CAUSALITY GRANGGER BETWEEN GOLD AND INDONESIA SHARIA INDEX

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ARTICLE INFO	ABSTRACT
Keywords: Time series Gold Sharia index Causality granger Investment Capital market	Gold has long been a very profitable investment. Gold protects from all financial risks due to even a bad economic situation or is also called a safe haven. In addition, there is stock investment which is an alternative to existing investments. In some countries, shares provide very large profits for shareholders. During a booming economy, stocks are the next choice after gold. On the other hand, if the economy is difficult, investors will turn to gold. There is a connection between the two investments. It could be gold that affects the stock price because with the low price of gold all investors will look for alternatives to gold investment, namely stock investment. At a certain time, stock investment will provide more results. There is a need to investigate the relationship between gold and Islamic stocks and Islamic stocks and gold. If you know the two directions of the relationship, it will be easy to predict the two investments. As for the two data through differencing so that the data becomes stationary. By using Grangger causality will test the existence of a relationship between the two. The results of two variables do not have a significant relationship. Neither gold nor Islamic stocks affect each other.
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1. INTRODUCTION

People have been aware of the need for investment since long times ago. Those who have excess money will buy something valuable or something that makes money again (productive). Excess money they can buy rice fields again which will produce rice and money again and so on. They also do not forget gold as their deposit and in some country, gold is a storage medium, in addition to functioning as accessories. Financial institutions also buy gold for savings because of the ease of liquidation[1][2]

Gold is a very popular investment to people[3]. The strong belief in gold makes gold the most desirable product and demand is increasing year by year. The price of gold has an upward trend even though there is a decrease, but only temporarily or temporarily. Gold is a protector for assets that have been collected (safe heaven).

During the covid 19 period, it was seen that gold was even increasing and it was predicted that it would always increase. This forecast shows evidence of gold as a safe heaven. [4]. While there is another alternative that can develop people's finances, namely stock investment. The section that considers that some of the shares of companies that are not halal have a sharia stock index. Islamic stocks can also generate profits. Islamic stocks are also advantageous when compared to stock indices [5]. Some investors choose shares of gold mining companies because it reduces transaction costs in buying gold.[6]

Of course, stocks are still unknown to the public. Only certain people have access to the stock market. This is different from the known gold and access to it is easier. In addition to gold, people have started to recognize investment in the form of financial assets through the stock market. With the initial 13 companies registering and now it has grown into hundreds of companies that are on the floor and

are trying to get capital from the community. The company will issue shares to the public through the capital market in addition to the company's capital. The company will manage public money and distribute profits or profits from the company to investors or shareholders in the form of dividends. In an efficient stock market, all information can affect stock prices. The need for a market will make a country more efficient. There are things that affect the movement of stock prices, one of which is the price of gold. On the other hand, as an investment that has been around for a long time, gold can also affect stock prices.[7]

In developed countries, the function of gold is used as a protector of value in addition to investing in stocks. They will choose the stock when it gives a big profit and they save to the stock. There are two relationships between stocks that are both investments, when stocks go up, gold will decrease or vice versa. The risk in investing in gold is also high because few people invest their money in stocks and many people put their money in gold. During important economic events, gold has no effect because on the contrary, stocks are very influential with economic conditions such as a crisis.[3]

Gold and Stocks are fellow investments. The price of gold can be used as a prediction. When the stock price represented by the index decreases and vice versa. When the price of gold decreases, investors will switch to gold. It is also important during this time that this stock predicts the price of gold as well. The research shows that gold affects the sharia index both in the long and short term. This means that the price of gold can determine the high and low of the sharia index [8]. A research in United States shows that gold is affected by oil prices, dollars, and stock prices [9].

The relationship between the two investment commodities certainly does not rule out the possibility that gold will affect the sharia index. The movement of investment in gold affects the movement of stock prices in parallel. There is a movement of investors who move stocks to gold [10]. A Research in Turkey [11] shows that gold actually affects the BIST 100 index using the Granger Causality method. There is a development method using Granger Causality. This test can predict which factors affect the stock index and gold or vice versa. With this test, it will determine the relationship between stocks and gold. Which variables affect other variables will be able to help predict these variables. It is important for us to predict to estimate the profit that will be obtained.

