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The Influence of Cryptocurrency on Indonesian Stock Market

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Abstract

This research aims to examine the influence of cryptocurrencies on stock market prices in Indonesia. This research uses multiple regression analysis using daily tme series data from 2020-2022 so that the number of observations in this research is 1096. The findings in this research show mixed results between cryptocurrency assets and stock market prices in Indonesia. From the research results, Bitcoin does not have a significant influence on stock market prices in Indonesia, while Ethereum and Binance Coin have a positive and significant influence, but this is different from Maker and Pax Gold. Maker and Pax Gold have a negative and significant influence on stock market prices. The findings in this research show that the nature of the influence of cryptocurrency on stock market prices in Indonesia is not the same but depends on the cryptocurrency asset itself. The findings in this research suggest that investors and market players need to consider these two assets together in their investment strategies

Key words: Cryptocurrency, Stock Market, Indonesian Stock Exchange

INTRODUCTION

Cryptocurrencies, such as Bitcoin, Ethereum, and many others, have become the subject of major attention in the world of global finance. The existence of cryptocurrencies as decentralized digital assets has changed the financial landscape significantly (Jeris et al., 2022). One of the main characteristics of cryptocurrencies is decentralization, meaning there is no central authority, such as a bank or government, controlling them. Bitcoin is the best known example of a cryptocurrency, but there are many other types of cryptocurrency that have different purposes and functions. Cryptocurrencies allow users to conduct transactions directly without the involvement of third parties and are often considered a form of investment or a means of hedging against traditional currencies. Cryptocurrencies

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that use blockchain technology have emerged as an attractive alternative asset class for investors, the media, and the public especially after the dramatic rise in Bitcoin prices in 2017 (Zhang et al., 2018). This is as a result of the huge profit potential offered by cryptocurrency, as well as its impact on various economic and financial aspects.

As cryptocurrencies have grown, there have been concerns about their potential impact on stock market stability. Several studies show that cryptocurrency price movements can have a correlation with stock price movements. Investors and regulators around the world continue to question the relationship between cryptocurrencies and stock markets. During times of high volatility in the cryptocurrency market, it is seen that there is a shift of funds from stock investments to cryptocurrencies as a more profitable asset in the short term (Muhasebe & Dergisi, 2022). Share prices cannot be influenced by just one aspect (Saputra et al., 2023), but other high-yield investment products include cryptocurrency (Du et al., 2017). This has sparked debate about whether cryptocurrencies can become a serious rival to traditional stock markets (Wang & Chen, 2019). Therefore, more in-depth empirical studies are needed to identify and measure the real impact of cryptocurrencies on stock market prices (Gupta & Lee, 2021).

This research aims to further investigate and analyze the influence of cryptocurrency on stock market prices in Indonesia. Considering that Indonesia is one of the fourth largest cryptocurrency users among 27 countries (Dihni, 2022). It was recorded that in November 2022 there were 16.5 million cryptocurrency users in Indonesia with a total cryptocurrency transaction value of 296.66 trillion rupiah (Kominfo, 2022). Even though cryptocurrency is increasingly popular, its status as a form of currency has not received official recognition in Indonesia. Bank Indonesia does not consider cryptocurrency as a legal means of payment in accordance with the provisions contained in Bank Indonesian Regulation Number 19, (2017) which regulates financial technology. However, although cryptocurrencies are not legally recognized as a means of payment, this does not prevent cryptocurrency trading among the general public. This activity is supervised and regulated by the Commodity Futures Trading Supervisory Agency (Bappebti) in accordance with applicable regulations.

In Indonesia, literature relating to cryptocurrency and stock market prices only examines the impact of bitcoin prices on stock market prices. Research conducted by Sihombing et al., (2020) found that Bitcoin had an effect on banking share prices in Indonesia. Sarumaha, (2023) found that bitcoin prices had an effect on stock market prices, while Fahrani & Bachtiar, (2020) found no influence between bitcoin price fluctuations on stock market prices. Therefore, this research examines the impact of 5 cryptocurrency assets that have the largest market capitalization, namely Bitcoin, Ethereum, PAX Gold, Binance Coin, and Maker on the Composite Stock Price Index (IHSG) in Indonesia, involving careful

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analysis methods and historical data. relevant, this research will try to provide a better understanding of the relationship between these two financial assets.

