International Journal of Application on Economics and Business (IJAEB)
Volume 2, Issue 4, 2024. ISSN: 2987-1972

MACROECONOMIC VARIABLE AND PROPERTY STOCK MARKET VOLATILITY DURING AND AFTER PANDEMIC

Nicholas[1], Margarita Ekadjaja[2*]

[1,2] Faculty of Economics and Business, Universitas Tarumanagara, Indonesia
Email: nicholas.115200309@stu.untar.ac.id, margaritae@fe.untar.ac.id

*Corresponding Author

Submitted: 10-09-2024, Revised: 17-10-2024, Accepted: 01-11-2024

ABSTRACT

Since the pandemic, stock market activities have become increasingly popular among the public. Therefore, it is important to know what factors influence the stock price of a company so that it can be more optimal in buying and selling or investing in shares for both parties, namely investors/traders and also issuers/companies. It is important for investors to know the economic conditions around them to decide whether to buy shares as an investment or not. And for companies to make the right financial decisions in accordance with the surrounding macroeconomic conditions so that share prices can be more optimal. This research can provide insight for investors and companies so they can make wise decisions. For investors, this research is useful for assessing what stock prices should be or future stock prices by considering the surrounding economic conditions. Meanwhile, for companies, this research is useful for providing insight so they can prepare for the worst and predict share prices, then make good decisions to optimize their share prices. Therefore, this research aims to determine the factors that influence stock market prices from the external side, including interest rates, inflation, exchange rates and economic growth which are proxied by gross domestic growth in the property sector stock market listed on the IDX during and after the pandemic. Data processing uses Eviews and shows the results that the variables of interest rates, exchange rates and GDP have a negative effect on fluctuations in the stock market price index. Meanwhile, inflation has a positive effect on fluctuations in the stock market price index.

Keywords: *interest, inflation, growth domestic bruto, exchange rate, stock market*

1. INTRODUCTION

In March 2020, Indonesia experienced the Covid-19 pandemic so the government issued various new regulations according to the situation, such as lockdown and new normal. Where the lockdown does not allow people to carry out activities outside the home to break the chain of spread of the corona virus, so all types of activities are carried out at home. The COVID-19 pandemic has affected many financial markets in various parts of the world (Zhang et al., 2020). Many company shares declined in various economic sectors due to the pandemic which hampered human activities.

In the new normal, people are allowed to carry out activities outside the home, but there are restrictions that must be adhered to in the form of health protocols. Of course, this has had a positive impact on the Indonesian economy in various sectors which have experienced decline and chaos due to the ongoing pandemic. At this point, the company's shares began to rise again (Febriani & Azib Asroi, 2022).

Share prices are an indicator that determines a company's success in managing its resources and can present the value of a company (Nuradawiyah & Susilawati, 2020). The share price is a benchmark for investors to invest in shares on the Indonesian Stock Exchange through brokerage companies. Stock prices fluctuate or change randomly making it difficult for investors to predict. Share prices are influenced by several factors. These factors are divided

into two types, namely internal factors and external factors (Tuju et al., 2022). Internal factors can be in the form of company performance & decision making which can be measured by financial ratios and external factors in the form of interest rates, exchange rates, inflation, economic growth which cannot be controlled by the company.

In line with that, company activities require interaction with society as a chain of economic behavior, regulations and government policies, which ultimately can control economic growth. One of the most important factors in economic development in Indonesia is the capital market. The capital market is also a medium for many companies to absorb investment.

Capital market dynamics are also inseparable from economic activities outside the capital market. Shares in Indonesia are traded on the Indonesian Stock Exchange. For companies, issuing shares is a way to increase capital and reinvest in their company and increase profits. The rise and fall in demand for share prices in the property sector in Indonesia cannot be separated from macroeconomic factors which include inflation rates, interest rates and exchange rates (Nguyen & Razali, 2020).

