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Stability Analysis of Macroeconomic Effect on The Jakarta Composite Index (JCI) During 2006-2021

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Abstract: This research aims to provide empirical evidence of macroeconomic effects on the Jakarta Composite Stock Price Index (JCI), precisely the exchange rate, GDP, gold prices, oil prices, and U.S. interest rates, as well as whether there are changes in the structure or stability of the regression during 2006-2021. The study employs quantitative research techniques such as panel data regression and dummy regression analysis with EViews 12. The results show that: (1) The exchange rate significantly negatively affects the JCI. (2) GDP significantly positively affect the JCI. (3) Gold prices significantly positively affect the JCI. (4) Oil prices significantly positively affect the JCI. (5) U.S. interest rates significantly positively affect the JCI. (6). The structure or stability regression of the macroeconomic effect on the JCI varies yearly. It means there is a change in the structure or stability of the regression during 2006-2021.

Keywords: Jakarta Composite Index (JCI), Macroeconomics, Change in Regression Stability

INTRODUCTION

The Indonesia Composite Index (JCI) indicates the market performance because it reflects the movement of stock prices on the Indonesia Stock Exchange (IDX). The movement of issuers' stock prices can affect the JCI. Stock price movements can be affected by company information or macroeconomic factors, such as the rupiah exchange rate against the United States dollar (U.S. dollar) (Aditya et al., 2018), Gross Domestic Product or GDP (Naimah and Dewi, 2021), gold prices (Pangondian et al., 2022), oil prices (Fuad and Yuliadi, 2021), and U.S. interest rates (Miyanti and Wiagustini, 2018).

During 2006-2021 JCI fluctuated, as illustrated in Figure 1. In 2006, JCI fluctuated due to the weakening Asian market and investors selling blue-chip stocks on the IDX due to market concerns about the U.S. interest rate increase. JCI fluctuated again from 2007 to 2009 due to the global economic crisis. The global economic crisis lowered the rupiah's value against the U.S. dollar, resulting in a drop in GDP. The decline in the GDP indicates an

economic slowdown, which causes a decrease in income, reduces people's purchasing power, and sends a negative signal to the market. During a crisis, gold prices rise because it is regarded as a safe haven, whereas oil prices fall precipitously due to reduced market demand, as illustrated in Figure 1. As the level of risk rises, it can be a negative signal influencing investors' decisions to invest in stocks.

The JCI fluctuated between 2013 and 2014, owing to the reduction in the U.S. central bank's large-scale stimulus, taper tantrums, and the global financial crisis. The JCI also fluctuated in 2020 and 2021 due to the Covid19 pandemic, which slowed global economic growth. During the Covid19 pandemic, specifically in March 2020, the Federal Reserve implemented a quantitative easing policy by purchasing large-scale assets to increase liquidity. From December 2021 to March 2022, the Federal Reserve reduced stimulus (tapering off), then gradually raised interest rates starting in March 2022. The increased U.S. interest rates put pressure on the JCI, causing it to fluctuate more.

There were differences in the characteristics of one year and another due to the economic crisis, natural disasters, and the Covid19 pandemic during 2006-2021, as shown in Figure 1, so the individual year effects should be included in the regression model to determine whether the macroeconomic effect on the JCI is stable or unstable. From year to year, examining whether the regression model intercept changes. Changes in the intercept indicate that the regression's structure or stability has changed. Changes in the structure or stability of the regression over time can occur due to changes in the regression coefficients, changes in the intercept (constant), over time, or changes in both, according to Gujarati and Porter (2009).