LITERATURE ANALYSIS AND METHODOLOGY

Literature Analysis

Several studies regarding the influence of cryptocurrency on the stock market in Indonesia are currently still very limited. Several studies regarding cryptocurrency on the stock market have indeed developed widely, for example research conducted by Du et al, (2017) that cryptocurrency can influence stock prices, Handika et al, (2019) found that cryptocurrency has an effect on stock prices in Asia, Corbet et al, (2018) found Bitcoin, Ripple and Litecoin influenced stock prices, Conrad et al.,(2018) investigated the volatility between Bitcoin and the S&P500 and found that volatility in the S&P500 had a negative and significant influence on long-term Bitcoin volatility. Lastly, research by Thaker & Abdollah, (2021) found a relationship between Bitcoin and stock market prices.

In portfolio theory, it is explained that in order to minimize investment risk, investors diversify their portfolios by investing in various assets, including cryptocurrencies and shares. The two can compete with each other as different investment options, depending on the level of risk desired by the investor. The competition between cryptocurrencies and stocks can be seen from the perspective of investors looking for investment opportunities that best suit their goals and risk profile. Therefore, the following are the hypotheses proposed in this research:

H1: Cryptocurrency influences stock market prices in Indonesia.

METHODOLOGY

This research refers to research conducted by Muhasebe & Dergisi, (2022) who examined cryptocurrency on the stock market in Turkey. This research examines the impact of 5 cryptocurrencies with the largest market capitalization values on the Composite Stock Price Index (IHSG) in Indonesia. This research is quantitative research using multiple linear regression analysis and using the help of Eviews 12 Software. The research data uses secondary data quoted from official data provider websites, cryptocurrency is quoted on the Yahoo Finance website page which is converted into rupiah, while stock market data quoted from the Composite Stock Price Index available on the Indon

esia Stock Exchange (BEI). The steps in carrying out a regression test are statistical descriptive tests, classical assumption tests, hypothesis tests (t-tests) and R^2 determination. The following are the equations in this research:

$$IHSG = a + b1BTC_t + b2ETH_t + b3PAX_t + b4MKR_t + b5BNB_t + e_t$$

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Table 1. Variable Measurement

Variable	Variable Measurement	Symbol
Independent Variable		
Bitcoin	Closing Price Bitcoin January 2010 - December 2022	BTC
Ethereum	Closing Price Ethereum January 2010 - December 2022	ETH
PAX Gold	Closing Price PAX Gold January 2010 - December 2022	PAX
Maker	Closing Price Maker January 2010 - December 2022	MKR
Binance Coin	Closing Price Binance January 2010 - December 2022	BNB
Dependent Variable		
Composite Stock Price Index (IHSG)	Closing Price IHSG Januari 2010 - Desember 2022	IHSG

RESEARCH AND RESULTS

This research uses the 5 cryptocurrencies with the largest market capitalization. Cryptocurrency data and the Composite Stock Price Index (IHSG) are quoted from the Yahoo Finance website using time series data from 2020-2022 so that the number of observations in this research is 1096. In this research we use the Natural Logarithm of each variable, the following is an illustration in this research are summarized in the descriptive statistical results in table 2 below:

Table 2. Descriptive Statistical Results

	IHSG	BTC	ETH	PAX	MKR	BNB
Mean	3.78	8.53	7.20	7.21	7.41	6.26
Median	3.79	8.54	7.35	7.17	7.41	6.61
Maximum	3.86	8.98	7.83	7.93	7.48	6.98
Minimum	3.59	7.85	6.2	6.48	7.31	5.11
Std.Dev	0.05	0.29	0.46	0.33	0.02	0.60
Observation	1096	1096	1096	1096	1096	1096

Source: Eviews 12

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1. The average composite stock price index (IHSG) for the Indonesian capital market is 3.78, with a standard deviation of 0.05. The minimum value is 3.59, the maximum is 3.86, while the median is 3.79.
2. The average price of Bitcoin (BTC) from 2020-2022 is 8.53, with a median value of 8.54. The maximum value is 8.54, the minimum is 8.94, while the standard deviation value is 0.29. The number of observations for BTC is 1096.
3. The average Ethereum (ETH) from 2020-2022 is 7.20, with a median value of 7.35. The maximum value is 7.83, the minimum is 6.20, while the standard deviation value is 0.46. The number of observations for ETH is 1096.
4. The average price of PAX Gold (PAX) from 2020-2022 is 7.21, with a median value of 7.17. The maximum value is 7.93, the minimum is 6.48, while the standard deviation value is 0.33. The number of observations for BTC is 1096.
5. The average Maker price (MKR) from 2020-2022 is 7.41, with a median value of 7.41. The maximum value is 7.48, the minimum is 7.31, while the standard deviation value is 0.02. The number of observations for BTC is 1096.
6. The average price of Binance Coin (BNB) from 2020-2022 is 6.26, with a median value of 6.61. The maximum value is 6.98, the minimum is 5.11, while the standard deviation value is 0.60. The number of observations for BTC is 1096.

