Bitcoin Money Market Efficiency in Indonesia: Descriptive Analysis, Multiple Linear Regression, and Market Efficiency Tests

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Abstract
The cryptocurrency market, particularly Bitcoin, is a new phenomenon that offers opportunities and challenges for market participants, regulators, and researchers. This study aims to analyze the characteristics, influencing factors, and implications of the Bitcoin money market in Indonesia. This research uses quantitative methods with multiple linier regression. The results show that the Bitcoin money market in Indonesia has unique characteristics, such as high volatility, low correlation with conventional money markets, and high sensitivity to global and domestic issues. In addition, the results also show that money market variables, such as interest rates, inflation, exchange rates, and liquidity, have a significant influence on the demand, supply, price, and volatility of Bitcoin. Based on these findings, this study provides several suggestions for the development of the Bitcoin money market in Indonesia, such as regulation, education, and further research. This research is expected to contribute to the development of literature and policies on money markets and cryptocurrencies, especially in the Indonesian context.

Keywords: Cryptocurrency market, Bitcoin, Indonesia, quantitative analysis, market efficiency.
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Introduction
The money market is a market that trades short-term financial instruments with maturities of less than one year. The money market is one of the sources of financing for governments, companies, and financial institutions. The money market also serves as a means of monetary control by the central bank. The money market in Indonesia consists of various instruments, such as Money Market Securities (SBPU), Indonesia's Bank Certificates (SBI), Government Securities (SBN), and time deposits (Okoyan & Eze, 2021). The money market trades short-term financial instruments with maturities of less than one year. The money market is one of the sources of financing for governments, companies, and financial institutions, which need liquid funds to meet operational or investment needs. The money market also serves as a means of monetary control by the central bank, which can affect interest rates and the money supply in society (Schrimpf & Sushko, 2019).
The money market has several characteristics that distinguish it from the capital market, which is a market that trades long-term financial instruments. Some of the characteristics of the money market are decentralization, diversity, liquidity, and flexibility. Decentralization means that the money market is not bound by physical location, but operates through telecommunication networks between market participants. Diversity means that the money market consists of a

variety of different financial instruments, such as SBI, SBPU, SBN, and time deposits. Liquid means that the money market is easy to transact and convert into cash, because it has a high volume and frequency of transactions, as well as low risk. Flexible means that the money market can adjust to changing economic conditions and monetary policy, as it has short maturities and variable interest rates (Erdoğan, 2020).

The money market is a dynamic and strategic market, which has a significant role and impact on a country's economy. The money market is also an indicator of a country's financial health and stability, which can reflect the level of public trust and expectations of macroeconomic conditions and government policies. The money market is a market that must be understood and utilized by economic actors, both as a source of funding and as a means of investment (Reboredo & Ugolini, 2020). One of the phenomena occurring in the money market today is the emergence of digital currencies or cryptocurrencies, such as Bitcoin. Cryptocurrency is a digital asset that utilizes cryptographic technology to secure transactions and regulate the creation of new units.. Cryptocurrencies are not issued by a central authority, but rather generated by a network of computers spread across the globe. Cryptocurrencies can be transacted peer-to-peer without intermediaries, such as banks or exchanges (Giudici et. al, 2020).

Cryptocurrency is a phenomenon that is still developing and has the potential to change the world of finance. It has advantages and disadvantages, as well as challenges and opportunities, that users, developers, regulators and other stakeholders need to learn and understand. Cryptocurrency also has various types and variations, such as Bitcoin, Ethereum, Litecoin, and others, which have different characteristics and functions. Cryptocurrency is one of the most exciting and revolutionary technological innovations of the 21st century (Mikhaylov, 2020). Bitcoin was the first cryptocurrency created in 2009 by a person or group using the pseudonym Satoshi Nakamoto. Bitcoin uses a decentralized protocol called blockchain to record and verify transactions. The blockchain is a distributed ledger that stores information about all Bitcoin transactions that have ever occurred. Each new block added to the blockchain must be approved by a majority of network participants, called miners. Miners are people or organizations that use specialized hardware to solve complex mathematical problems and are rewarded with new Bitcoins (Grunspan & Pérez-Marco, 2020).

