

The Analysis of Factors Affecting Bitcoin Price

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Abstract. As a popular cryptocurrency, Bitcoin has been an important investment tool in recent years. This study aims to analyze the factors that affect the Bitcoin price to help investors make better investment choices. Applying the simple linear regression model and Granger causality test to the data from January 2015 to December 2021, the research first examines the stationarity of the data and then studies the relationships between Bitcoin price and other factors including Dow Jones Industrial Index, U.S. currency in circulation, U.S. disposable income. According to the result, all three factors have a positive effect on the price of Bitcoin and the Bitcoin price will in turn influence the Dow Jones Industrial Index and U.S. disposable income. This finding helps explain how certain economic indicators and Bitcoin prices interact. Since investment is always risky, investors must consider certain factors like the trend of DOW, M2, or PCI in advance to make a reasonable investment decision.

Keywords: Bitcoin price; Linear regression; Investment.

1. Introduction

1.1 Background

In recent years, Bitcoin has gained great popularity. As the first and widely recognized cryptocurrency, it was first introduced in 2009, which in turn started an era of ‘virtual currencies’ [1]. Using peer-to-peer technology, the transaction of Bitcoin doesn’t need the central bank but only depends on collective Internet that everyone has transparent access to. Bitcoin uses cryptography to ensure its security, and all transactions are verified through a "mining" process using computational power. Generally, mining requires miners to solve complex puzzles using programming and mathematics knowledge to find a new block and add it to the blockchain, which is a shared public ledger that records all Bitcoin transactions.

Although the benefit of Bitcoin is relatively vague, many institutions are investing in Bitcoins, making it a popular and important investment tool. Due to the increased demand and limited supply, the number of Bitcoin halves about every four years, which leads to significant increases in Bitcoin prices. In fact, in the long term, the Bitcoin prices are volatile, so for investors, it can be useful to know the influence factors of Bitcoin price to do the right investment choice. According to Bitcoin's acquisition and transaction mechanism, it is certain that Bitcoin differs from standard currencies in many aspects. As Bitcoin is not backed by the government, the typical factors that affect the price of a currency, including inflation rates, monetary and fiscal policies may not apply to Bitcoin either. Therefore, it is meaningful to study the factors that influence Bitcoin's price and how these factors work.

1.2 Related research

For the basic properties of Bitcoin, there are several research to make a comprehensive introduction. Fendi et al. reviewed the concept of cryptocurrencies and explained the existence of the Bitcoin bubble. Using the duration dependence test for Bitcoin weekly returns, the research aims to

detect whether there is a speculative bubble or not and concludes that there is no empirical evidence for the existence of a speculative bubble in the Bitcoin values and returns [2]. Passinsky Bitcoin and other virtual currencies should be classified as money or currency in case they are, whereas the normative approach argues that this classification question should be answered on the basis of substantive normative considerations [3]. And as a starting point, Connolly and Kick briefly explain what Bitcoin is and point out the gaps in Bitcoin research past, present, and future. The first thing to let individuals understand is what Bitcoins are and how Bitcoins work. In conclusion, the research shows that Bitcoin has been growing steadily [4]. Chiu and Koepl are trying to use modern payment methods to express Bitcoin. It is primarily about understanding how the design of cryptocurrencies affects the interactions between participants and their motivations for cheating [5]. At the same time, there is a lot of research on the factors that affect the price of Bitcoin. Choi and Shin used an autoregressive model to prove that Bitcoin couldn't provide a haven, similar to financial derivatives such as gold [6]. Dogan et al. had research into whether the environment and energy have some impact on bitcoin has concluded that the income of bitcoin miners is negatively correlated with carbon emissions [7]. Ullah et al. examined fluctuations between celebrities and governments and the price of bitcoin, finding that positive celebrity and government sentiment is positively correlated with positive changes in the price of bitcoin [8]. Mokni et al. did research that only bitcoin returns/volatility have a significant impact on investor sentiment, regardless of whether investors are fearful or greedy [9]. Li et al. found that there is a strong relationship between the type of bitcoin and the direction of bitcoin price changes, which means that domestic events only have a positive impact on volatility, while foreign events have an impact on both expectations and volatility [10].

