DINASTI INTERNATIONAL JOURNAL OF ECONOMICS, FINANCE AND ACCOUNTING (DIJEFA)
E-ISSN : 2686-6331
P-ISSN : 2686-6358
https://dinastipub.org/DIJEFA dinasti.info@gmail.com +62 811 7404 455

DOI: https://doi.org/10.38035/dijefa.v5i2
Received: 5 May 2024, **Revised:** 16 May 2024, **Publish:** 18 May 2024

The Effect of Global Commodity Prices and JCI on Mutual Fund Investments in Indonesia 2013-2023

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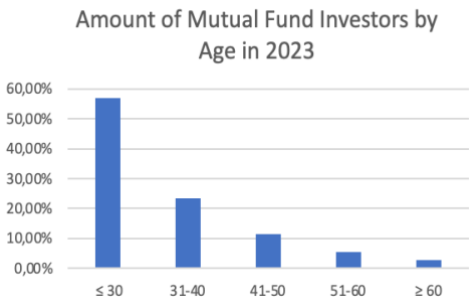
Abstract: Technological developments support the digitalization of investment instruments. Hence, investment in mutual funds is one of the instruments that has experienced a positive trend and can survive economic instability. The success of mutual fund investment in surviving economic instability results from investment managers' performance in diversifying portfolios during that period. This study aims to determine the impact of global commodity prices on mutual fund net asset value. The analysis models used in this research are the Multiple Linier Regression Analysis estimation model and the classical assumption test. This research uses time series data from the period of 2013 to 2023. The results obtained in the study show that global commodity prices have an impact on the net asset value of mutual funds. In contrast, the Composite Stock Price Index (CSPI) and gold prices have a significant positive impact, world oil prices have a negative effect, and nickel prices and palm oil prices do not influence mutual funds' net asset value (NAV).

Keyword: Investment, Mutual Funds, Net Asset Value (NAV), Global Commodity Prices, Jakarta Composite Index (JCI).

INTRODUCTION

Technological advancement is one of the supporters of mutual fund investment momentum, and it has helped the fund survive and experience an increasing trend in the last ten years. Technological developments in the world of investment are characterised by the growing number of digital-based investment platforms that are attractive and friendly to use for millennials and Zoomers.In their research (Pradnyawati, N., Sinarwati, 2022) found that the ease of access and flexible use attracted the younger generation to learn and get information about the world of investment.

During the pandemic, the younger generation decided to become young investors who use mutual fund instruments to get benefits by making investments as additional income. In addition, mutual funds have a low level of risk and can withstand uncertain economic conditions; this can be a new opportunity and challenge in the capital market due to the increasing number of young investors (Abdrizal & Megasari, 2021). The following is a diagram of data on the number of mutual fund investors by age in 2023.



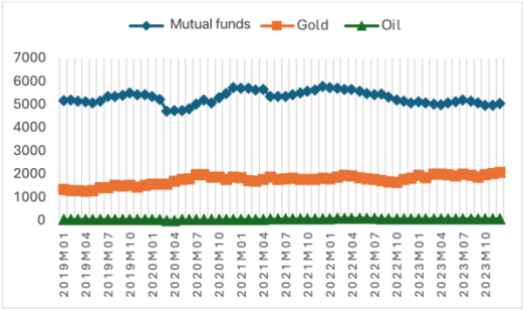
Source: Indonesian Central Securities Depository (KSEI), 2023

Figure 1: Number of Investors

Based on the diagram above, it is appropriate that the younger generation dominates the number of investors in mutual fund investment instruments. Mutual fund investment instruments have diversification properties. Due to the ability of investment managers to diversify mutual fund products to minimise significant risks, the efforts of investment managers in managing stock portfolios and product diversification are also helpful in situations of economic turmoil. Since the COVID-19 pandemic, the world has entered a period of uncertainty. This period has triggered an imbalance in economic activity. Uncertainty is not the same as risk; many factors contribute to uncertainty, including market disruptions, a lack of data or information availability, and the wrong model or policy selection (Aronsohn, 2020). For example, the benchmark interest rate (the Fed) increased faster than expected. This condition triggers the movement of the composite stock price index, which changes up or down suddenly, thus affecting the composite stock price index.