Bitcoin and several other cryptocurrencies have been declared legal in Indonesia since 2019 by the Ministry of Trade (MOT) through the Futures Trading Supervisory Agency (Bappebti). Although legal, Bitcoin in Indonesia is considered a tradable commodity, not a means of payment. This is in accordance with Bank Indonesia's (BI) statement that in Indonesia, bitcoin and other cryptocurrencies are not accepted as money or as legitimate tender. Therefore, Bitcoin trading in Indonesia must be done through a futures exchange that has obtained a license from Bappebti. Bappebti has also established a list of 229 cryptocurrencies that can be traded on the physical market of crypto assets in Indonesia (Putri & Sitompul, 2023). This study aims to analyze the Bitcoin money market in Indonesia, by examining the factors that affect the demand and supply of Bitcoin, as well as its impact on the price and volatility of Bitcoin. This study will also examine the efficiency of the Bitcoin money market in Indonesia, using the run test, autocorrelation test, and variance ratio test. This research is expected to contribute to the development of literature on the cryptocurrency money market, as well as provide information for market participants, regulators, and researchers about the characteristics and dynamics of the Bitcoin money market in Indonesia (Havidz et. al, 2021).

Literatur Review

Bitcoin is a digital currency that was created in 2009 by an individual or group using the pseudonym Satoshi Nakamoto (Taskinsoy, 2021). Transactions involving Bitcoin are decentralized, meaning that there is no central authority that controls or regulates them. Bitcoin is also anonymous, meaning that the identity of Bitcoin users cannot be known easily. Bitcoin can be used for various purposes, such as payment, investment, speculation, and others. One market that trades Bitcoin is the Bitcoin money market (Fauzi et, al. 2020).

The Bitcoin money market is a market that trades Bitcoin as a short-term financial instrument. The Bitcoin money market has several characteristics that distinguish it from conventional money markets, such as decentralization, anonymity, volatility, and efficiency. Decentralization means that the Bitcoin money market is not dependent on a central authority that can influence the price or amount of Bitcoin in circulation. Anonymity means that the identities of Bitcoin money market participants cannot be known easily, thus increasing the privacy and security of transactions. Volatility is the ability of the price of Bitcoin to fluctuate significantly over short periods of time, providing market participants with the opportunity for significant profits or losses. Efficiency means that the Bitcoin money market can reflect available information quickly and accurately, reducing the possibility of arbitrage opportunities or market manipulation (de la Horra et, al. 2019).

Cryptocurrency is a digital currency that is not regulated by a central authority and uses cryptographic technology to secure transactions and the creation of new units (Judmayer et. al, 2022). Cryptocurrency has various characteristics that distinguish it from conventional currencies, such as anonymity, decentralization, volatility, and globality. Cryptocurrencies are also influenced by various factors, both internal and external, that affect demand and supply in the market. The money market, which is a market that allows the exchange of short-term financial products like deposits, certificates, bonds, and stocks, is one external element that is believed to have an impact (Aspris et, al. 2021). To analyze the influence of the money market on cryptocurrencies, this study uses several relevant economic theories, namely demand and supply theory, exchange rate theory, and money market theory. Demand and supply theory, an essential idea in economics, it describes how the interactions between buyers and sellers in the market determine the quantity and price of an item or service.. This theory can be used to analyze how factors that affect the demand and supply of cryptocurrencies, such as preferences, expectations, technology, regulation, and others, impact the price and volume of cryptocurrencies (Rangaswamy et. al, 2020).

Exchange rate theory explains how the value of a currency is determined by the demand and supply of that currency in the foreign exchange market. This theory can be used to analyze how the rupiah's value in relation to the US dollar, which is one of the money market variables, affects the price of cryptocurrencies, which are usually expressed in US dollars (Frenkel, 2019). One of the exchange rate theories relevant to this research is the purchasing power parity theory, which contends that a comparison of the two countries' price levels will be reflected in the exchange rate between the two currencies. As per this theoretical framework, an increase in the price level in Indonesia relative to the US dollar will result in a corresponding rise in the value of the rupiah, and vice versa. This theory can be used to analyze how inflation affects cryptocurrency prices. For example, if inflation in Indonesia rises, then the currency rate of the rupiah against the US dollar will fall, so the price of cryptocurrency in rupiah will rise, and vice versa (Edwards et, al. 2019).

Money market theory explains how the balance between the demand and supply of money is determined by interest rates, inflation, and foreign exchange reserves. This theory can be used to analyze how other money market variables, such as SBI interest rates, CPI inflation, and foreign exchange reserves, affect cryptocurrency prices, either directly or indirectly. By using these theories, this study can explain the mechanism of interaction between the money market and cryptocurrency in Indonesia (Liu & Lee, 2022).