1.3 Objective

As a representative of virtual currency, Bitcoin has many advantages. First, it was designed with freedom not only free from charging fees, but also from regulators controlling transactions. Besides, it also has many disadvantages. Governments and banks have no control over Bitcoin, making it difficult to regulate. Therefore, when it becomes more popular, governments around the world enact more and more regulatory policies. This study summarizes the characteristics, advantages, and disadvantages of Bitcoin and its difference from traditional currencies. Using linear regression, unit root test, and Granger causality test to find out some possible factors that affect the price of Bitcoin.

2. Methodology

2.1 Simple Regression Model

The simple regression model is used to study the relationship between one dependent variable y and one independent variable x . This algorithm is designed to find the line that best fits the actual data. A simple equation is:

$$y = \beta_0 + \beta_1 x + u \quad (1)$$

u is the error term, which represents other factors except for x that will influence y and there exists zero conditional mean assumption that $E(u) = 0$, $E(u|x) = 0$. β_1 is the slope parameter and β_0 is the intercept parameter.

To get the estimates of β_0 and β_1 , the research assumes $\{(x_i, y_i): i=1,2,3,\dots\}$ a random sample of size n from the population, and then writes:

$$y_i = \beta_0 + \beta_1 x_i + u_i \quad (2)$$

Since u is uncorrelated with x , the equation is:

$$Cov(x, u) = E(xu) - E(x)E(u) = E(xu) = 0 \quad (3)$$

In terms of the independent variable x and independent variable y and the parameter β_1 and β_0 , $E(u) = 0$ and $E(xu) = 0$ can be written as:

$$n^{-1} \sum_{i=1}^n (y_i - \hat{\beta}_0 - \hat{\beta}_1 x_i) = 0 \quad (4)$$

$$n^{-1} \sum_{i=1}^n x_i (y_i - \hat{\beta}_0 - \hat{\beta}_1 x_i) = 0 \quad (5)$$

Therefore, after calculation, the estimated slope β_1 is:

$$\hat{\beta}_1 = \frac{\sum_{i=1}^n (x_i - \bar{x})(y_i - \bar{y})}{\sum_{i=1}^n (x_i - \bar{x})^2} \quad (6)$$

$$\hat{\beta}_0 = \bar{y} - \hat{\beta}_1 \bar{x} \quad (7)$$

The two estimates are called the ordinary least squares (OLS) estimates of β_1 and β_0 that minimize the sum of squared residuals (SSR) $\sum_{i=1}^n \hat{u}_i^2$. Through minimizing the square sum of the distance between the actual value and predicted value, we obtain the best fitting line that best describes the relationship between dependent and independent variables.

To measure how well the independent variable explain the dependent variable, we define the coefficient of determination R-squared:

$$R^2 = \frac{SSE}{SST} = 1 - \frac{SSR}{SST} \quad (8)$$

$$SST \equiv \sum_{i=1}^n (y_i - \bar{y})^2 \quad (9)$$

R^2 is no smaller than 0 and no larger than 1 and $100 \cdot R^2$ represents how many percentages of sample variation in y can be explained by x . The larger R^2 is, the closer the predicted value is to the actual value.

Simple linear regression is a useful tool to help relate two variables and examine whether there are certain positive or negative relationships between them. As the price of Bitcoin oscillates over time, we assume some factors will influence the Bitcoin price and then use the Simple Regression Model to do the test that may confirm or overturn the assumption.

2.2 ADF test and cointegration analysis

An $(n \times 1)$ vector time series y_t is said to be cointegrated if each of the series has a unit root, meaning that it is not stationary while the linear combination of the series is stationary.