2. METHOD
2.1 Type and Data Source
The data used in this study is secondary data from indexmudi.com gold prices and index prices on yahoo finance. The two types of data are monthly time series data between September 2016-September 2021

2.2 Analysis Method
Granger Causality Relationship is a relationship that occurs both endogenous variables and exogenous variables. Sometimes exogenous does not affect endogenous. To determine which are endogenous variables and which are exogenous variables is an important topic. An interesting case is the relationship between Islamic stock indexes, namely stocks related to gold. Both are alternatives for people who choose Islamic investments and avoid conventional investments. Researchers often study the relationship between two variables. When two variables are opposite, there will be other variables that influence and there will be variables that are affected. It is not easy to determine which one influences the others. If a variable affects another variables, then this can be used to predict the affected variable. We use data from independent variables or influencing variables to estimate the approximate Y value.

Of course, otherwise it will not be easy to predict. For that is the usefulness of the existence of a variable which is useful for predicting something. Is it important to guess which of the variables is better? Of course, both are important but is it in our interest to know who is influential. Developed country investors view gold as safe haven. Gold can save assets because the price is not easy to go down. Even during tough economic times gold has remained stable and even increased.

This study uses data including daily gold price data with index prices for the last five years from September 2016 to September 2021. These two variables will be tabulated and illustrated in the form of a graph showing the development of these two variables. To see if the data is stationary using the

Augmented Dickey-Fueller test. For data that is not stationary, it will experience what is called a difficulty in forecasting. Generally, time series data is stationary, therefore it is necessary to do it stationary. If there is a stationary regression, the regression will be biased[11]. In this method, differencing is prioritized at the first level or the second level. A non-stationary data can be changed to stationary by differencing [12].

3. RESULT AND DISCUSSION

This study uses sharia index price data from September 2016 - September 2021. Both monthly gold price data and the Jakarta Sharia index are presented in graphical form as shown in Figure.1. Good monthly gold price data for two years. The price of gold tends to be at the bottom until in the middle period it accelerates, whereas the Jakarta Islamic Index declines in the fourth quarter. From the graph, the 40th observation or December 2019 the gold price creeps up, but the index showed a different movement, which is decreased significantly. Gold prices remain high even though sometimes there is a decline. The magnitude of the decline is not as large as the gold price in the period before December 2019. For the Sharia Index it decreased after December 2019 and the index could not increase as happened between the period 2016 to the end of 2019.

In this section, the graphic data show that the data is non-stationary, which means it is also necessary to correct the data first. Most time series data are non stataionary. To fix this is to use difference in the data.
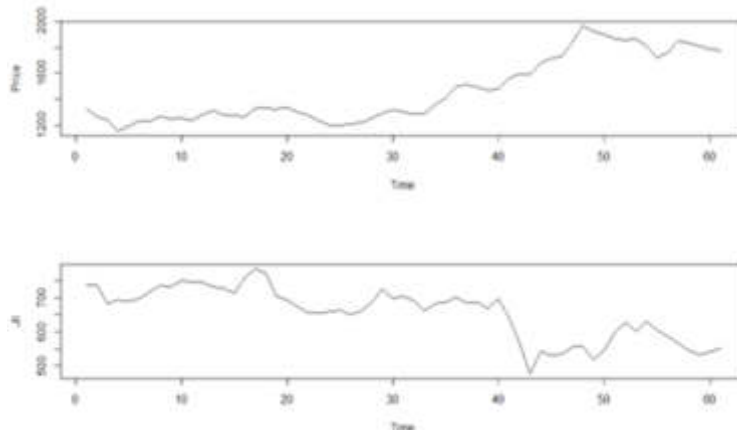

Figure 1 Islamic stock index and gold prices data for 2016-2021

In accordance with the research method, each data must first be ascertained to be stationary. Generally, time series data, nothing is stationary because the nature of the time series data that makes up is not stationary. To test whether the data is stationary is to use Augmented Dickey-Fueller [13].