In addition, due to the Cold War events that occurred between Russia and Ukraine, the movement of world oil prices became unstable. According to research (Basher & Sadorsky, 2006). The instability of world oil prices will affect other global commodity prices, such as gold, nickel, and palm oil, due to increased operational costs. An unstable economic condition can affect the state of the capital market because the capital market has a positive relationship with the macroeconomy, and financial stability significantly influences the capital market. (Widoatmodjo, 2009). According to research (Garg & Srivastava, 2020), global commodity prices, especially gold, are likely to impact the capital market. Because gold is considered the safest asset to hold during uncertain economic times, gold prices and mutual funds have a negative relationship in India. The combination of global gold prices and the rupiah vs. dollar exchange rate was shown to significantly influence the JCI in a study by Putri et al. (2016) on the effect of world gold prices on the JCI. The global gold price and rupiah-to-dollar exchange rate contributed 70.3% to the JCI, while other factors outside the study influenced 29.7%.

JCI is significantly influenced by the global gold price and the rupiah-to-dollar exchange rate separately.



Source: Otoritas Jasa Keuangan dan Investing.com.

Figure 2. Mutual fund NAV, Gold Price and World Oil Price in Indonesia 2019-2023

Based on the diagram above, it is known that gold prices and mutual funds had a relationship during the COVID-19 pandemic. Research by So et al. (2001), using a dynamic financial network based on the correlation of stock returns to analyse the relationship between financial networks in Hong Kong, found that network connectivity in the economic network increased during the pandemic during the extraordinary events of COVID-19. The cause is the high public interest in gold during the pandemic, as most Indonesians choose gold because it is a haven investment instrument (Christianti et al., 2022). Mutual funds strengthened again in the following years, while world oil prices tended to be stable or did not experience significant changes. World oil prices will be shaken if there is a conflict between countries other than Russia and Ukraine; previously, the United States and Iran also made a significant long-term contribution to the increase in oil prices (Breitenfellner et al., 2009; Kesicki, 2018) and (Bhar & Malliaris, 2011). According to research (Coleman & Levin, 2006), (Breitenfellner et al., 2009) and (Kaufmann, 2011). when speculators purchase large amounts of crude oil at one time through futures contracts, the oil demand will increase, so the price of the commodity will increase along with the demand in the world market.

This study aims to ascertain how the influence of global commodity prices impacts the net asset value of mutual funds. This study uses a unique analytical approach with the latest data from last year, making it superior to previous studies. As such, the government is expected to use this research to encourage the digitalization of investment development and become a resource for younger investors. The decision to invest is the right of the investor (owner of capital), but having long-term savings is the need of every human being, especially in today's uncertainty.

METHOD

(Sugiyono, 2013) states that associative research aims to show the level of correlation between independent and dependent variables. This study uses time series data from 2013–2023 for the classical assumption test to verify the relationship between two or more variables.

Secondary data was collected and processed for this study from Investing.com, which provides data on the JCI closing price, gold price, nickel price, palm kernel oil price, and world oil price, as well as the net asset value (NAV) of mutual funds from the OJK official website. The Eviews 10 application was utilised to facilitate analysing the estimation model in this study.

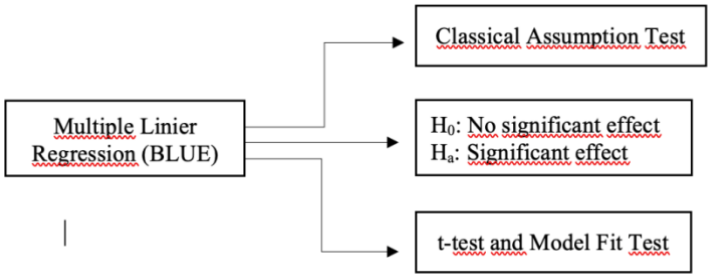


Figure 3. Research Stages

The time series data processing technique uses the multiple linear regression model. The first stage is to create an estimation model and then ensure that the data is free of all classical assumption tests so that it can be said that all the data is BLUE (Best Linear Unbiased Estimation). Furthermore, the second stage is to determine the initial hypothesis and alternative hypothesis so that findings can be obtained based on the goodness of the model test and t-test results using the following estimation model:

$$\mathbf{LnRDt = \beta o + \beta 1IHSGt + \beta 2GOLDt + \beta 3LnNIKELt + \beta 4LnCPOt + \beta 5CRUDEOILt + \varepsilon t}$$

