Research Article

Impacts of Macroeconomic Factors on Stock Returns in the Property Sector

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Abstract. The objective of this research was to determine the impact of macroeconomic factors, namely the price of gold, the gross domestic product (GDP) and the money supply, on stock returns in the property sector listed on the Indonesian Stock Exchange. The data used were monthly data from 10 property stocks for the period 2013-2019. Panel data regression was used. The results indicated that the price of gold had a positive impact on returns, GDP had no impact on returns, and the money supply had a negative impact on returns. When considered together, the price of gold, GDP and money supply had an impact on stock returns in the property sector.

Keywords: stock returns, macroeconomics, arbitrage pricing theory

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1. INTRODUCTION

The capital market is important for the economy in Indonesia and other countries, just as capital market banks also facilitate those who have excess funds and those who need capital. The Capital Market provides various investment instruments, one of which is stocks. Stocks fluctuate all the time. Many factors cause the rise and fall of stocks. Macroeconomics is one of the factors that causes stocks to fluctuate, including the price of gold, gross domestic product, and the money supply. Gold is one form of investment that tends to be risk-free because it is chosen by many investors because its value is stable and increases from time to time [1–3]. Gross Domestic Product (GDP) is used as a measure of economic performance because indicating the market value of all goods and sevices that produced by a country in a certain period [4–6].

The main driver of real estate prices and rents, real estate investment is GDP growth. Thus, GDP makes a strong contribution to economic growth.. Studies in some contries indicate that home prices correlate by as much as 60% to 95% with GDP. In the long run, the growth trends of both cycles typically correspond to each other [7]. The results of this real estate investment will certainly affect the prospects of this sector's stock price.

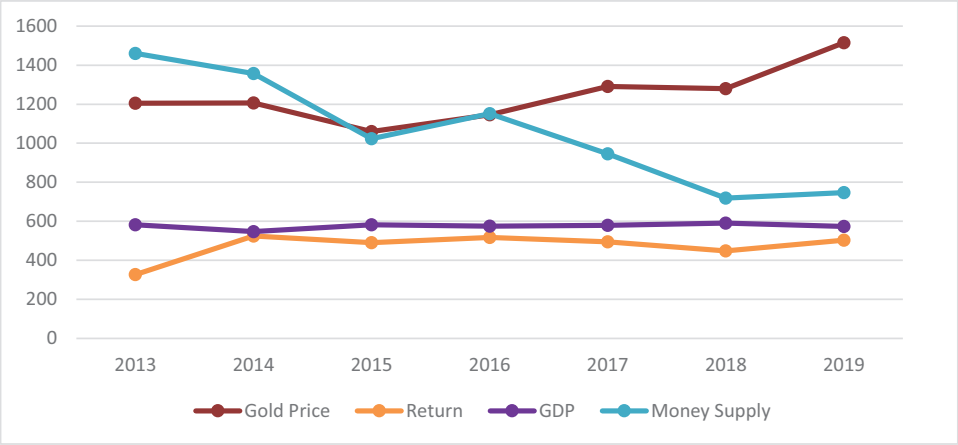

Figure 1: Developments in Gold Prices, Gross Domestic Product, Money Supply and Stock Returns in the Property Sector in 2013-2019.

Gold is one of the factors that have a positive impact on the movement of stock indexes in Australia. When the price of gold soars, overbought conditions that occur in gold will result in selling gold by investors and then there will be an alternative transfer of funds to the capital market [8]. The money supply is the total money supply in an economy at a given time (usually one fiscal year). The money supply is not money that only circulates and is in the hands of the public but in terms of the overall amount of money issued officially by the central bank in the form of currency, demand deposits, and quasi money(7–9).

The development of gold prices, gross domestic product, money supply, and stock returns in the property sector for the period 2013-2019 is shown in Figure 1.

In the years 2013-2019 period, the average world gold price moved in line with property sector stock returns with an increasing trend, although the increase in gold prices experienced a higher increase than stock returns. While the average money supply moves not in line with property stock returns, during that period, the average money supply has decreased and property stock returns have increased (10,11). The average Gross Domestic Product during the observation period, relatively unchanged.