This research uses multiple regression analysis to test the influence of cryptocurrency on stock market prices in Indonesia. The results of this research are summarized in table 3 which shows that there are various influences between cryptocurrencies on stock market value. Of the five assets, there are several assets that have a positive or negative influence, there are also assets that have no influence on stock market prices in Indonesia. Bitcoin is an asset that has no influence on stock market prices in Indonesia. This can be seen from the regression results which show a probability value of statistical significance of 0.1029. This value is above 0.05 so it can be concluded that Bitcoin does not have a significant influence on stock market prices in Indonesia. Ethereum shows a positive coefficient value of 0.169958 with a significance value of 0.0000, while BNB shows a positive value of 0.037668 with a significance value of 0.0000. Based on the results of tests that have been carried out, these two assets can be concluded that Ethereum and Binance Coin have a positive and significant influence on stock market prices in Indonesia.

Table 3. Regression Results

Variabel	Coefficient	Std. Error	t-Statistic	Prob
Constanta	8.769510	0.268738	32.63219	0.0000
BTC	-0.020007	0.012256	-1.632425	0.1029

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ETH	0.169958	0.012297	13.82140	0.0000
MKR	-0.153826	0.007103	-21.65632	0.0000
PAX	-0.696350	0.035113	-19.83171	0.0000
BNB	0.037668	0.005813	6.480275	0.0000
R-Squared	0.779839			
Adj R-squared	0.778829			
F-Statistic	0.000000			
Observation	1.096			

Source: Eviews 12

In addition, Maker and PAX Gold show a negative and significant relationship to stock market prices in Indonesia. Maker with a coefficient value of -0.153826 and a significance probability value of 0.0000 indicates an inverse relationship between Maker and stock market prices. If there is an increase in the Maker price, it will have an impact on decreasing stock market prices in Indonesia. PAX Gold also shows the same relationship with a coefficient value of -0.696350 and a probability value of 0.0000. What this means is that the higher the price of PAX Gold, the more impact it will have on the stock market price.

The influence of Bitcoin (BTC) on the stock market in Indonesia

In general, this research is in line with several studies that have been conducted, such as Du et al, (2017) and Handika et al, (2019) which found that cryptocurrency had an effect on stock market prices. However, in Indonesia, research results show differences in influence between each cryptocurrency asset such as Bitcoin, Ethereum, Maker, Pax Gold and Binance Coin. Based on the research results that have been discussed, Bitcoin (BTC) has no influence on stock market prices in Indonesia as a whole, this result is not in line with several previous studies such as Corbet et al, (2018); Conrad et al.,(2018); and Thaker & Abdollah, (2021) who found Bitcoin had an influence on stock market prices. However, this research is in line with research conducted by Fahrani & Bachtiar, (2020) which found that Bitcoin had no effect on stock market prices.

There are several reasons related to the factors that cause Bitcoin to have no influence on stock market prices. Firstly, Bitcoin is traded in the crypto market, while shares are traded in the equity market. Both have different market characteristics and involve different market participants. Therefore, events or price changes that occur in the crypto market do not always have an immediate or major impact on the stock market. Second, Investors in the crypto market and stock market may have different goals, knowledge and risk tolerance. Some investors may participate in both markets, but many also focus on one market only. Thus, price changes in one market do not always create significant changes in

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other markets. Lastly, the fundamental value of Bitcoin and stocks comes from different sources. Stock prices are often related to a company's financial performance, profit and loss statements, revenue growth, and other factors related to the company's business. On the other hand, Bitcoin's value can be affected by the adoption of blockchain technology, government regulations, and other crypto-specific factors.

The influence of Binance (BNB) on the stock market in Indonesia

The results of this research show that Bitcoin has no influence on stock market prices in Indonesia. This is different if you look at how Binance influences stock market prices. This asset is proven to influence stock prices positively and significantly, meaning that the higher the price of Binance, the impact it will have on increasing the stock market price. This positive relationship shows that when there is an increase in the price of Binance, investors are more inclined to invest in financial assets such as shares compared to investing in Binance.

These results are in line with research conducted by Seng et al, (2018) which found that cryptocurrency prices have a positive relationship with the movement of the S&P500 index. If there is strong optimism in the cryptocurrency market, this can create positive sentiment in the financial markets in general. Investors who benefit from investing in crypto assets may be more inclined to allocate their additional funds to other financial instruments including stocks. Additionally, cryptocurrencies are not backed by assets which causes their risks to be higher and their prices fluctuate due to sentiment. If traders do not want to own cryptocurrency, the price can drop to zero because it is not backed by anything (Shaturaev, 2023).

