

***THE INFLUENCE OF WORLD OIL AND NATURAL GAS PRICE ON
INDONESIAN FINANCIAL STOCKS AND EXCHANGE RATE DURING THE
RUSSIA-UKRAINE GEOPOLITICAL CONFLICT***

**PENGARUH HARGA MINYAK DAN GAS ALAM DUNIA TERHADAP
SAHAM-SAHAM KEUANGAN INDONESIA DAN NILAI TUKAR MATA
UANG SELAMA KONFLIK GEOPOLITIK RUSIA-UKRAINA**

Dewanto Alfarizmi

Institut Teknologi Bandung
dewanto_alfarizmi@sbm-itb.ac.id

ABSTRACT

Geopolitical conflict of Russia and Ukraine in the early 2022 has been significantly impacting global oil and gas price. Indonesia, as net oil importer country are highly affected by the changes of these price. This study investigates the impact of world oil and natural gas price, Indonesian exchange rate, and stock price of financial sector companies listed in IDX. Data analysis was conducted using Multiple Linear Regression (MLR) and Structural Equation Modeling (SEM) were used to find the interrelationship between variables. This study uses stock price of major financial corporation listed in IDX on the period of 2021 to 2024 as representative indicator of market response. Results show that world oil and natural gas has no simultaneous impact on financial stock price, but has simultaneous impact on Indonesian exchange rate. Result also show that individual impact of world oil price on exchange rate is significant and the impact of exchange rate on financial stock price are moderate. These finding suggest investor and other stakeholder to monitor and studying the impact of global commodity and exchange rate when planning to invest in financial stocks.

Keywords: *Geopolitical Conflict, Oil Price, Natural Gas Price, Exchange Rate, Financial Stocks, Indonesia, Multiple Linear Regression, Structural Equation Modelling.*

ABSTRAK

Konflik geopolitik antara Rusia dan Ukraina pada awal 2022 telah berdampak signifikan terhadap harga minyak dan gas global. Indonesia, sebagai negara pengimpor minyak bersih, sangat terpengaruh oleh perubahan harga tersebut. Studi ini menganalisis dampak harga minyak dan gas alam global, nilai tukar rupiah Indonesia, serta harga saham perusahaan sektor keuangan yang terdaftar di Bursa Efek Indonesia (IDX). Analisis data dilakukan menggunakan Regresi Linier Berganda (MLR) dan Model Persamaan Struktural (SEM) untuk menemukan hubungan antar variabel. Studi ini menggunakan harga saham perusahaan keuangan besar yang terdaftar di IDX pada periode 2021 hingga 2024 sebagai indikator representatif respons pasar. Hasil menunjukkan bahwa harga minyak dan gas alam dunia tidak memiliki dampak simultan pada harga saham sektor keuangan, tetapi memiliki dampak simultan pada nilai tukar Indonesia. Hasil juga menunjukkan bahwa dampak individu harga minyak dunia terhadap nilai tukar signifikan, sedangkan dampak nilai tukar terhadap harga saham keuangan moderat. Temuan ini menyarankan investor dan pemangku kepentingan lainnya untuk memantau dan mempelajari dampak komoditas global dan nilai tukar saat merencanakan investasi dalam saham keuangan.

Kata Kunci: Konflik Geopolitik, Harga Minyak, Harga Gas Alam, Nilai Tukar, Saham Keuangan, Indonesia, Regresi Linier Berganda, Model Persamaan Struktural.

INTRODUCTION

Oil and gas are one of the most important commodities in the world. Its importance is due to the development of technologies using them as fuel like in transportation in general. Their prices are influenced by a complex interaction between macroeconomic variables,

geopolitical events, and changes in supply and demand (Li & Zhao, 2011).