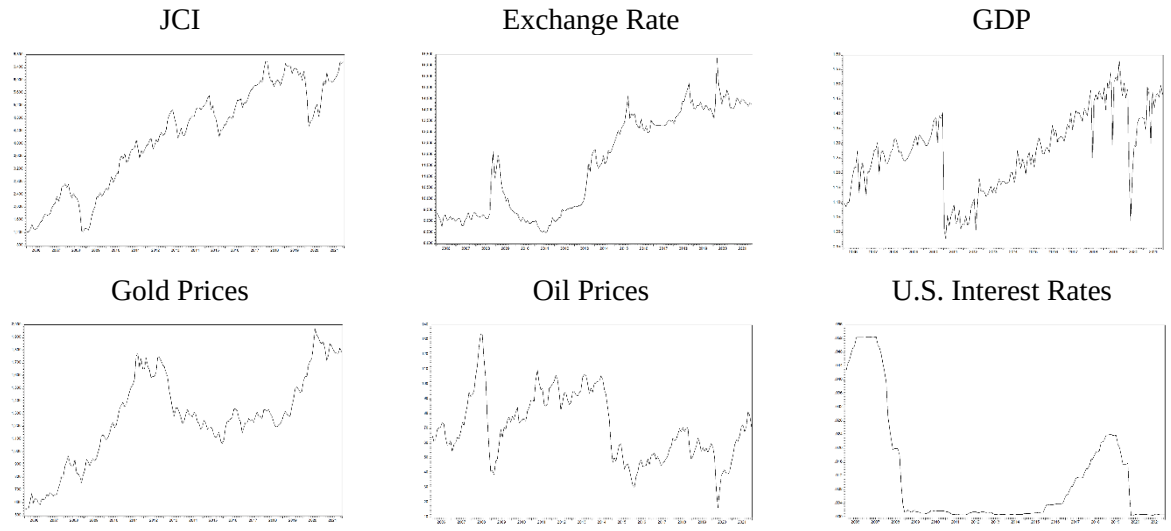


Figure 1. The Movements of JCI, Exchange Rate, GDP, Gold Prices, Oil Prices, and U.S. Interest Rates from 2006 – 2021

Source: Data processing using Eviews 12 (2022).

LITERATURE REVIEW

Signaling Theory

Signals are information delivery activities in which the signal sender, i.e., the owner of the information, conveys relevant information to the signal receiver, i.e., the information user. Then the information recipient adjusts his behavior and understanding of the information he receives after receiving the information (Spence, 1973). Signal senders must send signals to investors or potential investors to convey information and raise stock prices (Ross, 1977). A good signal will encourage investors to buy shares to receive the expected returns, resulting in rising share prices. Investors will sell shares and switch to more profitable investments if they receive negative

signals. According to Bodie et al. (2014), market prices will change due to information received, whether positive news is a good signal or negative news is a bad signal, because published information will influence investors' decision-making.

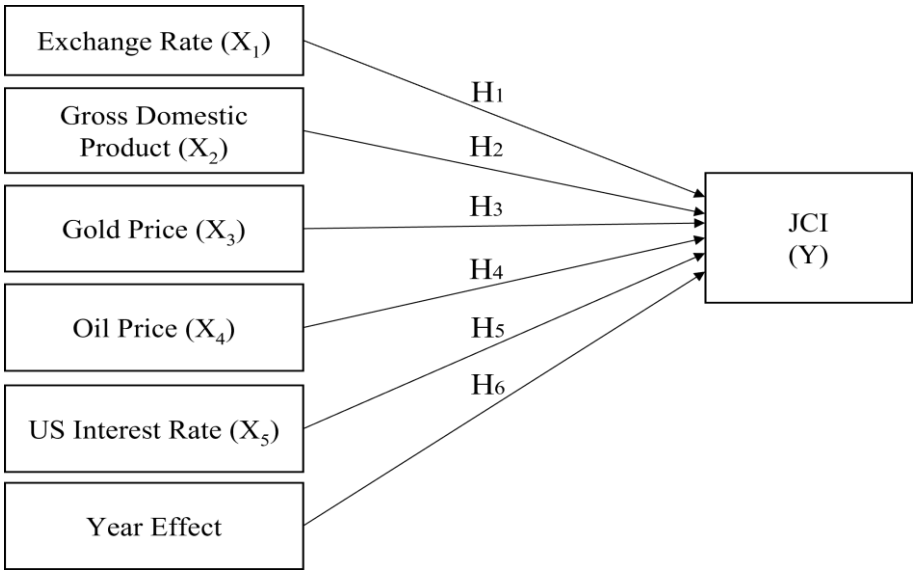
The Efficient Market Hypothesis

The efficient market hypothesis is divided into three forms: the weak form (all information derived from past trading data has been reflected in stock prices), the semi-strong form (all publicly available information has been reflected in stock prices), and the strong form (prices reflect all information, including insider information) (Fama, 1970). If the prices formed in the market reflect current knowledge, the market is said to be efficient. According to Bodie et al. (2014), market prices reflect all currently available information in an efficient market, and only new information (whether good or bad) drives stock prices. In market efficiency, no one can obtain abnormal returns after adjusting for risk. If prices are rationally determined, new information will only cause a change in the stock price, resulting in the random move being the natural result of prices always reflecting all current knowledge.