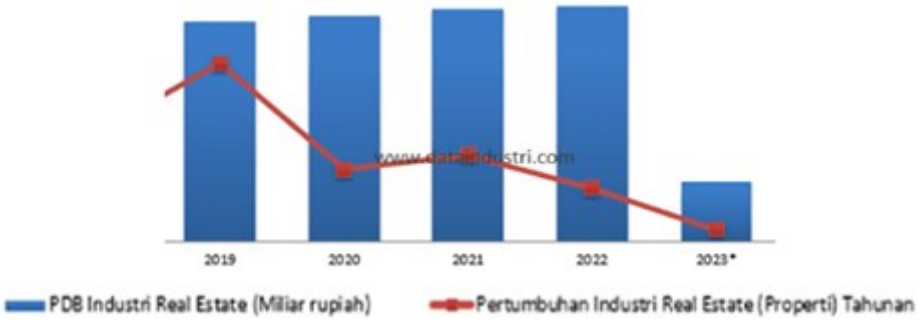

Figure 1. Graph of Property Industry Development for 2019-2023
Source: Data Industri, 2023

Figure 1. shows that in 2019 the property industry still grew positively from the previous year and in 2020, as the pandemic hit, the property industry experienced a sharp decline. Many people experience financial difficulties so they sell their assets in the form of property. During this pandemic, some people have money that they don't know what to use it for, so they plan to invest it in buying property. Therefore, there was a slight increase in 2021. Then in 2022 it decreased again to the lowest point in 2023.

The economic factor that influences share prices is interest rates, which according to several research results state that SBI interest rates have a negative effect on the IHSG (Kumalasari, 2018). However, this is different from the research results of Indra Maimuna (2017) which said that SBI interest rates did not have a significant effect on the IHSG. The economicfactor that influences share prices is interest rates, which according to several research results state that SBI interest rates have a negative effect on the IHSG (Kumalasari, 2018).

However, this is different from the results of research by Indra Maimuna (2017) which states that SBI interest rates do not have a significant effect. Another factor that influences share prices besides interest rates is the exchange rate, which is related to companies that use imported raw materials. If the rupiah exchange rate weakens and experiences a decline, the company's profits will also decrease due to the increase in the company's imported raw

material costs. And if the company's profits decrease, share prices also have the possibility of decreasing (Silalahi & Sihombing, 2021).
Inflation is also a factor that influences stock prices. A country's poor economy can be caused by excessive inflation. The impact of excessive inflation also causes a scarcity of goods on the market because people are worried about the increase in goods the next day, giving rise to hoarding of goods. Research from (Rachmawati, 2019) found that inflation has a negative and significant influence on stock prices. This is different from research (Idrus, 2022), which shows that inflation has no influence on stock prices.

The next factor that influences share prices is economic growth which is proxied by Gross Domestic Product (Prasetyanto, 2017). Economic growth is the amount of goods and services produced by a region at certain times. Economic growth can be seen from the results of gross domestic product. Growing GDP shows economic growth which results in increased people's purchasing power. Therefore, researchers want to conduct research on share prices during this period. However, in this research, what the researcher will discuss is from the perspective of external factors in the form of interest rates, exchange rates, inflation, economic growth proxied by Gross Domestic Bruto.

Based on the background description outlined above, the problems that can be identified are as follows: (1) As a result of the COVID-19 pandemic, many human activities have been hampered so that Indonesia's economic growth has also been hampered. This also affects share prices on the Indonesian Stock Exchange. (2) The decline in COVID-19 cases in Indonesia has prompted the government to issue a new policy, the new normal, which makes human activity more productive, so that the economy grows more, which leads to an increase in stock prices compared to before. (3) Falling share prices make investors interested in selling their shares to the public.

Many macroeconomic variables influence stock prices, but this research only uses 4 independent variables. The problem boundaries in this research are stock prices, interest rates, inflation and economic growth as proxied by GDP (Gross Domestic Product) during the pandemic (2020 and 2021) and after the pandemic (2022 and 2023). The share price used in this research is the closing price or closing share price.

The problem formulation of this research is : (1) Do interest rates have a significant negative effect on stock prices? (2) Does the exchange rate have a significant negative effect on stock prices? (3) Does inflation have a significant negative effect on stock prices? (4) Does economic growth have a significant positive effect on stock prices?