Russia invasion to Ukraine on early 2022 are a major geopolitical event that affect global energy markets. Russia as one of the world's largest producers of oil and natural gas, have a big impact in global energy supply. Russia produces 40% of Europe's natural gas supply and

around 13% of the world’s oil production (Saktiawan et al., 2022). The international sanction of embargoes on Russia’s oil and gas makes a disruption to global energy supply chain. The disruption of energy supply increases oil

and gas prices. According to the data compiled by U.S Energy Information Administration (EIA) the price of crude oil is experiencing fluctuations as shown in graph below.



Figure 1. Crude oil price fluctuation

The oil price has highest fluctuation on early 2022 it was when the war breakout happens. The increased oil price disrupts global economy especially in growing countries. Indonesia as a net importer of crude oil are highly affected by fluctuation of these price. Macroeconomic indicator such as inflation, exchange rates, and economic growth are also affected by the fluctuation.

Macroeconomic changes are affecting various sectors, including the financial industry. Banks, while not directly influenced by the trades oil and gas, they are influenced by economic environment that are being affected by energy price volatility. The increase in

oil & gas price can contribute to inflation which urges to make banks adjust their interest rates. During period of when energy price fluctuates unpredictably, banks may alter their operational strategies in response to increased challenges that affect their stability and efficiency (Chen & Hu 2019). The higher uncertainty makes investor leave riskier assets such as equity in the banking sector. This may lead into declining stock prices, not due to internal financial weakness, but due to broader macroeconomic expectations that are tied to inflation, tight monetary policy, and slower credit growth (Kwan and D’Auria, 2017).

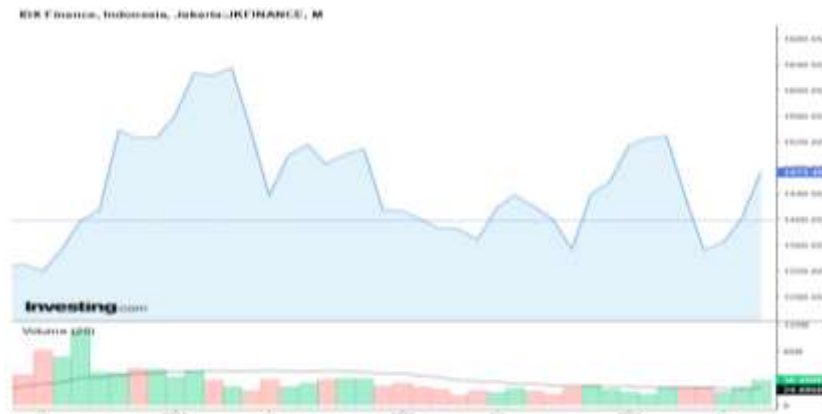


Figure 2. Fluctuation of Indonesian financial stock index

Moreover, in the period of geopolitical instability like Russia-Ukraine war, exchange rate volatility that are usually expressed as rupiah in terms of dollars becomes more like a safe haven asset for the investors. This could result in depreciation of local currencies like Indonesian Rupiah (IDR) (Sanoyo et al., 2024). A weaker currency not only lowering country's purchasing power but also significantly raises the cost of import goods like oil and also pressure the domestic economy as higher import cost can lead to increased operational expenditure and reducing economic growth (John H Boyd 2005). This may complicate the view in general of financial institutions.

Throughout these complex interlinkages, this condition shows the importance of the need to examine how geopolitical event affect financial markets like stock markets in Indonesia.

Therefore, this research is designed to analyzes how the changes in world oil price from before to after Russia-Ukraine geopolitical war affect Indonesia's economy through financial corporation stock prices and exchange rate. Through this analysis, research aims to provide a deeper understanding of how geopolitical and global commodities affect Indonesian economies, capital market, and Indonesian currencies using strong evidence of relationship between global commodity to financial corporation stock price and exchange rate. The result of this research aims to contribute to investors and other stakeholder in making a more thorough and informed investment decision.

The business issue is focused on the impacts of fluctuating oil price on financial stock price and Indonesian exchange rate from before and after Russian invasion to Ukraine happened. As Russia hold major role in oil and gas

supply are sanctioned and given trade restriction. The Russian invasion to Ukraine creates high fluctuation and instability in global oil prices. These fluctuation in oil price give significant changes in energy market. Indonesia as a net oil importer affected significantly on its economic stability.