Hypothesis and Conceptual Framework

The hypothesis from this research is presented as follows:

1. H_1: The JCI is negatively affected by the exchange rate.
2. H_2: The JCI is positively affected by the GDP.
3. H_3: The JCI is negatively affected by gold prices.
4. H_4: The JCI is positively affected by oil prices.
5. H_5: The JCI is negatively affected by the U.S. interest rates.
6. H_6: The structure or stability regression of the macroeconomic effect on the JCI varies yearly.



Source: Picture of Research

Figure 2. Conceptual Framework

RESEARCH METHODS

This research is a quantitative study that uses secondary data and monthly panel data from 2006-2021. The secondary data is sourced from the website of Bank Indonesia, the Indonesia Central Bureau of Statistics, Yahoo Finance, the London Bullion Market Association, the U.S. Energy Information Administration, and the Federal Reserve. Secondary data from 2006 to 2021 in the form of the JCI closing price, the rupiah exchange

rate against the U.S. dollar, GDP using the production index approach, gold prices in U.S. dollars per troy ounce, West Texas Intermediate oil prices in dollars per barrel, and U.S. federal funds rate. Data for this study were gathered through documentation and a literature review. Panel data regression analysis and dummy regression were used to determine the effect of the Exchange Rate (XRATE), GDP, Gold Prices (GOLD), Oil Prices (OIL), and U.S. Interest Rates (USRATE) on the JCI, as well as whether there is a year effect on the regression model.

The panel data regression model's equation in this study is:

$$JCI_{it} = \alpha_{it} + \beta_1 XRATE_{it} + \beta_2 GDP_{it} + \beta_3 GOLD_{it} + \beta_4 OIL_{it} + \beta_5 XUSRATE_{it} + \mu_{it}$$

According to Brooks (2014), the effect of time can be analyzed using panel data regression with the regression equation: $Y_{it} = \alpha + \beta X_{it} + \mu_{it}$ where Y_{it} and X_{it} are the dependent and independent variables, respectively. The intercept is α then, and the parameter vector is β. The year is represented by $i = 1, \dots N$, and the month by $t = 1, \dots T$.

Panel data regression can be used to analyze the year effect or time effect, with the individual year effect as a substitute for the company's individual effect in the model. There is no year effect when using the common effect model. The year effect is discovered if the chosen model is a fixed effect or a random effect model.

Dummy regression can be used as an alternative to panel data regression to examine the year effect. Dummy regression analysis is performed by including a dummy variable with a value of 1 for 2007, for example, and 0 for other years, so that the regression equation becomes:

$$JCI_{2007} = \alpha + \beta_1 \text{XRATE} + \beta_2 \text{GDP} + \beta_3 \text{GOLD} + \beta_4 \text{OIL} + \beta_5 \text{USRATE} + \beta_6 DUMMY2007 + \varepsilon$$

If the β_6 coefficient is significant, then the JCI_{2007} is:

$$JCI_{2007} = \alpha + \beta_1 \text{XRATE} + \beta_2 \text{GDP} + \beta_3 \text{GOLD} + \beta_4 \text{OIL} + \beta_5 \text{USRATE} + \beta_6 (1) + \varepsilon$$

or, $$JCI_{2007} = (\alpha + \beta_6) + \beta_1 \text{XRATE} + \beta_2 \text{GDP} + \beta_3 \text{GOLD} + \beta_4 \text{OIL} + \beta_5 \text{USRATE} + \varepsilon$$

The same explanation applies to other years. Thus, the year effect can be seen by comparing the intercepts from one year to another.