The aim of this research is to determine the influence of macroeconomic variables such as interest rates, exchange rates, inflation, economic growth on stock prices. how big is the influence of macroeconomics or external factors of the company, including interest rates, exchange rates, inflation, economic growth on share prices. For investors, this research is useful for assessing what stock prices should be or future stock prices by considering the surrounding economic conditions. Meanwhile, for companies, this research is useful for providing insight so they can prepare for the worst and predict share prices, then make good decisions to optimize their share prices.

The theory used in this research is signal theory discovered by Ross (1977). This signal theory explains how companies give good/bad signals or signs in their performance to potential investors or the market. The signals given by this company can be seen through its

financial reports and investors can assess the company using various financial ratios. This is also useful for investors to see the company's performance in the past, present, or predict the future.

Based on the previous explanation, it can be concluded that stock market price fluctuations are influenced by macroeconomic variables. To find out the direction of the relationship between macro variables and stock price fluctuations, researchers created a framework as follows:

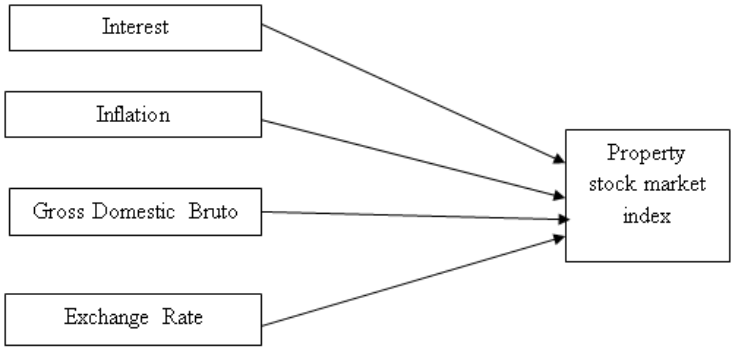

Figure 2. Research Framework
Source: Author (2023)

From what has been described, the hypothesis in the research can be seen in Figure 2 as follows :
H1 = Interest rates have a significant negative effect on property stock market index.
H2 = Inflation has a significant negative effect on property sector stock market index.
H3 = Economic Growth has a significant positive effect on property stock market index.
H4 = The exchange rate has a significant negative effect on property stock market index.

2. RESEARCH METHOD

This research is descriptive research and uses time series data. Time series data is a collection of data recorded based on the same time interval which is widely used in economics and is widely used for forecasting, assisting decision making and risk management (Zolhavarieh et al., 2014). This research uses a sample of the values of interest rates, exchange rates, inflation and economic growth which are proxied by GDP per month starting from January 2020 to December 2023. The population used is stock prices, interest rates, exchange rates, inflation and GDP. The amount of data used in this research was 48 data. The sample selection technique used was purposive sampling.

Table 1. Operational Variable

Variable	Equation	Scource
Stock market Index	Stock market index = (2's portfolio value : Base Day's (Day 1) portfolio value) x Base Day's (Day 1) index	www.cse.com.bd
Interest Rate	SBI = ($SBI_t - SBI_{t-1}$) : SBI_{t-1}	Dwi Puspita & Seno Aji (2018)
Inflation	$\frac{IHKn - IHK0}{IHK0} \; x \; 100\%$	Dwi Puspita & Seno Aji (2018)
Gross Domestic Product	GDP = C + G + I + NX GDP *growth rate* = $\frac{GDPn - GDPn-1}{GDPn-1}$	Dwi Puspita & Seno Aji (2018)
Exchange Rate	Buying Rate = foreign currency value x IDR	www.cse.com.bd

Selling Rate = IDR : Exchange Rate

This research uses research subjects in the form of property sector stock market index for the period January 2020 – December 2023. The following are listed issuers from the 2020-2023 period:

Table 2. List of Property Issuers Registered on the IDX
Source: Idx, 2023

1	Adhi Commuter Properti Tbk.	47	Trimitra Propertindo Tbk.
2	Makmur Berkah Amanda Tbk.	48	Eureka Prima Jakarta Tbk.
3	Agung Podomoro Land Tbk.	49	Lippo Cikarang Tbk.
4	Armidian Karyatama Tbk.	50	Lippo Karawaci Tbk.
5	Andalan Sakti Primaindo Tbk.	51	Star Pacific Tbk
6	Alam Sutera Realty Tbk.	52	Modernland Realty Tbk.
7	Trimitra Prawara Goldland Tbk.	53	Metropolitan Kentjana Tbk.
8	Bekasi Asri Pemula Tbk.	54	Mega Manunggal Property Tbk.
9	Bhakti Agung Propertindo Tbk.	55	Maha Properti Indonesia Tbk.
10	Bumi Benowo Sukses Sejahtera Tbk.	56	Multisarana Intan Eduka Tbk.
11	Bumi Citra Permai Tbk.	57	Metropolitan Land Tbk.
12	Bekasi Fajar Industrial Estate Tbk.	58	Metro Realty Tbk.
13	Binakarya Jaya Abadi Tbk.	59	Hanson International Tbk.
14	Bhuwanatala Indah Permai Tbk.	60	Andalan Perkasa Abadi Tbk.
15	Bukit Darmo Property Tbk	61	City Retail Developments Tbk.
16	Sentul City Tbk.	62	Nusantara Almazia Tbk.
17	Wulandari Bangun Laksana Tbk.	63	Indonesia Prima Property Tbk.
18	Bumi Serpong Damai Tbk.	64	Bima Sakti Pertiwi Tbk.
19	Citra Buana Prasida Tbk.	65	Plaza Indonesia Realty Tbk.
20	Natura City Developments Tbk.	66	Pollux Hotels Group Tbk.
21	Cowell Development Tbk.	67	Pollux Properties Indonesia Tbk.
22	Capri Nusa Satu Properti Tbk.	68	Bliss Properti Indonesia Tbk.
23	Cahayasakti Investindo Sukses Tbk.	69	PP Properti Tbk.
24	Ciputra Development Tbk.	70	Pudjiadi Prestige Tbk.
25	Diamond Citra Propertindo Tbk.	71	Puri Global Sukses Tbk.
26	Duta Anggada Realty Tbk.	72	Pakuwon Jati Tbk.
27	Intiland Development Tbk.	73	Ristia Bintang Mahkotasejati Tbk.
28	Puradelta Lestari Tbk.	74	Roda Vivatex Tbk
29	Duta Pertiwi Tbk.	75	Repower Asia Indonesia Tbk.
30	Bakrieland Development Tbk.	76	Graha Mitra Asia Tbk.
31	Megapolitan Developments Tbk.	77	Rimo International Lestari Tbk.
32	Fortune Mate Indonesia Tbk.	78	Jaya Sukses Makmur Sentosa Tbk.
33	Forza Land Indonesia Tbk.	79	Rockfields Properti Indonesia Tbk.
34	Aksara Global Development Tbk.	80	Pikko Land Development Tbk.
35	Gowa Makassar Tourism Develop Tbk.	81	Saptausaha Gemilangindah Tbk.
36	Perdana Gapuraprima Tbk.	82	Kota Satu Properti Tbk.
37	Ingria Pratama Capitalindo Tbk.	83	Suryamas Dutamakmur Tbk.
38	Minahasa Membangun Hebat Tbk.	84	Summarecon Agung Tbk.
39	Grand House Mulia Tbk.	85	Saraswanti Indoland Develop Tbk.
40	Royalindo Investa Wijaya Tbk.	86	Agung Semesta Sejahtera Tbk.
41	Indonesian Paradise Property Tbk.	87	Perintis Triniti Properti Tbk.
42	Era Graharealty Tbk.	88	Triniti Dinamik Tbk.
43	Jaya Real Property Tbk.	89	Pakuan Tbk.
44	Karya Bersama Anugerah Tbk.	90	Urban Jakarta Propertindo Tbk.
45	Kawasan Industri Jababeka Tbk.	91	Vastland Indonesia Tbk.
46	Kokoh Exa Nusantara Tbk.	92	Winner Nusantara Jaya Tbk.