The property sector has experienced an upward trend in the last 7 years, even though the property sector is considered to have a high risk because this sector is very sensitive to macroeconomic factors so the property sector has a high risk (12,13). Therefore, to invest in this sector, investors must always be aware of economic developments both in Indonesia and abroad.

The property sector plays an important role in the macroeconomy where this sector has a high linkage and multiplier impact on economic growth. Table 1 shows Realization of Domestic Investment for the Property Sector in 2013-2019

TABLE 1: Realization of Domestic Investment by Property Sector in 2013-2019

Year	Investment Value Rp. Million	Change (%)
2013	2,152,363.90	-
2014	13,111,802.90	509
2015	6,509,940.00	-50
2016	9,192,785.10	41
2017	17,251,194.80	88
2018	9,436,471.20	-45
2019	28,421,140,70	201

Source: nswi.bkpm.go.id

The amount of investment in the property sector fluctuated over a period of 7 years but increased by 124% on average. Especially in 2014, there was an increase of more than 500% where at that time the election of President Joko Widodo, who prioritized infrastructure development in Indonesia. This increase in investment in the property sector is also accompanied by an increase in the price of property shares on the Indonesia Stock Exchange.

One of the goals of investors in investing is to maximize returns. Return shares are profits obtained by companies, individuals, and institutions from the results of their investment policies (12). The investment policy taken is certainly inseparable from the risks faced in stock investment which are influenced by many factors, both company fundamentals, and macroeconomics. APT is a model it used various macroeconomic factors that vary in calculating the risk premium of an asset or informing an asset valuation model (13).

There are still inconsistent results in the results of the impact of macroeconomic variables on stock returns in the property sector. The previous results results showed that world gold prices have a positive and significant impact on property stock returns (14). The other results showed that the world gold price has a negative impact and Gross Domestic Product has a positive impact on property stock returns (15). It is necessary to results further the impact of macroeconomics on stock returns in the property sector.

The contribution of the results is adding money supply variables other than gold prices and GDP as determinants of stock returns in the property sector.

This results examines various macroeconomic variables such as world gold prices, Gross Domestic Product, and the money supply whether they determine stock returns in the property sector.

2. METHODOLOGY/ MATERIALS

This results uses a quantitative method with a descriptive verification approach. Gross Domestic Product data is obtained from the official website of the Central Statistics Agency. The gold price obtained from the publication of the World Gold Council through its official website as well as data on the money supply from the Ministry of Trade via the official website, and data on property sector share prices obtained from the Indonesia Stock Exchange via the web. The sampling technique in this results used a purposive sampling technique where the results were from a population of 65 companies there were 10 companies that became the results sample.

In this results, the authors use the concept of Arbitrage Pricing Theory (APT) as a model for valuing a financial asset. In its development, this APT is often used with various macro variables as a determinant of stock returns (16,17).

The data analysis used in this results is panel data by performing panel data estimation models, including the Common Impact Model, Fixed Impact Model, and Random Impact Model. The Chow test, Hausman test, and Lagrange multiplier test were used in this results to determine the best model. The next step is to meet the statistical requirements for multiple linear regression analysis using the Classical Assumption Test.

In the early stages of the results, nine macroeconomic variables were studied, namely inflation, BI-rate, the FED, exchange rate, corruption index, world oil prices, world gold prices, Gross Domestic Product, and money supply. However, only three macro variables meet the classical assumption test rules, namely the world gold price, Gross Domestic Product, and the money supply.

3. RESULTS AND DISCUSSIONS

3.1. Descriptive Analysis

The highest gold price occurred in January 2013 at 1060 USD while the lowest was in December 2015 at 1665 USD. The highest Gross Domestic Product was in January 2013 while the lowest was in December 2019. The highest money supply was in January 2013

and the lowest was in December 2019. The company that received the highest return was Sentul City Tbk in August 2017 and the lowest was Sentul City Tbk in November 2019.