This study used 15 dummy variables (DUMMY2007 to DUMMY2021). The equation for the dummy regression model used in this study is:

$$JCI = \alpha + \beta_1 \text{XRATE} + \beta_2 \text{GDP} + \beta_3 \text{GOLD} + \beta_4 \text{OIL} + \beta_5 \text{USRATE} + \beta_6 DUMMY2007 + \cdots + \beta_{20} DUMMY2021 + \varepsilon$$

FINDINGS AND DISCUSSION

Panel Data Regression Results

For determining the best regression model, panel data regression testing was performed, with the Chow test producing the results shown in Table 1 and the Hausman test producing the results shown in Table 2. Based on the Chow test results in Table 1, the Prob. value was 0.0000 < 0.05, indicating that the fixed effect model is more appropriate for estimating panel data regression than the common effect model. Based on the Hausman test results in Table 2, the Prob. value was determined to be 0.0000 < 0.05, implying that the fixed effect model is better suited for estimating panel data regression than the random effect model. Based on the paired test results in Table 3, it is concluded that the fixed effect model is the best choice and will be further investigated in this study.

Table 1. Chow Test Results

Effects Test	Statistic	d.f.	Prob.
Cross-section F	104.041466	(15,171)	0.0000
Cross-section Chi-square	444.508850	15	0.0000

Source: Data processing using EViews 12 (2022).

Table 2. Hausman Test Results

Test Summary Chi-Sq.	Statistic Chi-Sq.	d.f.	Prob.
Cross-section random	92.806873	5	0.0000

Source: Data processing using EViews 12 (2022).

Table 3. Panel Data Regression Model Test Results

Test	Model Testing	Result	Conclusion
Chow Test	*Common effect vs. fixed effect*	*Fixed effect model*	*Fixed effect model*
Hausman Test	*Random effect vs. fixed effect*	*Fixed effect model*	

Source: Data processing using EViews 12 (2022).

Following the best model selection, a fixed effect model regression and intercept calculation are performed, with the results shown in Table 4. The intercept value is determined by multiplying the constant coefficient by the regression coefficient (Ghozali and Ratmono, 2017). Table 4 shows that the intercept varies from year to year from 2006 to 2021, indicating that the intercept varies in the regression model as an individual year-specific effect over time. It demonstrates that the model has a year effect, represented by changes in the intercept each year. According to Mustafa and Hamid (2021), individual year effects in the model are represented by different intercepts for each year. The intercept of a time-fixed effect will vary over time but will be the same across entities at any given time.

Table 4. Panel Data Regression, Fixed Effect Model Results

Variable	Coefficient	t-stat.	Prob.
C	4537.398*)	5.834094	0.0000
XRATE	-0.30939	-6.96977	0.0000
GDP	1585.545	4.911757	0.0000
GOLD	0.679343	2.93704	0.0038
OIL	3.738344	2.035339	0.0434
USRATE	12376.2	2.245496	0.0260

Year	*) Intercept	Year	*) Intercept
2006	1145.495	2014	5486.112
2007	1717.517	2015	6052.908
2008	1891.518	2016	6046.343
2009	2263.852	2017	6583.942
2010	2619.627	2018	6914.837
2011	3376.731	2019	6913.497
2012	3811.668	2020	6201.182
2013	4714.776	2021	6858.364

R-squared	0.982302	F-statistic	474.5561
Adj R-squared	0.980232	Prob(F-statistic)	0.000000

Source: Data Processed by Researchers (2022).

According to Table 4, the intercept varies from one year to another. It indicates that the structure or stability of the regression has changed from year to year during 2006-2021.

Dummy Regression Results

Dummy regression was performed as an alternative to panel data regression, with 15 dummy-year variables ranging from DUMMY2007 to DUMMY2021. The intercept value is calculated after the dummy regression is completed. Table 5 shows the dummy regression results.

Table 5. Dummy Regression Results as an Alternative to Panel Data Regression

Variable	Coefficient	t-stat.	Prob.
C	1145.495*)	1.696433	0.0916
XRATE	-0.30939	-6.96977	0.0000
GDP	1585.545	4.911757	0.0000
GOLD	0.679343	2.93704	0.0038
OIL	3.738344	2.035339	0.0434
USRATE	12376.2	2.245496	0.0260
DUMMY2007	572.0219	5.906752	0.0000
DUMMY2008	746.0225	3.636247	0.0004
DUMMY2009	1118.357	4.12702	0.0001
DUMMY2010	1474.132	5.074289	0.0000
DUMMY2011	2231.236	7.146591	0.0000
DUMMY2012	2666.173	8.195078	0.0000
DUMMY2013	3569.281	11.44884	0.0000
DUMMY2014	4340.617	13.75414	0.0000
DUMMY2015	4907.413	15.76712	0.0000
DUMMY2016	4900.848	15.77103	0.0000
DUMMY2017	5438.447	17.87717	0.0000
DUMMY2018	5769.342	17.79166	0.0000
DUMMY2019	5768.002	17.21879	0.0000
DUMMY2020	5055.687	12.12816	0.0000
DUMMY2021	5712.869	13.2283	0.0000

