

THE EFFECT OF ECONOMY BITCOIN ON MONEY SUPPLY WITH THE GROWTH OF BITCOIN VOLATILITY AS AN INTERVENING VARIABLE

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Abstract: Bitcoin is one of many Cryptocurrency that was intended to ease the peer-to-peer payment method where it's users can directly interact without an intermediary. The value of Bitcoin is determined by the demand and offer without the interference of other parties so it tends to fluctuate. The demand for Bitcoin is increasing from the service provider of Cryptocurrency in the form of digital asset exchange, especially in Malaysia. This research was done to find out if there's an effect from the Bitcoin economy to the money supply in Malaysia. The time-series data in the form of the provider of virtual money in Malaysia, data on the growth of Bitcoin volatility, and the data of the money supply in Malaysia (M1). The data is taken at the end of each month during the study period from January 2016 to June 2019. Purposely to answer the question of this research the data is analyzed using the classic assumption, the simple linear regression test, and t-test. The result from the data processing is shown Bitcoin economy has a significant effect on the money supply in Malaysia.

Keywords: Bitcoin Economy, Money Supply, Growth of Volatility

INTRODUCTION

Bitcoin is a digital currency (Cryptocurrency) created by a pseudonym named Satoshi Nakamoto through his article. Satoshi Nakamoto proposed a system for electronic transactions without relying on trust. It starts with a coin framework created from digital signatures so that it can provide strong ownership control. Bitcoin uses a peer-to-peer network that is useful for recording public transactions quickly to prevent double-spending (Nakamoto, 2008).

Bitcoin is one of the Cryptocurrencies that was first intended for the ease of payment that uses peer to peer system where the users can do a transaction without the use of an intermediary. The number of Bitcoin is only twenty-one million in the whole world, so with the limited supply of Bitcoin, it will cost the price of Bitcoin to rise.

Bitcoin is controlled by all of its users in the whole world, so the value formation is based on the demand and offering and also without the intervention from any party that makes Bitcoin have a value that can easily fluctuate. That

matter is different from fiat money that's in the control of the Central Bank.

Bitcoin is getting more in demand with the increase of service providers of Cryptocurrency transaction especially Bitcoin in the form of digital asset exchange that spreads in every country. With the many service provider of Cryptocurrency causes the ease of Bitcoin transaction also that it can be done where and whenever. And that also affects the growth of Bitcoin transactions in the world.

Cryptocurrency can also be a good option to help to decrease portfolio risk because consistently have a low correlation between Cryptocurrency and traditional asset, also the average daily returns of most cryptocurrencies are higher than a traditional investment (Lee et al., 2018).

But, Bitcoin has big potential if it's not in its current form. Bitcoin can put USD in danger if the exchange value increases dramatically. That matter can also happen if Bitcoin has support from the regulation. But for now, one of the main hurdles that face Bitcoin is the regulation that doesn't support the rising

of the value of Bitcoin to USD (Seetharaman et al, 2017).

Even though, the circulation of Bitcoin is bringing pros and cons. Not every country is legalizing Bitcoin as a legitimate payment tool. It is hard for a developing country to accept Bitcoin, especially the countries in South East Asia because it is considered to threaten the money supply. In Malaysia, Bitcoin and Cryptocurrency are set for securities under the supervision of the Malaysia Securities Commission and every activity related to Cryptocurrency must go through the approval of the Malaysia Securities Commission.

The purpose of this research is to know the Bitcoin economy, the growth of Bitcoin volatility, and the amount of money spent in Malaysia and also to know if there is an influence from Bitcoin Economy to the money supply in Malaysia, bitcoin economy to the bitcoin volatility growth and bitcoin volatility growth to the money supply in Malaysia.

Bitcoin Economy is the Bitcoin service provider like (a) Wallet Service Provider, (b) Bitcoin Exchange, (c) Payment Process, (d) Financial Services, (e) Mining, and (f) Universal Service Provider that provide payment process using Bitcoin in a country (Seetharaman et al., 2017).

Volatility is a statistical method to measure price fluctuations during a certain period, but the method is not to measure the price level, but rather to measure the level of variation during a certain period (Carolina et al., 2016).