Indonesia as net oil importer, these price changes are often triggering a chain reaction. A lot of policy like fuel subsidies that burden national budget becoming harder to manage. As oil price fluctuates not only adds to inflation, household purchasing power are reduced and businesses cost also increased. This effect continued pressuring financial institutions and started to burden the financial market. This can be seen by how financial stocks responded when this economic instability happened.

Even though the movement of global oil price are not directly influencing financial corporation, these changes macroeconomic affect financial stability. currency instability is also a concern. External shock make rupiah more vulnerable to depreciation especially when foreign investor starts pulling out their investment from Indonesia.

Therefore, this research aims to provide investor and other stakeholder a deeper understanding of how the dynamic of global commodities affect the stability and performance of capital market in Indonesia, especially in financial sector and Indonesian exchange rate in making a more informed investment decision.

Through analysis of changes in global oil prices from before and after the Russian invasion to Ukraine, this research is expected to provide a deeper insight to how geopolitical events that happened globally affect Indonesian capital market. The findings of this research are expected to serve as

foundation for investors, policymakers, and market participant in responding and anticipating changes in market due to global economic changes.

METHOD

This research type is explanatory with quantitative approach. According to Sugiyono (2017), explanatory research is a research method that clarify the relationship between variables and explain the causal relation between them. This method usually involves hypothesis

testing to support researcher to understand how different factor interact and influence one another. The quantitative research approach provides as a basis for researcher to define the relationship between studied variables. The variables used in this research are world oil and natural gas price as an independent variable and stock price of finance corporation listed in IDX and Indonesian exchange rate as the dependent variable.

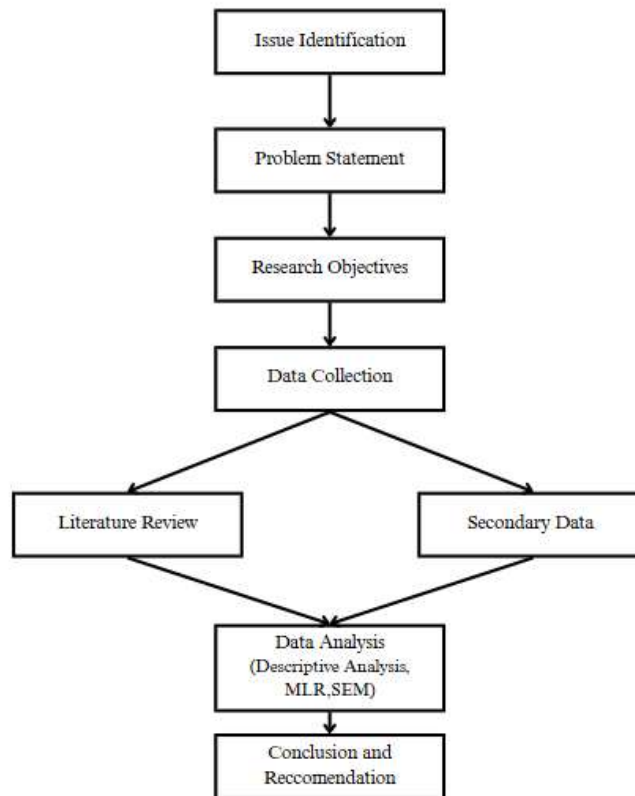


Figure 3. Research Design

Based on the image, this study involves several steps, started with study of market issue specifically on Russia-Ukraine geopolitical conflict which caused global disruption in energy market affecting financial market in emerging countries, including Indonesia. It is unclear how the global energy price fluctuation affects stock performance in Indonesian financial corporation while it

is important to understand the impact for investor and other stakeholders to navigate through instability of global condition.