Year	*) Intercept	Year	*) Intercept
DUMMY2006	1145.495	DUMMY2014	5486.112
DUMMY2007	1717.517	DUMMY2015	6052.908
DUMMY2008	1891.518	DUMMY2016	6046.343
DUMMY2009	2263.852	DUMMY2017	6583.942
DUMMY2010	2619.627	DUMMY2018	6914.837
DUMMY2011	3376.731	DUMMY2019	6913.497
DUMMY2012	3811.668	DUMMY2020	6201.182
DUMMY2013	4714.776	DUMMY2021	6858.364

R-squared	0.982302	F-statistic	474.5561
Adj R-squared	0.980232	Prob(F-statistic)	0.000000

Source: Data Processed by Researchers (2022).

The intercept value for each year's dummy variable is different, as shown in Table 5. The intercept variation indicates a year effect, which describes a change in the regression's structure or stability. The stability of the regression in one year differs from other years, resulting in an unstable macroeconomic effect on the JCI during 2006-2021.

Determination Coefficient (R^2)

According to Tables 4 and 5, the adjusted R^2 value is 0.980232, indicating that macroeconomics (exchange rate, GDP, gold prices, oil prices, and U.S. interest rates) explain 98.02% of the variation in the JCI. Another factor explains the remaining 1.98%.

F Test Result (Simultaneous)

Based on Tables 4 and 5, the F test produced a Prob(F-statistic) value is 0.000000 < 0.05, indicating that the exchange rate, GDP, gold prices, oil prices, and U.S. interest rates had a simultaneous effect on the JCI during 2006-2021.

***t*-Test Result (Partial)**

Based on Tables 4 and 5, the *t*-test results are as follows:

1. The Exchange Rate Prob. is 0.0000 < 0.05 with a negative regression coefficient (-0.30939), so the H_1 hypothesis is accepted.
2. The GDP Prob. is 0.0000 < 0.05 with a positive regression coefficient (1585.545), so the H_2 hypothesis is accepted.
3. The Gold Prices Prob. is 0.0038 < 0.05 with a positive regression coefficient (0.679343), so the H_3 hypothesis is rejected.
4. The Oil Prices Prob. is 0.0434 < 0.05 with a positive regression coefficient (3.738344), so the H_4 hypothesis is accepted.
5. The U.S. Interest Rates Prob. is 0.0260 < 0.05 with a positive regression coefficient (12376.2), so the H_5 hypothesis is rejected.
6. The year effect or individual year dummy (DUMMY2007 to DUMMY2021) Prob. is less than 0.05 and has a positive regression coefficient value, so the H_6 hypothesis is accepted.

Discussion of Research Findings

The Exchange Rate Effect on the JCI

The rupiah appreciation against the U.S. dollar is a good signal for investors because it indicates a stable economy and opportunities to increase corporate profits due to lower production costs resulting from imported raw materials. Lowering production costs will improve the company's performance. If the company performs well, it will encourage investors to purchase company shares to receive the expected returns, resulting in an increase in stock prices and an impact on the JCI. It is consistent with signal theory, which states that a good signal will encourage investors to make investment decisions, such as purchasing shares and increasing stock prices. Increasing stock price increases will cause the JCI to rise. These findings are consistent with the results of Aditya et al. (2018), Desfiandi and Ali (2017), Fuad and Yuliadi (2021), Hasanudin (2021), Julianti and Sulasmiyati (2017), Rahmalia and Kurniasih (2021), Pangondian et al. (2022), and Robiyanto et al. (2019) that the exchange rate has a significant negative effect on the JCI.