3.2. Selection of the Best Model Data Panel

Table 2 shows the results of the Breusch-Pagan Lagrange multiplier test of 0.1869 > 0.05, meaning that the best model used in this results is the Common Impact Model.

TABLE 2: Table Format Statement

	Hypothesis Test		
	Cross-section	**Time**	**Both**
Breusch-Pagan	1.741518	490.2045	491.9460
	(0.1869)	(0.0000)	(0.0000)

Source: Data processed

Classic assumption test

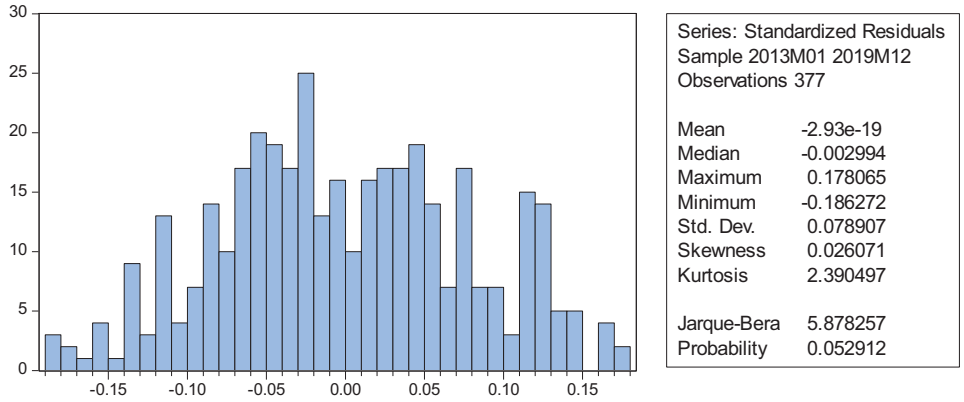

Figure 2: Normality Test.

In panel data regression, the normality test is a Best Linear Unbias Estimator (BLUE) requirement, especially for the Common Impact and Fixed Impact models because this model uses the Ordinary Least Square (OLS) approach (14). From Figure 2 it can be seen that the Jarque-Bera probability value > 0.05 can be interpreted that the residuals are normally distributed.

Table 3 describes the Glejser test of heteroscedasticity. The probability value of the gold price is 0.2743, the gross domestic product is 0.7828, and the money supply is

TABLE 3: Heteroscedasticity Test

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	0.053109	0.028453	1.866553	0.0623
Gold price	2.40E-05	2.19E-05	1.093892	0.2743
Gross domestic product	-0.076894	0.278856	-0.275748	0.7828
Amount of Money Supply	-0.095373	0.237359	-0.401810	0.6879

Source: Data processed

0.6879 where the probability is greater than 0.05, meaning that this model does not occur heteroscedasticity (15)].

TABLE 4: Multicollinearity Test

	Coefficient Variance	Uncentered VIF	Centered VIF
C	0.001885	130.3001	NA
Gold Price	1.12E-09	128.1243	1.018749
Gross Domestic Product	0.180975	1.192083	1.076822
Money Supply	0.131621	1.597167	1.092841

Source: Data processed

The Centered VIF value of the gold price, gross domestic product, and money supply is less than 10, so it can be concluded that there is no multicollinearity (13).

TABLE 5: Autocorrelation Test

F-statistics	13.43335	Durbin-Watson stat	2.027930
Prob(F-statistic)	0.000000		

Source: Data processed

Table 5 shows the results of the autocorrelation test. The value of Durbin Watson is 2.027930, the value of dl = 1.8792, and the value of du = 1.8958. Where dl<dw<du, it can be concluded that this model does not have autocorrelation

3.3. Coefficient of Determination (R2)

TABLE 6: Coefficient of Determination

R-squared	0.045989
Adjusted R-squared	0.042565

Source: Data processed

Table 6 shows the R-squared value of 0.045989 or 4.6% indicating that the ability of the gold price, gross domestic product, and the money supply to explain the variance

of the stock return variable is 4.6% while the remaining 95.4%, is explained by other variables.