3. RESULTS AND DISCUSSIONS

The objects of this research are interest rates, inflation, exchange rates, economic growth as proxied by GDP and property stock market index listed on the IDX. The following is the descriptive statistical data,

Table 3. Descriptive Statistic

	GDP	I	INF	ER	SP
Mean	3.009	4.396	2.872	14842.840	652.903
Median	4.330	4.000	2.585	14695.640	711.550
Max	5.410	6.000	5.950	16448.840	916.997
Min	-2.070	3.500	1.320	13730.310	293.051
Std. Dev.	2.771	0.963	1.444	560.818	188.389
Skewness	-0.933	0.547	0.748	0.692	-0.843
Kurtosis	2.211	1.633	2.235	3.084	2.370

Based on Table 3. interest rates have an average value of 4,395% and a median value of 4%. The highest interest rate is 6% in the fourth quarter of 2023, which is the period when the pandemic has ended and the economy in Indonesia has improved. The lowest value was 3.5% from February 2021 to July 2022, which is the period when the economy was impacted by the pandemic. Skewness has a value of 0.547, which means that the curve is skewed to the right. Kurtosis has a value of 1.633 < 3, which means the curve is not sharp (platykurtic).

Inflation has an average value of 2.87% and a median value of 2.58%. The highest inflation was at 5.95% in September 2022 and the economy in Indonesia has improved. The lowest value was 1.32% which occurred in August 2020, the Indonesian economy was in a downturn. Skewness has a value of 0.748, which means that the curve is skewed to the right. The inflation kurtosis value is 2,234 < 3, which means the curve is not sharp (platykurtic). The exchange rate has an average value of IDR 14,842 and a median value of IDR 14,695. The highest value was IDR 16,448.840 in February 2020, the month before Covid-19 first occurred and the lowest value was IDR 13,730. The skewness of the exchange rate has a value of 0.691, which means the curve is skewed to the right. The exchange rate kurtosis value is 3.08, which means the curve is sharp (leptokurtic).

GDP has an average value of 3% and a median value of 4.33%. The highest GDP was at 5.41% which occurred in the third quarter of 2022, indicating that the economy at that time had improved. The lowest GDP was -2.07% which occurred in the fourth quarter of 2020, making this period the period with the largest economic decline throughout 2020-2023. GDP skewness is -0.932, which means the curve is skewed to the left. The kurtosis value is 2.21, which indicates that the curve is not sharp (platykurtic).

Stock price has an average value of IDR 652.90, a median value of IDR 711.54, the highest value of stock price was at IDR 916.99 which was happened in February 2021 and the lowest stock price was IDR 293.05 in April 2020. Stock price skewness value is -0.842, which means the curve curves towards the left. The kurtosis value is 2,370 which shows that the curve is not sharp (platykurtic).

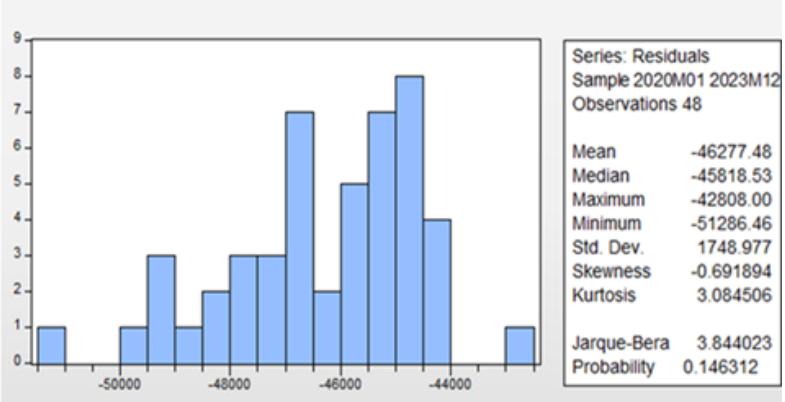

Figure 3. Normality Test

Figure 3. show that the probability value is 0.146 > 0.05, which means it can be concluded that the data is normally distributed.