One of the money market theories relevant to this study is the classical money demand theory, which states that the demand for money depends only on the level of real income and the nominal interest rate. According to this theory, the higher the real income level, the higher the demand for money, and vice versa. Meanwhile, the higher the nominal interest rate, the lower the demand for money, and vice versa. This theory can be used to analyze how SBI interest rates affect cryptocurrency prices. For example, there will be less demand for money if the SBI interest rate increases, so people will tend to shift their money to other more profitable assets, such as cryptocurrencies. This will increase the demand and price of cryptocurrencies, and vice versa (Trinh, 2022). Another money market theory relevant to this study is the Keynesian money demand theory, which states that money demand depends on three motives, namely transaction motive, precautionary motive, and speculation motive. According to this theory, money demand for transaction and precautionary motives depends on the level of nominal income, while money demand for speculation motives depends on expectations about interest rate changes. This theory can be used to analyze how CPI inflation affects cryptocurrency prices. For example, if CPI inflation rises, the value of money will fall, so Individuals will typically decrease the need for money for transaction and precautionary motives, and increase the demand for money for speculation motives. This will lower the demand and price of cryptocurrencies, and vice versa (Wasiaturrahma et. al, 2019). Another money market theory relevant to this study is the Monetarist money demand theory, which states that the demand for money depends on the level of real income, the real interest rate, and the relative price level between domestic and foreign. According to this theory, money demand will rise if the real income level rises, the real interest rate falls, or the domestic relative price level falls. This theory can be used to analyze how foreign exchange reserves affect cryptocurrency prices. For example, if foreign exchange reserves rise, the rupiah exchange rate will rise, so the domestic relative price level will fall. This will decrease the demand and price of cryptocurrencies, and vice versa (Doan Van, 2020).

Money market interest rates are the price of money borrowed or saved in short-term financial markets, such as deposits, certificates, bonds, and stocks. Money market interest rates in Indonesia can be measured by the SBI interest rate, which is the benchmark interest rate set by Bank Indonesia to regulate monetary policy. SBI interest rates can affect cryptocurrency prices through interest rate and expectation mechanisms. According to the interest rate mechanism, a high SBI rate will increase the demand for money and decrease the demand for risky assets, such as cryptocurrencies. This will push cryptocurrency prices down. According to the expectation mechanism, high SBI rates will lead to expectations that the rupiah exchange rate against the US dollar will strengthen. This will decrease the demand for cryptocurrencies, which are usually expressed in US dollars, and lower the price of cryptocurrencies. Therefore, this hypothesis states that money market interest rates have a negative effect on cryptocurrency prices (Mishkin & Eakins, 2019).

Ilham et al. (2022) examined the factors affecting Bitcoin price in Indonesia, using daily data from January 2017 to December 2018. They used multiple linear regression analysis method with the dependent variable of Bitcoin price and independent variables of rupiah exchange rate

against the US dollar, world oil and gold prices, and the composite stock price index (IHSG). The results showed that the rupiah exchange rate against the US dollar, world gold prices, and JCI had a positive and significant effect on Bitcoin prices, while world oil prices had a negative and significant effect on Bitcoin prices. Research by Ilham et al. (2022) contributes to Bitcoin money market players in Indonesia to understand the factors that can affect Bitcoin prices and make the right decisions in transactions.

Bahloul et al. (2022) examined Bitcoin price volatility in Indonesia, using daily data from January 2016 to December 2019. They used the Generalized Autoregressive Conditional Heteroskedasticity (GARCH) analysis method with the dependent variable of Bitcoin daily return and the independent variables of daily return of rupiah exchange rate against US dollar, daily return of world gold price, daily return of world oil price, and daily return of JCI. The results showed that the daily return of the rupiah exchange rate against the US dollar, the daily return of world gold prices, and the daily return of the JCI had a positive and significant effect on Bitcoin price volatility, while the daily return of world oil prices had a negative and significant effect on Bitcoin price volatility. Bahloul et al. (2022) contributes to Bitcoin money market players in Indonesia to understand the risks associated with Bitcoin price fluctuations and take the right strategy to manage these risks.

Robiyanto et. al, (2019) examined the efficiency of the Bitcoin money market in Indonesia, using daily data from January 2014 to December 2019. They used run test, autocorrelation test, and testing the random walk using the variation ratio test hypothesis that Bitcoin price cannot be predicted based on past information. The findings demonstrated that Indonesia's Bitcoin money market is weak and ineffective, which means that Bitcoin prices can be predicted based on past information and there are arbitrage opportunities for market participants. Robiyanto et. al, (2019) research contributes to Bitcoin money market players in Indonesia to understand the characteristics of the Bitcoin money market and take advantage of existing arbitrage opportunities.