3.4. Partial Hypothesis Testing (t-Test)

TABLE 7: t-test results

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	-0.188501	0.043348	-4.348565	0.0000
Gold price	0.000156	3.34E-05	4.674889	0.0000
GDP	0.500124	0.424836	1.177215	0.2394
M2	-1.323993	0.361616	-3.661324	0.0003

Source: Data processed

Table 7 shows the results of the t-test illustrates that the price of gold and the money supply have an impact on stock returns because the probability value is < 0.05. On the other hand, Gross Domestic Product has no significant impact on stock return because the probability value is > 0.05.

3.5. Simultaneous Testing Results (F Test)

TABLE 8: F . Test Results

F-statistics	13.43335
Prob(F-statistic)	0.000000

Source: Data processed

Based on the table above, the F-statistic value is 13.43335 with a probability value of 0.000000. Therefore, the F-count is greater than the F-table value, namely 13.43 > 4.76 and the probability value is smaller than the alpha value, which is 0.000000 < 0.05. This means that the independent variable simultaneously affects the dependent variable.

4. RESULTS DISCUSSION

From the results of partial hypothesis testing, it can be seen that the gold price regression coefficient is 0.000156 with the t-count value for the variable is 4.674889 with a significance level of 0.0000 seen from the t-count which is greater than the t-table, namely 4.674889> 2.44691with a significance level of 0.0000 which is smaller than

0.05, which means the gold price has a significant positive impact on stock returns in the Property sector. This means that the increase in gold prices will be followed by an increase in stock returns, which is supported by the results of Ismi Karomah Ahadiyatun (2018)where when the gold price is high, investors will also buy stocks so that their portfolio varies with the aim of minimizing risk. Gold is known to have low risk so investors use gold as diversification in addition to investing in stocks.

From the results of partial hypothesis testing, it can be seen that the gross domestic product regression coefficient is 0.500124 with the t-count value for the variable is 1.177215 with a significance level of 0.2394 seen from the t-count which is greater than the t-table, namely 1.177215 < 2.44691with a significance level of 0.2394 which is greater than 0.05, which means that gross domestic product has no significant impact on stock returns in the Property sector. This result means that the increase or decrease in Indonesia's gross domestic product does not affect investors in investing in property sector stocks. An increase in a domestic product will increase people's purchasing power so that company sales will also increase, but the increase in GDP does not necessarily increase the per capita income of everyone in Indonesia. This causes inequality in people's income so that GDP growth has no impact on investment in the property sector, this is supported by Kewal's results [16]. Contrary to results conducted by Ratnanto that GDP has a positive impact on the property sector [15].

From the results of partial hypothesis testing which can be seen based on table 4.8 the regression coefficient of the money supply is -1.323993 with the t-count value for the variable is -3.661324 with a significance level of 0.0003 seen from the t-count which is greater than the t-table, namely 4.674889 < -3.661324 with a significance level of 0.0003 which is smaller than 0.05, which means that the money supply has a significant negative impact on stock returns in the Property sector. Where when the money supply rises it will cause interest rates to rise which causes many people to save their money in banks and deposits, but this is different from Wibisono's results (17) stated that M2 had no significant impact.

From the results of simultaneous hypothesis testing, the value of F value is 13,43335 with a probability of 0.000000. because the probability is smaller than the alpha value (0.05) and the F-count is greater than the F-table, namely 13.43335 > 4.76, the R-squared is 0.045989 or 4.6% it can be said that the price of gold, gross domestic product, and the money supply together with the same impact on stock returns of 4.6%.

5. CONCLUSION AND RECOMMENDATION

The price of gold, gross domestic product, and the money supply has an impact on stock returns in the property sector by 4.6% while the remaining 95.4% variance of stock return variables is explained by other variables outside the results. The results of the t-test results, partially the gold price has a positive impact on stock returns in the property sector in 2013-2019. Partially, the gross domestic product has no impact on stock returns in the property sector in 2013-2019, while the money supply has a negative impact on stock returns in the property sector. Based on the results of the F test, the price of gold, gross domestic product, and the money supply simultaneously affect stock returns.

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