Table 4. Heteroscedasticity Test

F-statistic	2.484	Prob. F(4,43)	0.058
Obs*R-squared	9.010	Prob. Chi-Square(4)	0.061

Table 4 shows that the Chi-Square prob value is greater than 5 percent, which means that heteroscedasticity does not occur in the research time series data.

Table 5. Correlation Test

	I	INF	GDP	ER
I	1.000	0.496	0.358	0.713
INF	0.496	1.000	0.633	0.614
GDP	0.358	0.633	1.000	0.558
K	0.713	0.614	0.558	1.000

Table 5. shows that the relationship between variables does not exceed 0.9 so there is no multicollinearity in the research data (Ghozali, 2013). Table 5. shows that the relationship between variables does not exceed 0.9 so there is no multicollinearity in the research data (Ghozali, 2013). The highest correlation is inflation with the exchange rate (0.713) and the lowest correlation is inflation with economic growth (0.358)

Table 6. Autocorrelation Test

Breusch-Godfrey Serial Correlation LM Test:

F-statistic	0.017009	Prob. F(2,42)	0.9831
Obs*R-squared	0.038847	Prob. Chi-Square(2)	0.9808

Table 6. shows that the chi square prob value at lag 2 is greater than the 5 percent significance level, this shows that there is no autocorrelation in the interest, inflation, economic growth and exchange rate variables.

Table 7. Regression Results

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	8.658191	5.151114	1.680838	0.1000
I	-0.018442	0.021281	-0.866608	0.3910
INF	-0.028136	0.015163	-1.855614	0.0704
ER	-1.404600	1.248724	-1.124828	0.2669
GDP	0.051639	0.007113	7.259446	0.0000

R-squared	0.579199	Mean dependent var	2.791875
Adjusted R-squared	0.540055	S.D. dependent var	0.153978
S.E. of regression	0.104427	Akaike info criterion	-1.582332
Sum squared resid	0.468911	Schwarz criterion	-1.387415
Log likelihood	42.97597	Hannan-Quinn criter.	-1.508673
F-statistic	14.79654	Durbin-Watson stat	0.363134
Prob(F-statistic)	0.000000		

Table 7. shows that the equation based on observations for 2 years during the pandemic and 2 years after the pandemic is as follows:

$$Y = a - 0.018442X_I - 0.028136X_{Inf} - 1.404600X_{ER} + 0.051639X_{GDP} \quad \ldots\ldots 1)$$

Where as; I = interest, Inf = inflation, ER = exchange rate, GDP = Gross Domestic Product
From the regression equation using the 4 macroeconomic variables above, it can be seen that an increase in interest rates, inflation rates and exchange rates will cause a decline in the property sector stock market index. This shows that if interest rates rise, investors are more likely to invest in bank products than investing in stock. An increase or decrease in the exchange rate has an influence on an increase or decrease in the stock market index (Mamahit et al., 2019), where in the 2020-2023 period it shows that many property industries in Indonesia use imports which causes costs to increase so that companies experience losses so that many companies experience bankruptcy or must immediately temporarily suspend the company's activities on the stock exchange (suspend).

Likewise, during the pandemic, the rise of inflation rate greatly affecting people's purchasing power to the minimum in the midst of economic difficulties during the pandemic which resulted in a decline in stock prices, even though it does not affect significantly on properties stock prices.

Meanwhile, gross domestic product has a positive relationship with the property sector stock market index. An increase of GDP are indicating a healthy economic condition of a country (Patatoukas, 2014). This also indicates that people's purchasing power are strengthen and triggers them to buy stocks. Exchange rates have a negative influence on property sector stock market index, which is in line with research by Wibisono & R (2019)

4. CONCLUSIONS AND SUGGESTIONS

Based on the results of the classical assumption test using Eviews, it can be concluded that the research data is time series data suitable for observing macroeconomic variables (interest rates, inflation, exchange rates, and economic growth which is proxied by Gross Domestic Product (GDP) on the sector stock price index property with an observation period of 2 years during the pandemic and 2 years after the pandemic. Of the four variables, only GDP had a significant positive influence on the property stock price index, while interest rates, inflation rates and exchange rates had a negative but not significant influence.