Where:

βo = Constant
βi (1-5) = Coefficient
εt = Error term
t. = Time (monthly)

RESULTS AND DISCUSSION

Research results

Normality Test

Using the Jarque Bera test, the normality test aims to verify that the data used has a normal distribution with an alpha test criterion of 0.01. If Prob. Jarque-Bera ≤ 0.01 means that it is not normally distributed, and if Prob. Jarque-Bera ≥ 0.01, it means a normal distribution.

Table 1. Normality Test Results

Jarque-Bera	Probability	Description	
1,331272	0,5139	>0,01	Normally Distributed Data

According to the table above, it is concluded that the Prob value ≥ 0.01, which is 0.9159, which means that the data is normally distributed.

Multicollinearity Test

The VIF value is used in the multicollinearity test to ensure that the data does not experience multicollinearity. The test criteria are that if the VIF value is ≤ 10, there is no multicollinearity, but if the VIF value is ≥10, it means multicollinearity.

Table 2. Multicollinearity Test Results

Variable	VIF	Description	
IHSG	2,2765	<10	No Multicollinearity
GOLD	4,4519	<10	No Multicollinearity
LOG(NIKEL)	7,2454	<10	No Multicollinearity
LOG(CPO)	2,5742	<10	No Multicollinearity
CRUDE OIL	1,9859	<10	No Multicollinearity

According to the table above, it is concluded that all research variables have a VIF value of ≤10, meaning that there is no multicollinearity.

Autocorrelation Test

The Durbin-Watson value used in the autocorrelation test was conducted to look at the correlation of the research data. The table below displays the findings indicating that the regression model does not show any correlation, with the Durbin-Watson Value = 0.20007 falling between -2 and +2 (-2 < 0.20007 < +2).

Table 3. Autocorrelation Test Results

Adjusted R Square	Std. Error of Estimate	Durbin-Watson Statistic
0,8404	0,1536	0,20007

Heteroscedasticity Test

Heteroscedasticity in the study was evaluated using the Jarque Bera test, using an alpha testing criterion of 0.01. If the Prob. Chi-Square ≥0.01, it means that there is no heteroscedasticity and if Prob. Chi-Square ≤ 0.01, then there is heteroscedasticity.

Table 4. Heteroscedasticity Test Results

Obs*R-Squared	Prob. Chi-Square(5)	Description	
12,5962	0,0275	>0,01	No Heteroscedasticity

According to the table above, it is concluded that there is no heteroscedasticity in the study because Prob. Chi-Square ≥ α (0.01), or 0.0275.

Ordinary Least Square (OLS) Test

Eviews 10 was used to conduct the Multiple Linear Regression Test to ascertain the extent to which the independent variables affect the dependent variable.

Table 5. Multiple Linear Regression Analysis Test Results

Variable	Coefficient	t-Statistic	Prob.	Description	
C	30,99285	51,53096	0,0000		
IHSG	0,000305	12,80695	0,0000	<0,01	Positively Affected
GOLD	0,000286	2,952489	0,0038	<0,01	Positively Affected
LOG(NIKEL)	0,074096	0,786900	0,4328	>0,01	No Effect
LOG(CPO)	0,058246	0,839444	0,4028	>0,01	No Effect
CRUDE OIL	-0,008349	-9,513642	0,0000	<0,01	Negatively Affected

Based on the table above, the constant value and model coefficient used for multiple linear regression can be found so that an equation is obtained as LnRD = 30.99285 + 0.000305IHSG + 0.000286GOLD + 0.074096LnNikel + 0.058246Ln(CPO) - 0.008349CRUDEOIL.

In addition, the t-test results show that the JCI and gold price variables have a positive effect, the world oil variable has a negative impact, and the nickel price and palm oil price variables have no effect on the mutual fund industry trend over the past ten years.