In order to analyse the issue several research objectives are made. Secondary data and literature are used in order to support the analysis. World oil price and natural gas price are gathered to be used as secondary data. The method

used to analyse the secondary data are multiple linear regression and simple linear regression. Result obtained will be used to address in proving the relation between both independent variable and dependent variable as well as the influence of geopolitical conflict and global commodity prices can directly influence financial markets in Indonesia.

Population and Sample

According to Sugiyono (2017), understanding the population and sample concepts acts as fundamental on conducting effective research.

Population

Population refers to entire group of individuals that possess certain characteristics of interest for a specific study. It can be in a form of people, organization, event, or any other subject that meet the criteria relevant to the research objectives. The population used in this study are the financial corporation that are listed in IDX during 2021 – 2023 period.

Sample

Sample refer to a portion of population that reflect characteristic its entirety population without assessing

every member. This study uses purposive sampling. According to Sugiyono (2017), purposive sampling is a sampling technique used in research where the researchers select participant based on specific characteristics or criteria that align with the research objectives. Purposive sampling allow researcher to focus on a more targeted data collection and analysis using population with specific characteristic that are relevant to the research question. In this study we used sample that fits the criteria of:

- Financial corporation in Indonesia listed in IDX
- Financial corporation with the highest capital

RESULT AND DISCUSSION

Classical Assumption Test

Classical assumption test was done before doing regression analysis to make sure the dataset meet the required model.

Normality Test

Normality test are conducted to determine the data are normally distributed, the index of normally distributed data with a significance value (sig) > 0.05.

Table 1. Normality Test Result

Tests of Normality

	Kolmogorov-Smirnov ^a			Shapiro-Wilk		
	Statistic	df	Sig.	Statistic	df	Sig.
WorldOilPrice	.093	48	.200 [*]	.982	48	.674
NaturalGasPrice	.072	48	.200 [*]	.974	48	.355
StockPrice	.101	48	.200 [*]	.975	48	.406
IDRExchangeRate	.079	48	.200 [*]	.963	48	.139

*. This is a lower bound of the true significance.

a. Lilliefors Significance Correction

Based off the result the both of the independent variables and dependent variable are normally distributed valuing significance of 0.674, 0.355, and 0.406,

and 0.139 that are higher than needed for normally distributed significance data value of 0.05.

Multicollinearity Test

Multicollinearity test are used to determine the correlation between independent variables, the index of

variables with no multicollinearity are tolerance value of >0.1 or variance inflation factor (VIF) value of <10.

Table 2. Multicollinearity Test Result

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.	Collinearity Statistics	
		B	Std. Error	Beta			Tolerance	VIF
1	(Constant)	.150	.745		.202	.841		
	WorldOilPrice	.048	.094	.078	.514	.610	.966	1.035
	NaturalGasPrice	-.018	.037	-.073	-.483	.631	.966	1.035

Based off the result of the data, the indepent variables have no multicollinearity. The tolerance value are 0.966 higher than the index of multicollinearity 0.1, and the VIF value of 1.035 lower than the index of multicollinearity of 10.

Heteroscedasticity Test

Heteroscedasticity test are used to determine if there is a constant variance in residuals across all level in the independent variables.