The GDP Effect on the JCI

An increase in GDP is a good signal for investors because it indicates increased economic growth, welfare, and purchasing power. When people's purchasing power rises, their consumption of goods and services also rises, allowing businesses to increase sales and profits. This increase will encourage investors to buy shares, following the signal theory, according to which investors, as signal recipients, respond to good information by buying shares, resulting in a rise in share prices. Stock price increases will cause the JCI to rise. This finding is consistent with the findings of Naimah and Dewi (2021), Rahmalia and Kurniasih (2021), and Setiawan (2020), who found that GDP has a significant positive effect on the JCI.

The Gold Prices Effect on the JCI

The rise in gold prices as a safe haven asset during unstable economic conditions or crises sends a negative signal to investors, prompting them to sell their stocks and switch to gold. It is consistent with signal theory, which states that negative signals received by investors as recipients of information will cause them to adjust their behavior and understanding, causing them to sell shares and lowering market share prices.

However, an increase in gold prices as a safe haven asset is not always interpreted negatively by investors because countries with strong economic fundamentals can raise investors' confidence to still earn the expected returns despite the global crisis. Government intervention in economic stabilization and inflation control can send a positive signal to investors. The stable economy and controlled inflation make investors continue buying stock, which impacted rising stock prices and drove up the JCI, following signal theory, in which

positive signals are interpreted as good information for investors. Investors will adjust their behavior by making stock purchase decisions. It demonstrates that gold prices affect the JCI positively. These findings support the findings of Hidayat et al. (2019), Pangondian et al. (2022), Sampurna and Santoso (2017), and Suryanto (2017) that gold prices have a significant positive effect on the JCI.

The Oil Prices Effect on the JCI

Because oil is generally used as the primary energy source for industry and transportation, an increase in oil prices indicates an increase in demand for oil in line with the increasing growth of the industrial and transportation sectors. An increase in oil consumption means increased production activities as market demand for goods and services produced by businesses rises. The rise in demand presents an opportunity for the company to boost sales and net profit. Profit growth provides a good signal for investors. According to signal theory, it encourages them to buy company shares. A good signal will encourage investors to buy shares to get the expected returns, increasing stock prices. Stock price increases will cause the JCI to rise. It demonstrates that oil prices have a positive effect on the JCI. According to Hidayat et al. (2021), Hidayat and Sudjono (2022), Pangodian et al. (2022), Rahmayani and Oktavilia (2020), and Robiyanto et al. (2019), oil prices have a significant positive effect on the JCI.

The U.S. Interest Rates Effect on the JCI

The rise in U.S. interest rates put pressure on the domestic stock market because foreign funds could flow out due to liquidity constraints for foreign investors, forcing them to exit the stock market. When U.S. interest rates rise, the government needs to stabilize the economy and prevent foreign capital outflow from the domestic capital market. Prudent macroeconomic policies, such as exchange rate stability policies to deal with external shocks, active monetary policies to withhold inflation, measured fiscal policies to keep public debt reasonable, and ongoing efforts to strengthen social security, were successful in stabilizing the economy in the face of rising U.S. interest rates.

According to data from the Indonesia Central Bureau of Statistics, the Indonesian government managed to keep average year-on-year inflation per year below 7%, during 2006-2021, except for 2006 and 2008. Controlled inflation is a good indicator for investors that the Indonesian economy is doing well and prevent investors out of the domestic stock market. Suppose investors respond to a good signal by continuing to buy shares. In that case, it will affect rising stock prices, according to signal theory, which states that a good signal will encourage investors to purchase shares to receive the expected returns. The rise in stock prices will affect the increase in the JCI. It demonstrates that the U.S. interest rates effect the JCI positively. According to Julianti and Sulasmiyati (2017), Miyanti and Wiagustini (2018), and Rahmayani and Oktavilia (2020), U.S. interest rates have a significant positive effect on the JCI.

The Structure of Stability Regression of Macroeconomic Effect on the JCI Varies from Year to Year

Structure or stability regression changing year to year indicates that the macroeconomic effect on the JCI from 2006 to 2021 is unstable yearly. This outcome is consistent with Hidayati (2021), Kusumahadi and Permana (2021), and Mustafa and Hamid (2021). JCI fluctuations are influenced by changes in macroeconomic (exchange rates, GDP, gold prices, oil prices, U.S. interest rates) information from time to time, so investors' decisions to buy or sell stocks vary according to the good or bad signals they receive, causing stock prices to vary or fluctuate. The JCI's macroeconomic impact is also volatile, adjusting to investor

behavior and understanding. It is consistent with signal theory, which states that signal receivers (investors) change their behavior and knowledge of good or bad signals to buy or sell stocks.