Before doing the linear regression, it is necessary to use the Augmented Dickey-Fuller test to examine whether the time series is stationary. If the result is to reject the null hypothesis, it means the time series is stationary, then there is no need to check the cointegration. However, if the time series isn't stationary, the linear regression between two-time series may lead to spurious regression. Spurious regression refers to the existence of misleading evidence of a linear relationship between two variables when there exists no connection between them. So, it is an indispensable part to test the stationary of data and cointegration before establishing the linear regression model.

After doing the ADF test and finding out that the time series is stationary, linear regression can be carried out. However, if the result is non-stationary, they should be tested again after the first-order difference until the time series is stationary. And then, the EG two-step Cointegration analysis proposed by Engel and Granger is a useful tool to examine the cointegration which shows the long-term dynamic equilibrium relationship between variables. Only when the series are cointegrated, can the causal relationship test be conducted.

3. Data and Results

3.1 Data selection

Due to a large amount of electricity and other industrial resources used in Bitcoin production, we selected the Dow Jones Industrial Index to study its impact on Bitcoin price, since Jong-Min et al. verified that the S&P 500 has clear price implications for Bitcoin [11]. As an emerging currency, Bitcoin has something in common with traditional currency, so we believe that there may be some connection between Bitcoin and traditional currency, so we select the total currency circulation and per capita disposable income in the United States as the research objects. The data on Bitcoin price and Dow Jones Industrial Index are from Yahoo Finance, the data on U.S. currency in circulation and U.S. disposable income are from the official website of the U.S. Department of the commerce.

3.2 Modeling

Since the Bitcoin price we selected is in months, we selected the closing price on the last day of the corresponding month as the observed value, and obtained the Dow Jones Industrial Index (DOW), Total U.S. currency in circulation (M2), U.S. disposable income (PCI) and Bitcoin price data, as shown in Figure 1.

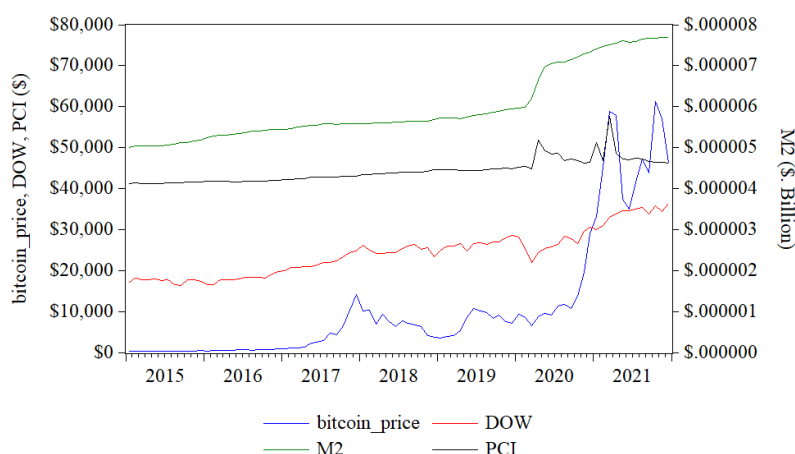


Figure 1. Price Change Trend

First, this research uses the ADF unit root test method to observe whether the time series is stationary, then perform co-integration according to the situation, obtain the regression equation, and finally carry out the Granger causality test to obtain the correlation analysis and conclusion of the three variables with Bitcoin price.

The unit root test is to exclude the effect of spurious regression. If the detected variables are non-stationary time series, we need to convert the detected variables into stationary time series data using serial differencing. The test results are as Table 1:

Table 1. Stationary Test

	t-Statistic	Prob.*	Conclusion
Bitcoin_Price	0.744499	0.8731	Non- stationary
DOW	1.896931	0.9857	Non- stationary
M2	2.818195	0.9987	Non- stationary
PCI	0.435162	0.8056	Non- stationary
d(Bitcoin_Price)	-3.040285	0.0028	stationary
d(DOW)	-9.359116	0.0000	stationary
d(M2)	-3.193603	0.0017	stationary
d(PCI)	-17.14465	0.0000	stationary

The results show that none of the four series passed the test, that is, there is a unit root, and they are non-stationary series. They were tested again after the first-order difference, and they all passed the unit root test at the 1% significance level. It shows that the four variables are all first-order single integral sequences, and there is a co-integration relationship.