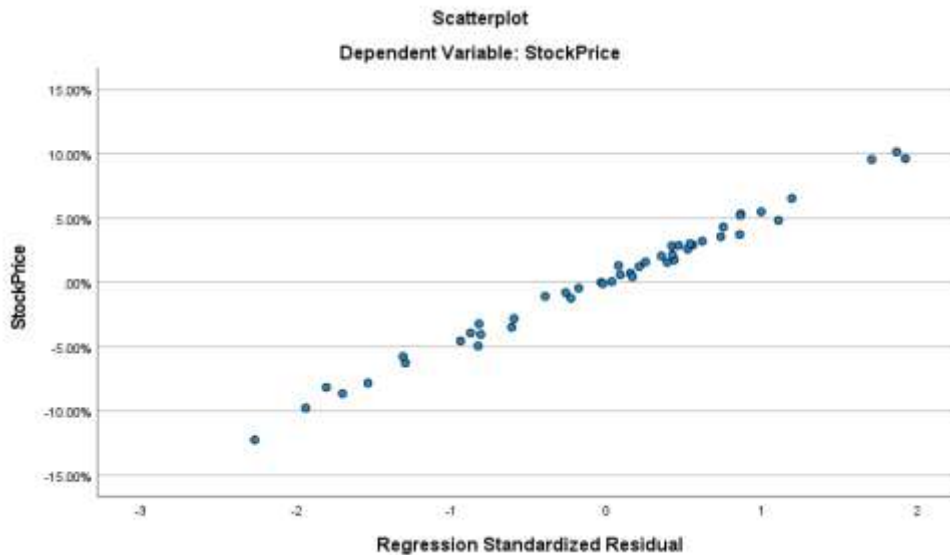


Figure 4. Heteroscedasticity Test Result

Based off the graph we can slightly see the cone-like shape that indicates heteroscedasticity, to prove wether the

there is a heteroscedasticity researcher used Breusch Pagan Tests, with the result below.

Table 3. Heteroscedasticity Test Result

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	212615.176	34978.269		6.078	<.001
	OIL	-794.410	4225.127	-.033	-.188	.852
	GAS	845.425	1674.778	.089	.505	.617

Based off the result the significance of both independent variable valued at 0.852 and 0.617 are

higher than 0.05, proved that the there are no heteroscedasticity.

Multiple Linear Regression

Multiple Linear Regression was used to analyze the relationship between

dependent variable and independent variable, with the result as shown.

Table 4. Multiple Linear Regression Result

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	.150	.745		.202	.841
	WorldOilPrice	.048	.094	.078	.514	.610
	NaturalGasPrice	-.018	.037	-.073	-.483	.631

Based off the result with there are several interpretation:

- The constant value of 0.15 indicate that when the independent variable are both at 0 there is a movement of dependent variable valued at 0.15.
- The standarized coefficient (beta) for both independent variable are oil price (X1) at -0.78 and gas price at -0.73(X2) valued higher than 0,05 indicates that both oil price and gas price have a significant impact on stock price.
- The standarized coefficient (beta) for both independent variable are oil price at -0.78 and gas price at -0.73 indicates that oil price have a stronger negative impact than gas price.
- The standarized coefficient also indicates that if standard deviation of oil price increased by 1 unit it leads to 0.78 unit of decrease in stock price, also if standard deviation of gas price

moved by 1 unit it leads to 0.73 unit of decrease in stock price.

Based of the result, the influence of both oil price and gas price to financial corporation stock price can be formulated as

$$Y = 3990.443 - 0.78X_1 - 0.73X_2$$

Where:

Y= Stock price of financial corporation in Indonesia

X1 = World oil price

X2 = Natural gas price

Hypothesis Testing

In order to determine the significance of the model and each individual variable we use hypothesis testing which consist of F-test , T-test.

F Test

F test is used in order to determine if the independent variables have a simultaneous effect to dependent variable.

Table 5. F test of oil and gas price to stock price

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	10.979	2	5.489	.210	.811 ^b
	Residual	1173.627	45	26.081		
	Total	1184.605	47			

a. Dependent Variable: StockPrice

b. Predictors: (Constant), NaturalGasPrice, WorldOilPrice

Based off the result, the p value of this is higher than 0.05 means that the model used are not statistically significant at the 5% level.

This indicates that the multiple linear regression model of oil and gas price are not simultaneously influence financial corporation stock price. Therefore, there is insufficient evidence

to conclude that oil and gas prices simultaneously affect Indonesian financial stock price during the investigated period.

The null hypothesis (H0) of oil and gas have no simultaneous effect on stock price are accepted.