Sihombing et al. (2021) analyzed the influence of crypto fundamentals, such as market capitalization and volume, on the price fluctuations of Bitcoin, Ethereum, Litecoin, and Bitcoin Cash in 2019-2020. They used multiple linear regression methods with data taken from the coinmarketcap.com website. The results showed that market capitalization and volume, with the exception of Litecoin volume, significantly and favorably impacted changes in cryptocurrency prices, which had a negative and significant effect. Majid et al. (2021) analyzed crypto from the perspective of currency, law, economics, and sharia. They used a qualitative descriptive method with a literature approach. The results showed that crypto is acceptable as money from the perspective of money characteristics, but does not meet the criteria as a currency from the perspective of currency, currency function, law, and sharia.

Christianto et. al (2022) examined the existence of Bitcoin virtual currency in Indonesia from the perspective of John Stuart Mill's utilitarianism. Christianto et. al (2022) research uses a descriptive qualitative approach with descriptive historical, verstehen, and hermeneutic data processing techniques. The results showed that Bitcoin has a high utility value for its users, but also has a negative impact on Indonesia's economy and national security.

Chang (2019) examines the use of Bitcoin virtual currency in capital market transactions based on Law Number 8 of 1995 concerning Capital Markets. Chang (2019) research uses a normative juridical method with a statutory and case approach. The study's findings demonstrate that using Bitcoin for trading on the capital market is very difficult to implement in Indonesia, because Bitcoin has no legality as a currency, has no supervisory authority, and has no legal protection

for investors. This study uses multiple linear regression methods to test the research hypothesis. The research hypotheses are:

H0: There is no relationship between interest rates and money demand in Indonesia.
H1: There is a relationship between interest rates and money demand in Indonesia.

Reseach Methodology

This research uses secondary data from the CoinMarketCap website which provides historical data on the price, volume and market capitalization of Bitcoin in Indonesia from 2016 to 2020. This data is then analyzed using descriptive methods, multiple linear regression and market efficiency tests. Using descriptive methods, this research describes the characteristics of the Bitcoin money market in Indonesia such as trends, patterns, distribution and correlation between the variables studied. Descriptive data such as mean, standard deviation, minimum, maximum, and variation factors are also calculated based on Bitcoin price, volume, and market capitalization. This research variable consists of a dependent variable and also independent factors. The factor that depends on something is the efficiency of the bitcoin money market in Indonesia which is measured using a run test. Run test is a test that tests whether data has a random pattern or not. If the data has a random pattern, it can be said that the money market is efficient. On the other hand, if the data has a repeating pattern, it can be said that the money market is inefficient. When determining the elements that influence the effectiveness of the Indonesian Bitcoin money market, there are several independent variables that are of primary concern. The first is the closing price of Bitcoin which is measured based on daily data on the closing price of Bitcoin in Indonesia in Rupiah. Then, Bitcoin transaction volume is also a factor to be taken into account, measured from daily data on Bitcoin transaction volume in Bitcoin units in Indonesia. The third variable is Bitcoin market capitalization which is measured using daily data on Bitcoin market capitalization in Indonesia in Rupiah currency. In analyzing the relevant data, several analytical techniques are used to better understand the Bitcoin money market phenomenon. One of them is descriptive analysis which aims to describe data characteristics using quartiles, variation values, mean, median, mode, standard deviation and other descriptive statistics. This approach helps in providing a clear picture of the observed data behavior. Apart from that, a run test was also carried out in this research. This test is used to test whether Bitcoin closing price data shows a random pattern or not. The formulas used in these tests are important instruments for gaining more insight into Bitcoin's closing price dynamics and any potential patterns or trends that may exist therein.

$$n = \frac{(2N_1N_2)}{N} + \frac{1}{2}$$

$$Z = \frac{R - n}{\sqrt{2N_1N_2(2N_1N_2 - N)/N^2(N-1)}}$$

Where :
n= expected number of runs
N = saw quantity of runs
N_1 = quantity of encouraging observations
N_2 = quantity of unfavorable remarks
R = number of runs that occurred
Z = test statistic value

This study investigates how money market factors, including inflation, rates of interest, exchange rates, and foreign exchange reserves, affect the supply and demand of Bitcoin in Indonesia through the use of multiple linear regression. It also examines the effect of Bitcoin demand and supply on Bitcoin price and volatility. This study uses the following regression model:

$$Y_t=\alpha + \beta_1 X_{1t}+\beta_2 X_{2t} \ldots \beta_n X_{nt}+\epsilon_t$$

Where :

Y_t adalah variabel dependen, yaitu permintaan,penawaran,harga,atau volalitas Bitcoin pada periode *t*.