The Augmented Dickey Fueler test determines that Ho data is stationary while Ha is non-stationary data. The probability value of the ADF Test for both Gold and the Jakarta Index is not stationary. Further tests cannot be carried out as long as the data is not stationary. After making a difference in the two data, namely the first level difference between the two data, both gold price data and stock index data as well.
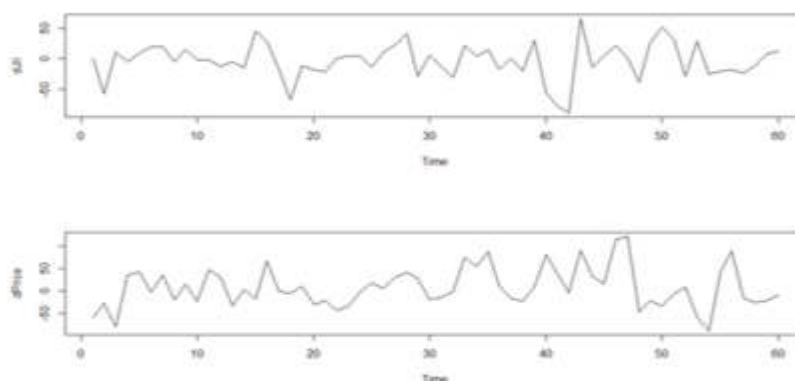
Figure 2 Islamic stock index and gold prices for 2016-2021 after differencing

After the data goes through the differencing process, it can be seen in Figure 2 that the data moves up and down, but there is no part or period that is too low from the other periods. Either sharia index data or gold prices seem to follow a straight line. The process will be continued to the Granger test after the data is stationary.

Table 1 The Result of ADF Test

Variabel	Level	sig	First difference	sig
Emas	-1,537	0,7621	-3,5357	0,04623
JII	-2,9051	0,2087	-3.7367	0,02928

The result of the Grannger test is the price of gold also did not affect the index. The results are quite surprising because both the relationship between gold prices and the sharia index has no significant relationship

.Table 2 Grangger Causality Test

Hipotesis Null	F Stat.	Prob	Decision
Gold does not affect JII	0,3554	0,8527	Cannot reject H0
JII does not affect Gold	1,17066	0,1644	Cannot reject H0

After Grangger Causality test, it was found that the price of gold also did not affect the index. The results are quite surprising because there is no significant relationship between the gold price and the sharia index.

In the first Grangger Test section which tests the hypothesis of a relationship between Gold and the Jakarta Islamic Index, there is no significant relationship with the F value of 0.3554 (Prob 0.8527). The price of gold that occurs does not affect the value of the Jakarta Index. The increase in gold prices will not affect existing investors to choose stocks as an alternative. This may be because there is a difference between stock investors and gold investors. Both look at and see investment differently. Currently, investors in Indonesia are only around 7.86% with local ownership of 58.82% [14]. Of course, this number is still small compared to the total population of Indonesia, which has reached 270 million.

In the second stage of the Grangger Causality test, namely testing the value of the influence of the Jakarta Index with the Gold Price, the same thing was also not found or there was no relationship. The movement of the value of the Jakarta Islamic Index has no significant effect on world gold prices.

After Granger Test, we can conclude that is no relationship between Gold-Sharia Index and vice versa. This shows that the two are not related. The explanation is that these two variables are not related investments. Investors will not shift their investment from one investment to another. There is no shift in gold investment to stocks and stock investment to gold. This is in accordance with research from India [15]. Meanwhile, this is different from the finding that the KSE index is related to world gold prices [1]. This is possible because the place of research is so related to gold.

4. CONLUSION

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After carrying out a series of tests, namely the Augmented Dickey Fueller test, all the data is not stationary. By using differencing at the first level the data becomes stationary. After making sure the data is stationary, treat it. The first test looked for the relationship between gold and the index, but it was not proven that there was anything close to that. For further research, look for variables that affect the price of gold such as inflation, the dollar exchange rate, the price of other commodities. Other variables can show that there is a significant effect on gold or Islamic stock index.

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