Table 6. F test of oil and gas price to exchange rate

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	18.948	2	9.474	3.337	.045 ^b
	Residual	127.739	45	2.839		
	Total	146.687	47			

a. Dependent Variable: RE IDR EXCHANGE

b. Predictors: (Constant), Return Gas, RETURN BRENT IDR

Based off the result, the p value of this is lower than 0.05 means that the model used are statistically significant at the 5% level.

The alternate hypothesis (H1) of oil and gas have simultaneous effect on Indonesian exchange rate are accepted.

This indicates that the multiple linear regression model of oil and gas price are simultaneously influence Indonesian exchange rate. Therefore, research can conclude that oil and gas prices simultaneously affect Indonesian exchange rate during the investigated period.

T Test

T test is used to assess individual impact of each independent variable which is world oil price and natural gas price to the dependent variable of financial corporation stock price and also on Indonesian exchange rate.

Table 7. T test world oil and gas price to stock price

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	.150	.745		.202	.841
	WorldOilPrice	.048	.094	.078	.514	.610
	NaturalGasPrice	-.018	.037	-.073	-.483	.631

Based off the result the significance of both independent variables is higher than 0.05, that means both of the independent variable have no proven impact on the stock price of Indonesian finance corporation.

Based off this result the null hypothesis (H0) of world oil and natural gas price have no significant impact on stock price are accepted.

Table 8. T test world oil and gas price to Indonesian Exchange rate

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	.233	.245		.951	.346
	WorldOilPrice	.068	.030	.323	2.289	.027
	NaturalGasPrice	.010	.012	.114	.807	.424

Based off the result the significance of the natural gas price is more than 0.05, this indicates that natural gas price has no significant partial

impact to Indonesian exchange rate. While, the world oil price significant are at 0.27 lower than 0.05, this indicates that the world oil price has significant

partial impact on Indonesian exchange rate.

The world oil and natural gas has significant simultaneous effect on Indonesian exchange rate, but with only world oil individual significant impact. This means only world oil are significant as a variable alone, even though there are no multicollinearity between the variables. This could happen because of several factors:

- The sample size isn't enough to detect individual effects
- Requires more variable that has significant connection to the dependent variable.

Based off this result the null hypothesis(H0) of world oil and natural gas price have no significant impact on Indonesian exchange rate are accepted.

The alternate hypothesis(H1) of world oil has partial significant impact on Indonesian exchange rate are accepted and the null hypothesis(H0) of natural gas has partial impact on Indonesian exchange rate are accepted.

Structural Equation Modelling (SEM) Analysis

In order to analyse more deeper into the complex relationship between oil and gas price to Indonesian exchange rate and into finance corporation stock price, researcher have done SEM analysis.

Path Analysis

Path analysis shows the significance influence of each variables.

Table 9. Path Analysis Result

No.	Paths	Path Coefficient
1	Exchange Rate – Stock Price	-0.344
2	Gas Price – Exchange Rate	0.192
3	Gas Price – Stock Price	-0.006
4	Oil Price – Exchange Rate	0.305
5	Oil Price – Stock Price	0.175

This result interpret the significance connection between variables:

- Exchange rate has moderate negative effect to stock price,
- Gas price has positive direct effect to exchange rate,
- Gas price has very weak negative effect to stock price,
- Oil price has moderate positive direct effect to exchange rate,
- Oil price has weak positive effect to stock price.

R square

R square define the variance explained by the variables

- Exchange rate has R² value of 0.127, this shows that 12.7% variation in

exchange rate are explained by oil and gas price,

- Stock price has R² value of 0.106, this shows that 10.6% variation in stock price are explained by oil price, gas price, and exchange rate.

All of the R squared values are quite low meaning that the model has weak explanatory power.