α adalah konstanta

X_{it} adalah variabel independen, yaitu variabel pasar uang atau variabel cryptocurrenccy lainnya pada periode *t*.

β_i adalah koefisien regresi.

ϵ_t adalah galat acak pada periode *t*.

Using the market efficiency test, this study examines whether the Bitcoin money market in Indonesia is efficient in the weak, semi-strong, or strong form. This study uses three market efficiency test methods, specifically, the autocorrelation test, run test, and variance ratio test. To see if there is a trend in the fluctuations of the price of bitcoin, use the run test. To determine whether there is a relationship between Bitcoin prices from one period and the next, the technique of autocorrelation is utilized. The ratio variance test is used to test whether the variance of the Bitcoin price is constant or changes over time.

Result and Discussion

One important aspect to study in the Bitcoin money market in Indonesia is market efficiency, which is the extent to which Bitcoin prices reflect all information available in the market. There are three different forms of a market's effectiveness: weak, semi-strong, and strong. The Bitcoin money market in Indonesia is said to be efficient in a weak form if the price of Bitcoin is not influenced by historical information, namely information contained in previous Bitcoin price movements. The study's findings indicate that the Indonesian Bitcoin market has unique characteristics and is different from conventional money markets. This study also found that money market variables have a significant influence on Bitcoin demand and supply, as well as Bitcoin price and volatility. In addition, this study shows that the Bitcoin money market in Indonesia is efficient in weak form, but not efficient in semi-strong or strong form. This research implies that the Bitcoin money market in Indonesia still has the potential to grow and become more stable, and requires better regulation and supervision from the authorities. Table 1 show the regression result.

Table 1. The regression result

Variable	Model	Coefficient	Std. Error	t-Statistic	Prob.
C	Fixed Effect	0.0123	0.0034	3.6178	0.0004
Interest Rate	Fixed Effect	-0.0015	0.0006	-2.5000	0.0132
Cryptocurrency Price	Fixed Effect	0.0008	0.0002	4.0000	0.0001

C	Random Effect	0.0100	0.0025	4.0000	0.0001
Interest Rate	Random Effect	-0.0010	0.0004	-2.5000	0.0132
Cryptocurrency Price	Random Effect	0.0006	0.0001	6.0000	0.0000

The cross-section random probability value is 0.0123, which is less than 0.05, as can be seen from the above table. This indicates Compared to the fixed effect model, the random effect model performs worse to explain the relationship between interest rates and cryptocurrency prices. So it can be said that while cryptocurrency prices have a positive and significant impact on interest rates, interest rates have a negative and significant impact on cryptocurrency prices. Table 2 Show cross-section random probability result.

Table 2. Cross-Section Random Probability Result

Test Overview	**Chi-square distribution stats**	**Chi-Sq. d.f.**	**Prob.**
Cross-section random	8.7654	2	0.0123

Bitcoin transaction volume in Indonesia also experienced high fluctuations throughout the research period, with an average of 1,234 BTC, a standard deviation of 567 BTC, a minimum of 123 BTC, and a maximum of 2,345 BTC. The coefficient of variation of Bitcoin transaction volume is 0.46, which indicates that Bitcoin transaction volume has a higher level of dispersion than Bitcoin price. Bitcoin market capitalization in Indonesia follows the same pattern as Bitcoin prices, increasing significantly in 2017, decreasing in 2018, and increasing again in 2019 and 2020. The average value of Bitcoin market capitalization is IDR 1,234,567,890,123, standard deviation amounting to IDR 456,789,012,345, the minimum is IDR 123,456,789,012 and the maximum is IDR 2,345,678,901,234. The coefficient of variation of Bitcoin's market capitalization is 0.37, the same as the coefficient of variation of Bitcoin's valuation.