Cryptocurrency is a digital asset that was formed as an exchange media that uses cryptography that functions to secure the transaction also to control the additional currency invention (Bakar et al., 2017). Cryptocurrency is difficult to fake because of its security features. Cryptocurrency has its allure that is its organic nature which is not issued by the central authority making it immune to intervention or manipulation from the government (Thakur & Dr. G. G., 2018).

Bitcoin is a digital decentralized currency that works using peer-to-peer networks. (Bukovina & Martiček, 2016). Bitcoin is a mixture of fiat and commodity currencies that have no intrinsic value and have no relationship with government authorities (Baur et al, 2015).

Based on the explanations of the definition, it can be concluded that the volatility of Bitcoin is a measure that shows how much the price of Bitcoin fluctuates within a certain period.

The notion of money supply can be divided into two terms, namely narrow understanding and broad understanding. In the narrow sense or abbreviated as M1, the money supply is the currency in circulation and added with demand deposits. Whereas in the broadest sense or abbreviated as M2, the money supply includes: (a) currency in circulation, (b) demand deposits, and (c) quasi money (Sadono Sukirno, 2016).

Based on the description above, then the framework can be described as follows:

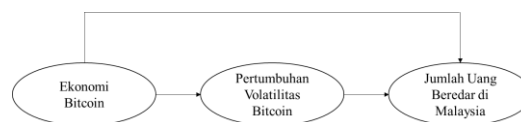


Figure 1. Framework

Source: (Seetharaman et al, 2017)

The hypothesis proposed in this research are:

H0₁: There is no significant influence of the Bitcoin economy on the growth of Bitcoin volatility.

H0₂: There is no significant influence on the growth of Bitcoin volatility on the money supply in Malaysia.

H0₃: There is no significant influence of the Bitcoin economy on the money supply in Malaysia.

METHODS

This research uses quantitative methods using time series data. This research uses 3 research variables, namely the economy of Bitcoin as an

independent variable (X), the growth of Bitcoin volatility as the dependent variable (Y), and the money supply as an intervening variable (Z).

The population in this research is the number of providers of virtual currency transaction services in Malaysia, the price of the Bitcoin currency, and the money supply (M1 and M2) in Malaysia.

In this research the sampling technique used is the nonprobability sampling method, meaning that it does not allow members in the population to have the same opportunity to be selected as a sample. The samples used in this research are as follows:

1. The number of virtual currency transaction service providers in Malaysia in the period from January 2016 to June 2019.
2. The price of the Bitcoin currency in the period from January 2016 to June 2019.
3. The money supply (M1) in Malaysia in the period from January 2016 to June 2019.

Data collection techniques used in this research using secondary data. Where data on the number of virtual currency transaction service providers in Malaysia is obtained from the website www.sc.com.my, data on the price of the Bitcoin currency is obtained from the website www.coingecko.com which is then reprocessed into Bitcoin return data, and data on the money supply in Malaysia obtained from the website www.bnm.gov.my.

In the Bitcoin currency price data, the researchers did the data back into the Bitcoin return data. The return is defined as the results obtained from an investment. (Septiana & Wahyuati, 2016)

Returns can be calculated using the following formula:

$$R_t = \frac{P_t - P_{t-1}}{P_{t-1}}$$

Where P_t is the price of Bitcoin at time t , and likewise P_{t-1} is the price of Bitcoin at time $t-1$. Furthermore, researchers conducted data processing and analysis using the Classic Assumption Test, Simple Linear Regression Test, and t-test.

A simple regression model formulation is written as follows:

$$Y = \alpha + \beta X$$

The simple regression model formulation in this research was written as follows:

$$VB = \alpha + \beta Ek.B$$

$$JUB = \alpha + \beta VB$$

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Information:

Ek. B: The Growth of the Bitcoin Economy

VB: Bitcoin Volatility

JUB: Money Supply

RESULTS AND DISCUSSION

In this research, testing will be carried out three times namely the effect of the Bitcoin economy on the growth of Bitcoin volatility, and the effect of the growth of Bitcoin volatility on the money supply, and the effect of Bitcoin economy on the money supply. The following are the results of testing in this research:

The Classic Assumption

In this research normality test, a heteroscedasticity test, multicollinearity test, and autocorrelation test were performed. Based on the results of these tests indicate that the classical assumption test in this research is fulfilled, where all data are normally distributed, heteroscedasticity does not occur, multicollinearity does not occur, and autocorrelation does not occur.

Simple Linear Regression and t-test

In this research, a simple linear regression test was performed to obtain

the regression equation and t-test to test the research hypothesis.