Table 6. F test results and coefficient of determination test

R Square	F-Statistic	Prob	Description	
0,8465	138,9768	0,0000	<0,01	Simultaneously positive effect

Table 6 shows that the research coefficient of the determination test has an R-square value of 0.8465. This indicates that the JCI, Gold Price, Nickel Price, Palm Oil Price, and World Oil Price variables explain 84.65%, with variables outside the model contributing 15.35%. The F-test findings also show that the JCI, gold price, nickel price, palm oil price, and world oil price variables significantly and simultaneously influence the mutual fund industry.

Discussion

Effect of the Composite Stock Price Index on Mutual Fund Investment

JCI is recognized to have a positive impact based on the results of multiple linear regression analyses and classical assumption tests. With every increase in JCI by 1,000 rupiahs, the mutual fund industry will increase by 0.03%. In line with research (Nugraha et al., 2023), the JCI variable has an impact on the growth of the mutual fund industry in the long term because investment managers have a role to play in diversifying portfolios by looking at the composite stock price index, as well as in research (Fitriyani et al., 2020) but currently has no significant impact.

Effect of the Gold Price on Mutual Fund Investment

The net asset value (NAV) of the mutual fund is positively affected by the gold price variable (GOLD). When the price of gold increases by 1 million rupiah, the NAV will increase by 0.02%, which is smaller than the effect of the stock price index variable. In line with research (Putri & Rizal, 2019) and (Prasetyo & W, 2019) which show that gold prices influence the Jakarta Islamic Index stock price index, the NAV of mutual funds with shares owned by Islamic investors is also influenced by the price of gold. Changes basically influence the value of capital market instruments in gold prices.

Effect of the Nickel Price on Mutual Fund Investment

Based on the research, the mutual fund industry proved to be unaffected by nickel prices. However, the net asset value (NAV) of the mutual fund industry increased positively and was simulated with other variables. The findings of this study indicate that the NAV of mutual funds investing in Islamic stocks is partially and not significantly affected by oil prices. According to research (Putri & Rizal, 2019), oil prices do not have a significant impact on the NAV of mutual funds that have sharia stocks. Therefore, businesses that export oil will make money when oil prices rise, thus attracting the interest of many investors. Conversely, investors will offload their holdings in the industry when oil prices fall. The explanation is that oil prices, particularly in the context of the stock market, often experience sharp falls and significant rises during periods of global turmoil.

Effect of Palm Oil Price on Mutual Fund Investment

The mutual fund industry is also affected by palm oil prices in addition to nickel prices. However, Mutual Fund NAV is not partially affected by palm oil prices. According to (Giriati, 2022) the increase in palm oil prices has a long-term effect, which is 0.53% greater than the short term. The Indonesian capital market will only perform better by 0.07% in response to a 1% increase in palm oil prices.

Effect of the World Oil Price on Mutual Fund Investment

In contrast to the world oil variable, which has a negative effect, it means that when the world oil price increases by 1 dollar, it will reduce the net asset value of mutual funds by 0.8% in the last ten years. According to research ((Abdul Hadi et al., 2009) and (Wang et al., 2010) there is a strong correlation between gold prices, stock market performance, and world oil prices.

CONCLUSION

This study seeks to ascertain the extent to which global commodity prices such as gold, nickel, palm oil, and world oil affect the net asset value (NAV) investment of mutual funds. The findings show that a combination of global commodity prices and control variables has an effect on mutual funds and is only affected simultaneously by the JCI and gold price variables. In contrast to this, global oil prices have a negative impact on mutual fund investments. Meanwhile, the net asset value (NAV) of mutual funds has no significant effect on nickel and palm oil prices.

Therefore, although global commodity prices can affect mutual fund investments at a macro level, it cannot be done on a large scale. Because in the mutual fund industry, there are investment managers who have an essential role in diversifying the mutual fund portfolio. So that investment can continue to show a positive trend despite economic turmoil. Therefore, mutual fund investment must continue to be supported by the government and taught early on to the younger generation so that, in the future, Indonesia will have a young generation that is literate in digital-based investment. This is one of the Indonesian government's efforts to welcome the golden Indonesia moment in 2045 and the demographic bonus in 2030.

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