The influence of Ethereum (ETH) on the stock market in Indonesia

The results of this research show that Ethereum has a positive and significant influence on the stock market in Indonesia. There are several reasons why Ethereum can have a positive and significant impact on the stock market in Indonesia. First of all, the integration of blockchain technology, which is the basis for cryptocurrencies such as Ethereum, with the financial and business sectors can create opportunities and positive impacts (Kompasiana, 2023). In this context, there is a theory about technology adoption which states that the use of new technology can increase efficiency, transparency and productivity, which in turn can have a positive impact on the stock market (Kamal & Apriani, 2022).

Ethereum has the potential to facilitate value transfers and smart contracts without the need to involve third parties. If companies in Indonesia start to integrate this technology

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in their operations, this could bring significant efficiencies in business processes, supply chain management and payment systems. Theoretically, this increase in efficiency can make a positive contribution to company performance, which is then reflected in the share value and overall stock market index (Negara & Febrianto, 2020).

Apart from that, positive sentiment in crypto markets such as Ethereum can create a wealth effect. If investors in the crypto market feel an increase in the value of their portfolio, they may tend to increase their level of consumption and investment in other sectors, including the stock market (Seng et al., 2018).. This theory supports the view that changes in value in one asset class (e.g., crypto) can influence investors' decisions and behavior in another asset class (e.g., stocks).

The influence of Maker (MKR) on the stock market in Indonesia

Additionally, Maker and Pax Gold show different relationships. Maker and Pax Gold show a negative relationship with stock market prices, meaning that the higher the price of Maker and Pax Gold, the impact it will have on the decline in stock market prices in Indonesia. This indicates that there was a shift in investment which was initially in shares but when the price of Maker and Pax Gold increased, investors were able to transfer assets from shares to cryptocurrency or by reducing the weight of shares and increasing Pax golf and Maker as an optimal portfolio according to preferences. The risk expected by investors, in Markowitz's theory, investors' decisions in deciding whether or not to invest in financial assets depends on the risk preferences of each investor (Bodie et al., 2014). In general, these results are in accordance with several previous studies such as Du et al, (2017) and Handika et al, (2019) which found that cryptocurrency has an influence on stock prices.

The influence of Pax Gold (PAX) on the stock market in Indonesia

The findings in this research show that Pax Gold has a negative and significant relationship with the stock market in Indonesia. Pax Gold (PAXG) is a crypto token held by physical assets, specifically gold. Although investment in gold is generally considered a form of hedging against economic uncertainty, there are several reasons why Pax Gold could potentially have a negative impact on the stock market in Indonesia. Based on portfolio theory, to reduce investment risk it is better to diversify investments. Investment diversification is carried out by investing in different types of investments. So, investors are expected not to invest in just one type of investment because the risk is high (Bodie et al., 2014). If Pax Gold is seen as a form of hedging against market risk or global uncertainty, investors may be more inclined to allocate their assets into gold rather than shares amidst uncertainty (Dwiati & Ambarwati, 2016).

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When there is a spike in volatility in the crypto market, as is often the case, investors may be inclined to reallocate their portfolios. In some situations, investing in crypto assets such as Pax Gold can be considered a more attractive or safer alternative to stocks, especially if there are concerns about risk and volatility in the stock market (Sharpe, 1964). Additionally, low or even negative interest rate conditions can make gold and other crypto assets more attractive to investors looking for better yields than those offered by traditional financial instruments. This may result in some capital being shifted from shares to assets such as Pax Gold.

CONCLUSION AND RECOMMENDATIONS

In accordance with the aim of this research, namely to examine the influence of cryptocurrency on stock market prices in Indonesia, the research results found that cryptocurrency has a diverse influence on stock market prices in Indonesia. The research results show that Bitcoin has no effect on stock market prices in Indonesia, but other cryptocurrency assets such as Ethereum, Maker, Binance Coin and Pax Gold have a significant effect on stock market prices in Indonesia, but these four assets show different influencing relationships. Ethereum and Binance Coin have a positive influence while Maker and Pax Gold have a negative influence on the stock market in Indonesia.

In this research we use 5 cryptocurrency assets to test their effect on stock market prices. We suggest that future research examine other cryptocurrencies outside of the research model that has been built in this research. Apart from that, it is necessary to distinguish between times of crisis and economic conditions so that we can understand more about investors' investment decisions when they are in certain conditions.

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