JCI fluctuations during 2006-2021 show that the market reacted quickly to any new information related to macroeconomic (exchange rates, GDP, gold prices, oil prices, U.S. interest rates) movements as reflected in stock price fluctuations, consistent with the efficient market hypothesis theory semi-strong form that all publicly available information has been reflected in stock prices. New information (good news) raises the share price, while new information (bad news) lowers the share price. It indicates that macroeconomic stability is essential for investors in influencing their investment decisions (buying shares), thereby driving market prices upward, as evidenced by the JCI's rising trend.

CONCLUSION AND RECOMMENDATION

The following conclusions were reached as a result of the research analysis: the exchange rate negatively and significantly affected the JCI during 2006-2021. The GDP positively and significantly affected the JCI during 2006-2021. The gold prices positively and significantly affected the JCI during 2006-2021. The oil prices positively and significantly affected the JCI during 2006-2021. U.S. interest rates positively and significantly affected the JCI during 2006-2021. The structure or stability of the regression of macroeconomic effect on the JCI varies yearly from 2006 to 2021. This variation indicates that the regression model has a time-fixed effect in which the effect of exchange rates, GDP, gold prices, oil prices, and U.S. interest rates on the JCI is not stable from time to time.

The following recommendations for the investor are made based on the research findings: when determining the determinants of stock market performance, investors can focus on macroeconomic factors such as the rupiah exchange rate against the U.S. dollar, GDP, gold prices, oil prices, and U.S. interest rates, as these five variables have a significant effect on the JCI. Investors should pay attention to changes in the rupiah exchange rate against the U.S. dollar, GDP, gold prices, oil prices, and U.S. interest rates as a signal to adjust the performance of their stock portfolios to avoid the risk of declining profit margins and to maintain portfolio performance at an optimal level because the influence of these five variables on the JCI is fluctuating.

REFERENCES

Aditya, Sinaga, B.M., & Maulana, T.A. 2018. *"Pengaruh Indeks Bursa Luar Negeri, Indikator Makroekonomi dan Krisis Ekonomi Global Terhadap Indeks Harga Saham Gabungan di Indonesia"*. Jurnal Aplikasi Bisnis Dan Manajemen (JABM). Vol. 4 (2), pp: 284-295.

Bodie, Z., Kane, A., & Marcus, A.J. 2014. *Investments, Tenth Edition*. McGraw-Hill Education: New York.

Brooks, C. 2014. *Introductory Econometrics for Finance, Third Edition*. Cambridge University Press: New York.

Desfiandi, A., & Ali, H. 2017. *"Composite Stock Price Index (IHSG) Macro Factor in Investment in Stock (Equity Funds)."*. International Journal of Economics and Financial Issues. Vol. 7 (3), pp: 534-536.

Fama, E.F. 1970. *"Efficient Capital Markets: A Review of Theory and Empirical Work."*. The Journal of Finance. Vol. 25 (2), pp: 383-417.

Fuad, F., & Yuliadi, I. 2021. *"Determinants of the Composite Stock Price Index (IHSG) on the Indonesia Stock Exchange."*. Journal of Economics Research and Social Sciences. Vol. 5 (1), pp: 27-41.

Ghozali, I., & Ratmono, D. 2017. *Analisis Multivariat Dan Ekonometrika Teori, Konsep, Dan Aplikasi Dengan Eviews10*. Badan Penerbit Universitas Diponegoro: Semarang.

Gujarati, D.N., & Porter, D. 2009. *Basic econometrics, Fifth Edition*. McGraw-Hill: New York.

Hasanudin. 2021. *"The Effect of Inflation, Exchange Rate, B.I. Rate and Dow Jones Index to Indonesia Composite Index in Indonesia Stock Exchange on the Year 2013-2018"*. International Journal of Science and Society. Vol. 3 (3), pp: 50-60.

Hidayat, A.K., Firdaus, M., & Sanim, B. 2019. *"Pengaruh Kapitalisasi Pasar Saham dan Variabel Makroekonomi terhadap Indeks Harga Saham Gabungan di Bursa Efek Indonesia"*. Jurnal Aplikasi Bisnis Dan Manajemen (JABM). Vol. 5 (2), 332.