CONCLUSION

Conclusion

This research is made in order to examine the impact of world oil price and natural gas price on Indonesian financial corporation stock prices during the period of the Russia-Ukraine geopolitical conflict. This study uses descriptive method with a quantitative approach using multiple linear

regression (MLR) and structural equation modelling (SEM). This study analysed how global commodity especially in energy sector influence Indonesian economy. Based on the findings, this research concluded that:

1. World oil and natural gas price has no simultaneously significant impact to the stock price of financial corporation listed in IDX.
2. World oil and natural gas price has simultaneously significant impact to the Indonesian exchange rate.
3. World oil and natural gas price has no partial significant impact to the stock price of financial corporation listed in IDX.
4. World oil has partial significant impact to the Indonesian exchange rate.
5. Natural gas has no partial significant impact on the Indonesian exchange rate.
6. World oil price has weak positive relationship to stock price of financial corporation listed in IDX.
7. World oil price has moderately positive relationship to Indonesian exchange rate.
8. Natural gas has very weak negative impact on stock price of financial corporation listed in IDX.
9. Natural gas price has moderately positive relationship to Indonesian exchange rate

In summary, this research finds that while global oil and gas price are spiking during the Russia-Ukraine geopolitical conflict in the early of 2022, the direct influence of global oil and gas price to the Indonesian stock price is limited.

However, the impact of global oil and gas price simultaneously to the Indonesian exchange rate are more significant, global oil price has significant partial impact on Indonesian exchange rate and Indonesian exchange

rate shows a moderate influence on the stock price. This indicate that global oil and gas price has indirectly influence on the stock price. The findings shows that the complexity of global financial linkage to Indonesian financial stock price can be explained by the mediation relationship of exchange rate that has significant partial impact from world oil prices.

Recommendation

Based on the research result investor and other stakeholders who consider investing in Indonesian exchange rate should be cautious and monitor global commodities, this shows at the significant partial impact world oil has on Indonesian exchange rates.

Investor and other stakeholders who consider investing on companies in financial sector that are listed in IDX should monitor Indonesian exchange rates, as it has significant impact on the stock price of companies in financial sector listed in IDX.

This research has a lot of limitations which encourage future studies to extend the observation period and include additional control variable such as interest rates, inflation or other control variables. Due to low R squared value in the current analysis models, future research also encouraged to consider using other method such as GARCH models in order to analyse the relationship more accurately.

REFERENCES

- Kilian, L. (2014). Oil price shocks: causes and consequences. *Annual Review of Resource Economics*, 6(1),133-154.
<https://doi.org/10.1146/annurev-resource-083013-114701>
- Bhattacharjee, J. and Singh, R. (2017). Awareness about equity investment among retail investors:

- a kaleidoscopic view. *Qualitative Research in Financial Markets*, 9(4), 310-324. <https://doi.org/10.1108/qrfm-04-2017-0036>
- Adam, P., Rianse, U., Harafah, L. M., Cahyono, E. D., & Rafyi, M. (2016). A model of the dynamics of the effect of world crude oil price and world rice price on indonesia's inflation rate. *Agris on-Line Papers in Economics and Informatics*, VIII(1), 3-12. <https://doi.org/10.7160/aol.2016.080101>
- NguyenHuu, T. and Örsal, D. K. (2023). Geopolitical risks and financial stress in emerging economies. *The World Economy*, 47(1), 217-237. <https://doi.org/10.1111/twec.13529>
- Napu, F., Ridwansyah, R., Sukardi, S., & Sugianto, E. (2023). Analysis of the effect of accounting information quality, institutional ownership, and financial performance on capital market reaction: a case study on company xyz on the indonesia stock exchange. *West Science Accounting and Finance*, 1(03), 130-137. <https://doi.org/10.58812/wsaf.v1i03.366>
- Abbas, A., Haliah, H., & Kusumawati, A. (2023). The effect of inflation, interest rates and rupiah exchange rates on stock prices in the covid-19 era. *International Journal of Progressive Sciences and Technologies*, 40(2), 291. <https://doi.org/10.52155/ijpsat.v40.2.5637>
- Yenti, E. and Candra, R. (2022). Determinants of exchange and inflation on the share price of sharia companies in the lq45 index in 2020. *International Journal of Scientific and Management Research*, 05(06), 118-127. <https://doi.org/10.37502/ijsmr.2022.5611>
- Trinh, P. T. T. and Bui, M. (2023). The impact of world oil price shocks on macroeconomic variables in vietnam: the transmission through domestic oil price. *Asian-Pacific Economic Literature*, 37(1), 67-87. <https://doi.org/10.1111/apel.12381>
- Hidayat, F. and Kayati, K. (2020). The effect of socialization and knowledge of interest in investing in the capital market. *Proceedings of the 1st International Conference on Accounting, Management and Entrepreneurship (ICAMER 2019)*. <https://doi.org/10.2991/aebmr.k.200305.018>
- Aliffia, N., Sediono, S., Suliyanto, S., Mardianto, M. F. F., & Amelia, D. (2023). Modeling of world crude oil price based on pulse function intervention analysis approach. *Media Statistika*, 16(2), 136-147. <https://doi.org/10.14710/medstat.16.2.136-147>
- Li, Z. and Zhao, H. (2011). Not all demand oil shocks are alike: disentangling demand oil shocks in the crude oil market. *Journal of Chinese Economic and Foreign Trade Studies*, 4(1), 28-44. <https://doi.org/10.1108/17544401111106798>
- Kwan, A. & D'Auria, F. (2017). "Investor Behavior in Times of Uncertainty: Shifts in Asset Allocation." *Financial Analyst Journal*, 73(2), 16-32.
- Ika, S., & Tanjung, I. (2020). "Exchange Rate Fluctuations and Stock Market Reactions in Indonesia." *International Journal of Economics and Business Administration*, 8(3), 98-110.