Table 1. Result of Simple Linear Regression and t-test

Coefficients ^a						
Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	.180	.059		3.047	.004
	Ekonomi_Bitcoin	-.005	.003	-.255	-1.666	.104

a. Dependent Variable: Volatilitas_Bitcoin

Coefficients ^a						
Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	396831.541	4469.349		88.790	.000
	Volatilitas_Bitcoin	-1346.206	15427.063	-.014	-.087	.931

a. Dependent Variable: Jumlah_Uang_Beredar

Coefficients ^a						
Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	377829.157	4314.907		87.564	.000
	Ekonomi_Bitcoin	1384.477	228.491	.692	6.059	.000

a. Dependent Variable: Jumlah_Uang_Beredar

Source: processed data (2020)

Based on the results of the regression test and t-test in table 1, the economic influence of Bitcoin on Bitcoin volatility results in constant value (α) of 0.180 and a regression coefficient value (β) of -0.005 so that the regression equation becomes $VB = 0.180 - 0.005 Ek.B$. Based on these results, because the regression coefficient is negative, it can be said that the direction of the economic influence of Bitcoin on the growth of Bitcoin volatility is negative. Furthermore, the results of the t-test can be seen that the value of Sig. amounted to 0.104, where $0.104 > 0.05$, the results of the research indicate that H_0 is accepted. This means that the Bitcoin economy does not affect the growth of Bitcoin volatility. This indicates that people in Malaysia are still very ordinary in using Bitcoin as an investment tool.

On the influence of the growth of Bitcoin volatility on the money, supply produces a constant value (α) of 396,831,541 and a regression coefficient (β) of -1,346.206 so that the resulting regression equation becomes $JUB = 396,831,541 - 1,346.206 VB$. Based on these results, because the regression coefficient is negative, it can be said that the direction of the influence of the growth of Bitcoin volatility on the money supply in Malaysia is negative. Furthermore, hypothesis testing does not need to be done again, because the t-test of the Bitcoin economy on the growth of Bitcoin volatility results in that there is no effect of the Bitcoin economy on the growth of Bitcoin volatility. So it can be concluded also that there is no influence on the growth of Bitcoin volatility on the money supply in

Malaysia. This indicates that people in Malaysia are still very ordinary in using Bitcoin as an investment tool.

On the influence of the Bitcoin economy on the money supply produces a constant value (α) of 377,829,157 and a regression coefficient (β) of 1,384,477 so that the resulting regression equation becomes $JUB = 377,829,157 + 1,384,477 Ek.B$. Based on these results, because the regression coefficient is positive, it can be said that the direction of the influence of the Bitcoin economy on the money supply in Malaysia is positive. Furthermore, the results of the t-test can be seen that the value of Sig. equal to 0,000, where $0,000 < 0,05$, the results of the research indicate that H_0 is rejected. This means that the Bitcoin economy has a significant effect on the money supply in Malaysia. Based on these results indicate one of the causes of the use of Bitcoin both as a transaction tool and as an investment tool. This is allegedly due to the level of ease of transaction where the current number of Cryptocurrency transaction service providers is still small and regulations in Malaysia have not legalized Bitcoin as a transaction tool.

Based on these results it can be concluded that there is a significant influence of the Bitcoin economy on the money supply in Malaysia. From the results of these calculations show that more and more Cryptocurrency transaction service providers, it is suspected that people in Malaysia will be interested in making transactions using Bitcoin. However, at this time Bitcoin is only used as an alternative investment tool because regulations in Malaysia have not set Bitcoin and other Cryptocurrency as transaction tools.

CONCLUSION

From the research that has been done, it can be concluded that in the period January 2016 to June 2019, the economy of Bitcoin has increased, but starting from the beginning of 2019 the number of providers of virtual currency transaction services in Malaysia has

decreased because it is caused by new regulations regarding Cryptocurrency in Malaysia. Then, the volatility of Bitcoin fluctuates and tends to decrease. Whereas the money supply (M1) in Malaysia has increased. Based on data processing that has been done shows that there is no effect of the Bitcoin economy on the growth of Bitcoin volatility, there is no effect of the growth of the Bitcoin volatility on the money supply in Malaysia, there is a significant influence on the Bitcoin economy on the money supply in Malaysia in the period January 2016 to June 2019.

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