This research is useful for investors, where when investing they need to pay attention to macroeconomics and further research by adding other macroeconomic variables such as income, investment, consumption and company growth rates which can provide a comprehensive picture of stock exchange performance.

REFERENCES

Agustin, G., Onasis, D., & Liviawati. (2021). *The Influence of Profitability, Inflation, Exchange Rates, Interest Rates, Economic Growth on Stock Prices During the Covid-19 Pandemic in Transportation Sub-Sector Companies Listed on the Indonesian Stock Exchange*. SENKIM: National Seminar on Multidisciplinary Scientific Work, 1(1).

Anam, H., Nur'eni, & Sain, H. (2022). Analysis of the Influence of Monetary Policy Factors on the Composite Stock Price Index (IHSG) on the Indonesian Stock Exchange (BEI). *Journal of Mathematics and Applied Sciences*,19(2). https://doi.org/10.22487/2540766x.2022.v19.i2.16218.

Arifin, P.R & Khalifaturofiah, S. O. (2023). Analysis of the Influence of Macroeconomic Indicators on the LQ 45 Stock Price Index on the Indonesian Stock Exchange. *Economic Studies Bulletin*. https://doi.org/10.24843/bse.2023.v28.i02.p04.

Dwi Puspita, Maya., & Seno Aji, T. (2018). Analysis of the Effect of Inflation, SBI Interest Rates, Exchange Rates, Gross Domestic Product (GDP) and the Dow Jones Industrial Average (Djia) Index on the Kompas100 Index for the Period January 2012-December 2017. *Journal of Management Science (JIM)*, 6(3).333-341. https://ejournal.unesa.ac.id/index.php/jim/article/view/24319.

Febriani, D. D., & Azib Asroi. (2022). Analysis of Differences in Stock Prices Between Before and After the Covid-19 Pandemic. *Bandung Conference Series: Business and Management*, 2(1). https://doi.org/10.29313/bcsbm.v2i1.271.

Hendajany, N., & Wati, R. (2020). Prediction of Indonesian macroeconomic indicators using the vector autoregressive model for the 2019-2023 period. *Journal of Economics and Business*, 23(2). https://doi.org/10.24914/jeb.v23i1.2878.

Idrus, M. (2022). The Effect of Inflation and Interest Rates on Stock Prices. *Mirai Management Journal*, 7(3).

Inrawan, A., Lie, D., Nainggolan, L. E., Silitonga, H. P., & Sudirman, A. (2022). *The Effect of Inflation, Interest Rates, Exchange Rates, Economic Growth, Capital Expenditure, and Leverage on Profitability (Study of LQ 45 Index Companies Listed on the Indonesian Stock Exchange)*. National Seminar on Research Results and Community Service at Sahid University, Surakarta, 2.

Kumalasari, R. dkk. (2018). The Influence of Exchange Rates, Bi Rates, Inflation Rates, and Economic Growth on the Composite Stock Price Index. *Journal of Business Administration*, *34 (1).*

Mamahit, R. R., Tumbel, T. M., & Mangindaan, J. V. (2019). The Influence of Macroeconomic Variables on the Composite Stock Price Index (Study on the Composite Stock Price Index on the Indonesian Stock Exchange for the 2014-2018 Period). *Journal of Business Administration* , *8*(2). https://doi.org/10.35797/jab.8.2.2019.23565.75-82.

M Tuju, G. L., Van Rate, P., Pondaag, J. J. (2022). Analysis of External and Internal Factors That Influence Share Prices of LQ 45 Banking Companies Listed on the Indonesian Stock Exchange (Period 2016-2020). *EMBA Journal: Journal of Economic, Management, Business and Accounting Research*, 10(1). https://ejournal.unsrat.ac.id/index.php/emba/article/view/39568

Nguyen, T. K., & Razali, M. N. (2020). The dynamics of listed property companies in Indonesia. *Journal of Property Investment and Finance*, 38(2). https://doi.org/10.1108/JPIF-06-2019-0073.