Hidayat, R., & Sudjono. 2022. *"The Effect of Gold price, Oil price, USD/IDR Exchange Rate, and Inflation on the Joint Stock Price Index (ICI) On the Indonesia Stock Exchange (IDX)."*. Sch Bull. Vol. 8 (1), pp: 33-41.

Hidayati, E.N. 2021. *Determinan IHSG Di Bursa Efek Indonesia Sebelum Dan Pada Saat Pandemi Covid-19*. Skripsi. Semarang: Universitas Negeri Semarang.

Julianti, A.P., & Sulasmiyati, S. 2017. *"Pengaruh Suku Bunga The Fed, Nilai Tukar Rupiah Dan Bursa Asia Terhadap IHSG (Studi pada Bursa Efek Indonesia Periode 2014-2016)"*. Jurnal Administrasi Bisnis. Vol. 48 (1), pp: 64-70.

Kusumahadi, T.A., & Permana, F.C. 2021. *"Impact of COVID-19 on Global Stock Market Volatility. Journal of Economic Integration"*. Vol. 36 (1), pp: 20-45.

Miyanti, G.A.D.A., & Wiagusti, L.P. 2018. *"Pengaruh Suku Bunga The Fed, Harga Minyak Dan Inflasi Terhadap Indeks Harga Saham Gabungan (IHSG) Di Bursa Efek Indonesia"*. E-Jurnal Ekonomi dan Bisnis Universitas Udayana. Vol. 7 (5), pp: 1261-1288.

Mustafa, M., & Hamid, A. 2021. *"Analyzing Time Effect In The Push And Pull Factors Affecting Foreign Portfolio Investment In Indonesia Stock Market (Case Study Of Foreign Buying During The Period (2003-2018)"*. Dinasti International Journal of Management Science. Vol. 2 (5), pp: 777-794.

Naimah, & Dewi, A. 2021. *"Relationship between Macroeconomic Variables and Stock Market Composite Index: Evidence from Indonesia."*. International Journal of Innovative Science and Research Technology. Vol. 6 (6), pp: 1626-1632.

Pangondian, D., Thamrin, H. & Komarudin, M. 2022. *"ICI Analysis Through SBI Interest Rate, Oil Price, Gold Price, Rupiah Exchange Rate, Nikkei 225 Index, and Dow Jones Index in 2016–2020"*. European Journal of Business and Management Research. Vol. 7 (5), pp; 1-3.

Rahmalia, D., & Kurniasih, A. 2021. *"Determinant Factors of Jakarta Composite Index."*. European Journal of Business and Management Research. Vol. 6 (2), pp: 18-22.

Rahmayani, D., & Oktavilia, S. 2020. *"Does the Covid-19 Pandemic Affect the Stock Market in Indonesia?"*. Jurnal Ilmu Sosial dan Ilmu Politik. Vol. 24 (1), pp: 33-47.

Robiyanto, Santoso, M.A., Atahau, A.D.R., & Harijono. 2019. *"The Indonesia Stock Exchange and Its Dynamics: An Analysis of the Effect of Macroeconomic Variables."*. Montenegrin Journal of Economics. Vol. 15 (4), pp: 59-73.

Ross, S.A. 1977. The Determination of Financial Structure: The Incentive Signaling Approach. Journal of Economics, 8, 23-40.

Sampurna, D.S., & Santoso, J.B. 2017. *"Analisis Pengaruh Harga Komoditas Dan Pasar Modal Dunia Terhadap IHSG"*. Jurnal STEI Ekonomi. Vol. 26 (2), pp: 182-201.

Setiawan, S.A. 2020. *"Does Macroeconomic Condition Matter for Stock Market? Evidence of Indonesia Stock Market Performance for 21 Years"*. Jurnal Perencanaan Pembangunan: The Indonesian Journal of Development Planning. Vol. 4 (1), pp: 27-39.

Spence, M. 1973. *"Job Market Signaling."*. The Quarterly Journal of Economics. Vol. 87 (3), pp: 355-374.

Suryanto. 2017. *"Pengaruh Harga Minyak Dan Emas Terhadap Indeks Harga Saham Gabungan Di Bursa Efek Indonesia"*. Jurnal Riset Bisnis dan Manajemen. Vol. 7 (1), pp: 1-13.