3.3 Regression Model and Granger causality test

We conduct cointegration tests on the Dow Jones Industrial Index, the total currency in circulation in the United States, the per capita disposable income of the United States, and the price of Bitcoin.

3.3.1 Dow Jones Industrial Average Index & Bitcoin Price

First, we perform the least squares (OLS) regression on Dow and Bitcoin prices to get the following equation:

$$\text{Bitcoin_Price} = 2.467763 \cdot \text{DOW} - 48517.68 \quad (10)$$

Table 2. Linear Regression Model (DOW & Bitcoin_Price)

Variable	Coefficient	Std. Error	t-Statistic	Prob.
DOW	2.467763	0.164655	14.98745	0.0000
C	-48517.68	4091.713	-11.85755	0.0000
R-squared	0.732571	Mean dependent var		11300.79
Adjusted R-squared	0.729310	S.D. dependent var		15875.08
S.E. of regression	8259.472	Akaike info criterion		20.89963
Sum squared resid	5.59E+09	Schwarz criterion		20.95751
Log likelihood	-875.7845	Hannan-Quinn criter.		20.92290
F-statistic	224.6235	Durbin-Watson stat		0.302042
Prob(F-statistic)	0.000000			

Among them, the adjusted R^2 is 0.732571, the t-statistic value of the explanatory variable DOW is 14.987, the test is passed at the 1% significant level, and the value of the F-statistic is 224.62. From the regression model, we can conclude that the rising of the Dow Jones Industrial Index has a clear positive effect on Bitcoin price.

According to the EG two-step method, the residual term of the fitting equation needs to be tested for stationarity. If the residuals pass the test, it indicates that there is a cointegrating relationship between the Dow Jones Index and the Bitcoin price, which means a stable equilibrium relationship in the long run.

Table 3. ADF Test I

	t-Statistic	Prob.*
Augmented Dickey-Fuller test statistic	-3.187741	0.0018
*MacKinnon (1996) one-sided p-values.		

As can be seen from the table above, the residual series passes the test at the 1% significance level, that means the residual series is stationary. It can be concluded that there is a cointegrating relationship between the Dow Jones Industrial Average and the price of Bitcoin; for every \$1 increase in the Dow Jones Index, the price of Bitcoin is expected to increase by \$2.468.

Before carrying out the Granger causality test, we must first determine the optimal lag order, which is usually judged by AIC and SC. Within a certain order, the smaller the AIC, the better. Therefore, we build a VAR model to determine the lag order. It can be seen from Table 4 that the optimal lag order is 7. We performed the Granger causality test on Bitcoin price and DOW, and the results are as Table 5.

Table 4. VAR Model I

Lag	LogL	LR	FPE	AIC	SC	HQ
0	-1553.383	NA	2.05E+15	40.93114	40.99248	40.95566
1	-1381.106	330.9549	2.44E+13	36.50278	36.68678*	36.57631*
2	-1377.676	6.408225	2.48E+13	36.51778	36.82446	36.64035
3	-1374.504	5.758633	2.54E+13	36.53959	36.96893	36.71118
4	-1372.841	2.93247	2.70E+13	36.60108	37.1531	36.8217
5	-1370.372	4.223099	2.82E+13	36.64138	37.31606	36.91101
6	-1359.223	18.48458	2.34E+13	36.45323	37.25059	36.77189
7	-1349.716	15.26159*	2.03e+13*	36.30831*	37.22833	36.67599
8	-1347.241	3.842312	2.13E+13	36.34845	37.39114	36.76516

Table 5. Granger Causality Test I

Lags: 7				
Null Hypothesis:		Obs	F-Statistic	Prob.
DOW does not Granger Cause Bitcoin_PRICE		77	0.96823	0.4623
Bitcoin_PRICE does not Granger Cause DOW			2.05303	0.0623

The test results show that all null hypotheses are rejected at the 5% significance level (but the second p-value is very close to 5%) and we can assume that Bitcoin will cause a change in the Dow, which means that a higher Bitcoin price will cause the Dow Jones Industrials to move higher.

