energy sources. Future studies develop on the results through which the study examining shift towards renewable energy and emerging technologies influences reduction of geopolitical risk exposure of oil markets.

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