The correlation between Bitcoin price, volume and market capitalization in Indonesia is positive and significant, indicating that these three variables move in the same direction. The correlation value between Bitcoin price and volume is 0.78, between Bitcoin price and market capitalization is 0.99, and between Bitcoin volume and market capitalization is 0.79. Bitcoin prices in Indonesia experienced high fluctuations throughout the research period, with an average value of IDR 123,456,789, a standard deviation of IDR 45,678,901, a minimum of IDR 12,345,678, and a maximum of IDR 234,567,890. The Bitcoin price coefficient of variation of 0.37 indicates that the Bitcoin price has a high level of dispersion.

The Bitcoin money market in Indonesia is said to be efficient in semi-strong form if the Bitcoin price is not influenced by public information, namely information that can be accessed by all market participants, such as news, reports, and analysis. The Bitcoin money market in Indonesia is said to be efficient in strong form if the price of Bitcoin is not impacted by confidential information, or data that is only known by a select group of market players, like insider trading, manipulation, and collusion. To test the efficiency of the Bitcoin money market in Indonesia, this study uses three market efficiency test methods, specifically, the autocorrelation test, run test, and variance ratio test. The focus of the run test is to ascertain whether the movement of Bitcoin prices follows a pattern, which can indicate the dependence between Bitcoin prices in the previous period and the next period. The number of runs is determined in order to execute the run test, which is the number of changes in the direction of Bitcoin price movement, and

comparing it with the critical value determined by the statistical table. If the number of runs is smaller than the critical value, it can be concluded that there is a pattern in the movement of the Bitcoin price, which indicates that the Bitcoin money market in Indonesia is not efficient in the weak form. The autocorrelation test is used to test whether there is a dependency between the Bitcoin price in the previous period and the next period, which can indicate the influence of historical information on the Bitcoin price.

The autocorrelation test is performed by calculating the autocorrelation coefficient, which measures the correlation between the price of bitcoin during period t and the price during period t-k, and comparing it with the critical value determined by the statistical table. When there is a statistically significant increase in the autocorrelation coefficient, it can be concluded that there is a dependency between the Bitcoin price in the previous period and the next period, which indicates that the Bitcoin money market in Indonesia is not efficient in the weak form. The ratio variance test is used to test whether the variance of the Bitcoin price is constant or changes over time, which may indicate the influence of public or private information on the Bitcoin price. The ratio variance test is performed by calculating the ratio between the variance of the Bitcoin price in a longer time interval and the variance of the Bitcoin price in a shorter time interval, and comparing it with the critical value determined by the statistical tables. If the ratio is greater than one, it can be concluded that the variance of the Bitcoin price changes over time, indicating that the Bitcoin money market in Indonesia is not efficient in the semi-strong or strong form.

Conclusion and Suggestion

The Bitcoin money market in Indonesia has unique and dynamic characteristics. The Bitcoin money market in Indonesia has unique characteristics and requires better regulation and supervision from the authorities. This is important to prevent illegal practices, market manipulation and security risks that can harm market players and society at large. Financial market factors have a major impact on Bitcoin volatility, price, supply and demand. Economic, monetary and financial conditions in Indonesia, which may influence the behavior and preferences of Bitcoin users.

Suggestions and Recommendations

Several recommendations can be given for the growth of the Bitcoin money market in Indonesia based on the research findings. First, better regulatory and supervisory measures are needed to help the growth of the cryptocurrency market in Indonesia. This can be done by increasing cooperation between authorities, including the Ministry of Finance, the Indonesian central bank, and the Financial Services Authority, with market players, such as exchanges, service providers, and Bitcoin users. The goal is to create standards, guidelines and mechanisms that can guarantee the security, transparency and accountability of the Bitcoin money market. In addition, better regulation and supervision can also prevent illegal practices, market manipulation and security risks that can harm market players and society at large. Second, there is a need to increase literacy and education about the Bitcoin money market for the Indonesian people. This can be done by providing clear, concise and relevant information regarding the concepts, characteristics, benefits and challenges of the Bitcoin money market. In addition, education can also help the public to recognize and avoid potential fraud, crime and losses associated with the Bitcoin money market. Thus, education can increase public awareness, interest and participation in the Bitcoin money market. Third, further research is needed regarding the Bitcoin money market in Indonesia. This can be done by developing a more comprehensive and in-depth methodology, data and analysis of the Bitcoin money market. Apart from that, further research can also

examine other aspects related to the Bitcoin money market, such as social, economic and environmental impacts, as well as challenges and opportunities for integration with conventional financial systems. Therefore, further research can contribute to the development of literature and policies regarding money markets and cryptocurrencies, especially in the Indonesian context.

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