3.3.2 U.S. currency in circulation & Bitcoin Price

In the same way, we regressed the total amount of currency in circulation in the United States and the price of Bitcoin, and the results are as follows:

$$\text{Bitcoin_Price} = 16.087 * \text{M2} - 84825.35 \quad (11)$$

Table 6. Linear Regression Model (M2 & Bitcoin_Price)

Variable	Coefficient	Std. Error	t-Statistic	Prob.
M2	16.08757	0.999208	16.10032	0.0000
C	-84825.35	6031.256	-14.06429	0.0000
R-squared	0.759686	Mean dependent var		11300.79
Adjusted R-squared	0.756755	S.D. dependent var		15875.08
S.E. of regression	7829.565	Akaike info criterion		20.79272
Sum squared resid	5.03E+09	Schwarz criterion		20.85060
Log likelihood	-871.2944	Hannan-Quinn criter.		20.81599
F-statistic	259.2203	Durbin-Watson stat		0.317358
Prob(F-statistic)	0.000000			

The adjusted R^2 is 0.75969, the t-statistic value of the explanatory variable M2 is 16.10032, the test is passed at the 1% significant level, and the value of the F-statistic is 259.2203. From the regression model, we can conclude that the increase in the total currency in circulation in the United States has a clear positive effect on the price of Bitcoin.

Table 7. ADF Test II

	t-Statistic	Prob.*
Augmented Dickey-Fuller test statistic	-3.187741	0.0018

*MacKinnon (1996) one-sided p-values.

It can be seen from Table 7 that the residual series passed the test at the 1% significance level, that is, the residual series is stationary. It can be concluded that there is a relationship between the total value of the currency in circulation in the United States and the price of Bitcoin. Cointegration relationship; Bitcoin price is expected to increase by \$16.09 billion for every \$1 increase in the total currency value of the United States.

According to the optimal lag order selected by the VAR model, the Granger causality test is carried out, as shown in the following:

Table 8. VAR Model II

Lag	LogL	LR	FPE	AIC	SC	HQ
0	-1410.614	NA	4.78e+13	37.17404	37.23538	37.19855
1	-1164.798	472.2252	8.24e+10	30.81046	30.99447	30.88400
2	-1140.937	44.58128	4.89e+10	30.28782	30.59450	30.41038
3	-1128.461	22.65437	3.91e+10	30.06476	30.49411*	30.23635
4	-1125.328	5.524230	4.01e+10	30.08757	30.63959	30.30819
5	-1119.183	10.51009	3.79e+10	30.03114	30.70583	30.30078
6	-1110.558	14.30030	3.37e+10	29.90942	30.70677	30.22808
7	-1098.942	18.64652*	2.77e+10*	29.70900*	30.62903	30.07669*
8	-1096.098	4.416105	2.87e+10	29.73941	30.78211	30.15613

Table 9. Granger Causality Test II

Lags: 7				
Null Hypothesis:		Obs	F-Statistic	Prob.
M2 does not Granger Cause Bitcoin_PRICE		77	5.43444	7.E-05
Bitcoin_PRICE does not Granger Cause M2			0.63083	0.7286

The test results show that at the significance level of 1% and 5%, the second null hypothesis is rejected. We can think that the currency circulation is the cause of the change in the price of Bitcoin, but the change in the price of Bitcoin will not cause the currency to change.