- Saktiawan, B., Toro, M. J. S., & Saputro, N. (2022). The impact of the Russia-Ukrainian war on green energy financing in Europe. *IOP Conference Series Earth and Environmental Science*, 1114(1), 012066.
<https://doi.org/10.1088/1755-1315/1114/1/012066>
- Sugiyono. (2017). *Metode Penelitian Kuantitatif, Kualitatif, dan R&D*. Alfabeta.
- Wang, K. (2023). The impact of soaring crude oil prices on the air transportation industry index. *Highlights in Business, Economics and Management*, 19, 651-659.
<https://doi.org/10.54097/hbem.v19i.12110>
- Imeri, A., Gil-Alana, L. A., & Monge, M. (2025). The impact of russia – ukraine conflict on the crude oil prices..
<https://doi.org/10.21203/rs.3.rs-6183589/v1>
- Hendrix, C. S. (2015). Oil prices and interstate conflict. *Conflict Management and Peace Science*, 34(6), 575-596.
<https://doi.org/10.1177/0738894215606067>
- Sareen, A. and Sharma, S. (2021). Assessing financial distress and predicting stock prices of automotive sector: robustness of altman z-score. *Vision: The Journal of Business Perspective*, 26(1), 11-24.
<https://doi.org/10.1177/0972262921990923>
- Sanoyo, A. M., Hidayat, A. M., & Firmialy, S. D. (2024). Impact of the russia-ukraine conflict on indonesian commodity stocks: a systematic literature review. *Journal of Humanities Social Sciences and Business (Jhssb)*, 3(4), 1036-1049.
<https://doi.org/10.55047/jhssb.v3i4.1307>
- Yuniarto, B., Nisa, L. K., Junaedi, T. N. T., Yanto, H., & Shufiyyati, S. (2023). Russia-ukraine war's effects on southeast asian countries' economics. *Indonesian Journal of Multidisciplinary Science*, 2(9), 3144-3151.
<https://doi.org/10.55324/ijoms.v2i9.555>
- Chen, Y., & Hu, W. (2019). "The Effect of Oil Price Shocks on Banks' Stability and How They Adapt." *International Review of Financial Analysis*, 69, 101496.
- Kwan, S. H., & D'Auria, F. (2017). "The Global Economy and Financial Markets: Empirical Evidence." *International Finance Discussion Papers*, No. 1217. Federal Reserve Board.