Nuradawiyah, A., & Susilawati, S. (2020). Analysis of Factors Affecting Company Value (Case Study of LQ45 Index Companies). *Accounting journal*, 9(2).218-231. https://ejournal.utmj.ac.id/index.php/akuntansi/article/view/154/192.

Mahmoudinia, Davoud., & Mostolizadeh, S. M. (2023). (A)symmetric interaction between house prices, stock market and exchange rates using linear and nonlinear approach: the case of Iran. *International Journal of Housing Markets and Analysis, 16(4)*. 648-671. https://EconPapers.repec.org/RePEc:eme:ijhmap:ijhma-01-2022-0008

Patatoukas, P. N. (2014). Dissecting the Association between Stock Returns and GDP Growth Forecast Errors: Implications for Interdisciplinary Capital Markets Research in Accounting. *SSRN Electronic Journal.* https://doi.org/10.2139/ssrn.2436026.

Prasetyanto, P. K. (2017). The Influence of Gross Domestic Product and Inflation on the Composite Stock Price Index on the Indonesian Stock Exchange 2002-2009. Airlangga *Accounting and Business Research Journal,* 1(1).648-671. https://EconPapers.repec.org/RePEc:eme:ijhmap:ijhma-01-2022-0008.

Prihatin, W. A., Arintoko, A. A., & Siharno, S. S. (2019). Analysis of the Influence of Monetary Variables on Indonesia's Economic Growth. *Journal of Economics, Business and Accounting*, 21(3). https://doi.org/10.32424/jeba.v21i3.1383.

Rachmawati, Y. (2019). The Effect of Inflation and Interest Rates on Share Prices in Banking Companies Listed on LQ45 of the Indonesian Stock Exchange. *Accounting Media Journal (Mediation)*, 1(1). https://doi.org/10.31851/jmediasi.v1i1.2368.

Silalahi, E., & Sihombing, R. (2021). The Influence of Economic Factors on the Movement of the Composite Stock Price Index (IHSG) on the Indonesian Stock Exchange for the 2017-2020 Period. *Journal of Accounting & Finance Research*. https://doi.org/10.54367/jrak.v7i2.1361.

Sugiyono. (2016). *Quantitative, Qualitative and R & D Research Methods & Quantitative, Qualitative and R & D Research Methods*.Bandung:Alfabeta.

Susanto, S. (2018). The Influence of Inflation, Interest Rates, and Exchange Rates on Indonesia's Economic Growth. *JEBI Journal of Indonesian Business Economics*, 12(01). https://doi.org/10.36310/jebi.v12i01.27.

Syarifa Nasution, N., Syafii, M., & Naomi Sitompul, P. (2023). Analysis of the Influence of Macroeconomic Variables on the Profitability of Commercial Banks in Indonesia. *Jesya*, 6(2). 139-147.https://doi.org/10.36778/jesya.v6i2.1068.

Waryati, S. Y., & Solaiman, A. (2022). The Influence of the Macroeconomic Environment on the Composite Stock Price Index on the Indonesian Stock Exchange. *Coopetition: Management Scientific Journal*, *13(2).*299-308. https://doi.org/10.32670/coopetition.v13i2.1417.

Wibisono, B. S., & R, D. O. (2019). Analysis of the Influence of Macroeconomic Variables on Property and Financial Stock Price Indexes in Indonesia. Economic Media, *25*(2). https://doi.org/10.25105/me.v25i2.5000.

Yazid, M. (2019). The Effect of Inflation, Exchange Rates and Interest Rates on Economic Growth. *Ecombis*, *5(1).* 38-45. https://doi.org/10.35308/ekombis.v5i1.1362.

Zhang, D., Hu, M., & Ji, Q. (2020). Financial markets under the global pandemic of COVID-19. *Finance Research Letters*, *36*.1-6. https://doi.org/10.1016/j.frl.2020.101528.

Zolhavarieh, Seyedjamal., Aghabozorgi, Saeed., & Teh, Y. W. (2014). A review of subsequence time series clustering. *In Scientific World Journal*.1-19. https://doi.org/10.1155/2014/312521.