3.3.3 Disposable income in US & Bitcoin Price

$$\text{Bitcoin_Price} = 3.94 \cdot \text{PCI} - 163284.5 \quad (12)$$

Table 10. Linear Regression Model (PCI & Bitcoin_Price)

Variable	Coefficient	Std. Error	t-Statistic	Prob.
PCI	3.943346	0.442107	8.919431	0.0000
C	-163284.5	19612.93	-8.325352	0.0000
R-squared	0.492437	Mean dependent var		11300.79
Adjusted R-squared	0.486247	S.D. dependent var		15875.08
S.E. of regression	11378.71	Akaike info criterion		21.54040
Sum squared resid	1.06E+10	Schwarz criterion		21.59827
Log likelihood	-902.6967	Hannan-Quinn criter.		21.56366
F-statistic	79.55625	Durbin-Watson stat		0.462242
Prob(F-statistic)	0.000000			

The adjusted R^2 is 0.49, the t-statistic value of the explanatory variable PCI is 8.919431, the test is passed at the 1% significant level, and the value of the F-statistic is 79.55. The regression model indicates that the rise in the per capita disposable income of Americans has a clear positive effect on the price of Bitcoin.

Table 11. ADF Test III

	t-Statistic	Prob.*
Augmented Dickey-Fuller test statistic	-1.536425	0.1161

*MacKinnon (1996) one-sided p-values.

It can be seen from the above table that the residual series does not pass the test at the 1% significance level, that is, the residual series is a non-stationary series, so there is no cointegration relationship between the disposable income of Americans and the price of Bitcoin.

Therefore, to make PCI and Bitcoin prices have a cointegration relationship, we differentiate the two sets of sequences, and then establish a VAR model. According to the AIC principle, within a certain lag order, the smaller the AIC, the better, and the optimal lag period we Select lag=7, the results are shown as follows:

Table 12. VAR Model III

Lag	LogL	LR	FPE	AIC	SC	HQ
0	-1429.817	NA	7.93e+13	37.67938	37.74072	37.70390
1	-1404.353	48.91636	4.51e+13	37.11456	37.29857*	37.18810
2	-1398.823	10.33214	4.33e+13	37.07430	37.38098	37.19686
3	-1398.144	1.234068	4.73e+13	37.16168	37.59102	37.33327
4	-1393.941	7.409879	4.71e+13	37.15635	37.70836	37.37696
5	-1382.642	19.32826	3.89e+13	36.96425	37.63894	37.23389
6	-1372.904	16.14308	3.36e+13	36.81328	37.61063	37.13194
7	-1359.639	21.29513*	2.64e+13*	36.56944*	37.48946	36.93713*

* indicates lag order selected by the criterion

Table 13. Granger Causality Test III

Lags: 7			
Null Hypothesis:	Obs	F-Statistic	Prob.
DPCI does not Granger Cause DBitcoin	76	2.51020	0.0246
DBitcoin does not Granger Cause DPCI		3.73518	0.0020

The test results show that at the 1% level of significance, all null hypotheses are accepted, therefore, this research means that per capita disposable income and Bitcoin prices are Granger causality and the increase in disposable income. It will allow investors to have more liquidity to invest in Bitcoin, and the rise in Bitcoin price will also feedback considerable benefits.

Therefore, through the above model test and analysis, it indicates that changes in the total value of the currency in circulation in the United States and the per capita disposable income of Americans can lead to changes in the price of Bitcoin, and they are both positive, that is, when the total value of the currency in circulation in the United States and the disposable income in US increase, the price of Bitcoin will also rise; conversely, changes in the price of Bitcoin are responsible for changes in the Dow Jones Industrial Average Index and the disposable income in the US. As the price of Bitcoin rises, the Dow Jones Industrial Average Index will rise and the disposable income in the US will rise, either.

4. Discussion

4.1 Result analysis

As shown in the regression model, the data brings a lot of analysis. There is a cointegration relationship between the total value of money in circulation in the United States and the price of Bitcoin, but there is no cointegration relationship between the disposable income of Americans and the price of Bitcoin due to the residual series not passing the test at the 5% significance level. It can be seen from the regression model that the increase in per capita disposable income in the United States has a significant positive impact on the price of Bitcoin. The increase in the total currency in circulation in the United States has a clear positive effect on the price of Bitcoin as well. Bitcoin's price is expected to rise by \$16.09 billion for every dollar added to the total value of U.S. money. Therefore, changes in the total amount of money in circulation in the United States and changes in the per capita disposable income in the United States will lead to changes in the price of Bitcoin, and they are both positive. That is, when the total amount of money in circulation in the United States and the disposable income in the United States increase, the price of Bitcoin will also rise. Instead, changes in the price of Bitcoin led to changes in the Dow Jones Industrial Average Index and U.S. disposable income. As the price of bitcoin rises, the Dow Jones Industrial Average and US disposable income rise, and the residual series have passed the 1% significance level test, i.e. the residual series is stationary. It can be concluded that there is a cointegrating relationship between the Dow Jones Industrial Average and the price of Bitcoin; for every \$1 increase in the Dow Jones Index, the price of Bitcoin is expected to increase by \$2.468. The results of the test show that at the significance level of 5%, where all null hypotheses are rejected (but the second p-value is very close to 5%), it can assume that Bitcoin will cause a change in the Dow Jones Industrial Average, meaning that increasing the price of Bitcoin will make the Dow Jones Industrial Average higher. As researched by Efe Akinci and Jing Li, stock market indexes exhibit a long-run relationship with Bitcoin [12].

4.2 Reference value for investment

Based on the analysis and testing, it has been an important factor in Bitcoin's development in recent years through the total value of money circulating in the United States and the increase in disposable income in the United States. Fendi et al. argue that when comparing the two aspects of level and stability, there is a huge difference between the return behavior of bitcoin and traditional currency

returns, making bitcoin more of an investment than a currency. From the perspective of finance, the investment period is longer and tends to be to obtain a relatively stable cash flow income in a certain period in the future, which is the accumulation of future income. However, there are risks in investing. Reducing investment risk requires analysis and testing. Using the test of this research, it is very important to observe and analyze the total value of money in circulation in the United States and the increase of disposable income in the United States for investing in Bitcoin. As a financial investment, Bitcoin is still an extremely high-risk investment. It is volatile. The Dow Jones Industrial Average Index can determine the future value of Bitcoin and reduce some of the risks of investing in Bitcoin.

In addition to that, in table 6, the t-statistic value of the explanatory variable M2 is 16.10032, and the test is passed at the 1% significant level, the value of the F-statistic is 259.2203. As cash outside the banking system plus corporate deposits, household savings deposits and other deposits, M2 includes a variety of currencies that may become real purchasing power, reflecting changes in aggregate social demand and the state of future inflationary pressures. In recent years, many countries have used M2 as a target for money supply control. Monetarism founder Milton Friedman famously said: "Inflation is always and everywhere a monetary phenomenon". With the increasing issuance of money in the United States, an excessive money supply can easily lead to inflation. Therefore, this is a huge issue to pay attention to when investing in Bitcoin.

5. Conclusion

The concept of Bitcoin was first proposed by Satoshi Nakamoto on November 1, 2008, and was officially born on January 3, 2009. Since its launch, it has become a very popular and controversial virtual currency investment product in the world. This scientific research studies how to invest in Bitcoin correctly and reasonably and analyzes the development trend of Bitcoin in the future. The main finding of this research is the total value of money circulating in the United States and the increase in disposable income in the United States are important factors in Bitcoin's development in recent years. As one of the most popular virtual currencies, the investment risks and benefits of Bitcoin are not negligible. The Dow Jones Industrial Average Index is a piece of the very necessary information to determine the future value of Bitcoin and to reduce some of the risks of investing in Bitcoin. As a novel way to invest, Bitcoin may become a historic digital currency, but now it still needs more individuals to pay close attention to it, to invest in it reasonably. People always need theory and analysis to convince themselves when they decide to invest in something. However, no investment is risk-free and no investment is profitable. Therefore, it is necessary to make the right decision through correct analysis when investing. Hopefully, this scientific research will help every individual who wants to invest in Bitcoin.

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