



How and What has Influenced Cryptocurrency Prices? Economic Influences or Political Influences

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ABSTRACT

Cryptocurrency has been prevailing gradually with repeating fluctuation in value. Cryptocurrency is not classified as a legal currency but a private financial management system that self-managed and is not managed by central banks or governments. Cryptocurrency is different from any other currency used around the world. Unlike central bank- and government-issued currency, the value of cryptocurrency is able to be inflated as the volume of it has a finite limit. The usage of cryptocurrency enables us to send or receive any amount of currency to anyone at a very cheap cost compared to other monetary instruments. Since the introduction of cryptocurrency, it has received much attention. The trading volume of cryptocurrency has been increasing rapidly although the value has crashed occasionally. Some serious incidents have occurred, however, cryptocurrency may have overcome these situations. How and what has influenced cryptocurrency value has been discussed a lot from the view of economic aspects, however, a common consensus has not yet been reached. For this issue, there is a large difference from stocks or other financial assets or financial instruments. However, there is some possibility that political influences rather than economic influences may have impacts on the prices of cryptocurrency. This study employs U.S.-China trade disputes and examines the effects on prices of cryptocurrency. The results show that political issues along with economic issues, including some asset prices, have some influence on cryptocurrency.

Keywords: China, cryptocurrency, stock, trade dispute, U.S.

INTRODUCTION

Cryptocurrency has been prevailing gradually. Cryptocurrency is not classified as a legal currency but a private financial management system and is not managed by central banks or governments. Cryptocurrency is different from any other currency using around the world. Unlike central bank- and government-issued currency, cryptocurrency is able to be inflated, as the volume of it has a finite limit. The usage of cryptocurrency allows people to send or receive money at a low cost. Since the introduction of the cryptocurrency, it has received much attention. The volume of cryptocurrency has been increasing rapidly although the value has crashed occasionally. Some serious incidents have occurred, however, cryptocurrency may overcome those situations.

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stocks or other financial assets or instruments. However, there is some possibility that political influences rather than economic influences may have impacts on the prices of cryptocurrency. The prices of cryptocurrency have been examined intensively from its inception. Most studies are based on economic factors, however, political factors sometimes seem to play important roles in the determination of cryptocurrency prices. This study focuses on the international trade dispute between the U.S. and China that started in 2018. Not only from the view of economic fields but also from the view of political fields, this study analyzes the prices of cryptocurrency from the view of economic and political aspects.

This study is structured as follows. Section 2 reviews previous studies and clarifies the difference between this study and the previous ones. Section 3 states empirical methods of analyzing the price determination of cryptocurrency from the view of economic and political aspects. Political issues, namely, the trade dispute between the U.S. and China which occurred in 2008 is explained and how to interpret it in the context of cryptocurrency in this empirical study is also explained. Following section 3, empirical results are shown and analyzed in section 4. They show that not only economic aspects but also political aspects should be taken into account in analyzing the prices of cryptocurrency. Lastly, a brief summary is provided.

EXISTING STUDIES FOR ANALYZING CRYPTOCURRENCY PRICES

Cryptocurrency has received much attention. Not only business fields but also academic fields have focused on this transaction from its inception. At first, the volatility, which is related with speculative aspect, has been a focus, however, other aspects such as the volume, the system, and so on, have also attracted interest. Many academic papers have been presented since the cryptocurrency was created.

[1] showed that the cryptocurrency market has expanded through interactions with events which are related to this market. [2] indicated that cryptocurrencies presenting huge returns, for example, Bitcoin, becomes a positive for constructing a portfolio. [3] found that cryptocurrency, namely, Bitcoin has begun to be used as a hedge measure compared with the stock transactions under the international trade dispute and showed its merits for diversification of assets. [4] stated that under shocks of uncertainties, Bitcoin is not able to become a 'safe-haven', however, gold can provide measures of hedging transaction when Bitcoin price volatility occurs. [5] showed that the Bitcoin market has become efficient for making price formation in analyzing price differences of the day of the week.

[6] revealed that that returns on cryptocurrency have a significant connection with the variance under different conditions in developed countries, while the returns in developing markets are positively connected with the variance during 'bear' periods in the markets. [7] indicated that volatilities of Bitcoin prices are about 10 times larger than the volatilities of foreign exchange rates cases. [8] found that the price transmission of Bitcoin does not play a vital role of the market shocks for the price returns in Brazil, China, India, South Africa, and Russia. These studies, needless to say, are relatively focused on economic aspects.

This study examines political aspects as well as economic ones on cryptocurrency price formation. It is quite difficult to determine how to decide what kinds of political factors have impacts on the prices of cryptocurrency. Among these aspects, the trade dispute between the U.S. and China starting in 2018 is employed in this study. After the Trump administration began,

an economic dispute between the U.S. and China erupted. Under the administration of President Obama, the U.S. determined to take part in TPP (Trans-Pacific Partnership). U.S. President Donald Trump did not ratify this agreement and determined not to participate in the TPP even though many problems that President Trump's administration has requested that China take action on - intellectual property rights protection, a ban on technology transfer in investing in some fields and making the same competitive situations against state-owned companies in China - were included in the TPP (see [9]).

The dispute against these issues became severe in 2018. President Donald Trump in January 2018, started tightening tariffs and other trade barriers on China. The Chinese government accused president Trump of unjust policies as countermeasures. The dispute lasted through 2019, however, the U.S. and China obtained an agreement on January 15, 2020.

The trade dispute had negative impacts on both sides. U.S. companies could not import machinery parts and so on at cheap prices from China. It had caused the rising prices of imported goods. Also, the U.S. could not have exported manufacturing goods to China under the severe control. For China, the trade dispute had caused reduction of exports to the U.S. They lost a large market. Moreover, the trade dispute has had negative impacts on other countries.

[10] showed that effects of the trade dispute decreased GDP in China and the U.S. by -1.41% and -1.35% respectively. [11] showed that the U.S. could reduce its international trade deficit with China, and also was able to diminish unfair trade practices such as in the fields of intellectual property rights. An analysis by [12] concluded that the policies of China were successful. However, it could be difficult to judge the winner between the two economies. There is a possibility that the war has finished without any winners in spite of the fact that both the U.S. and China could obtain something.

[13] indicated that the exchange rate had not changed so much and trade with China has been in the black. However, the current account of the U.S. has not changed dramatically and maintained a deficit. President Trump repeatedly had accused China of undervaluing the Yuan. [14] showed that the trade deficit of the U.S. against China had been caused by the Yuan's undervaluation.

Stock markets generally have been analyzed along with their relation with the trade dispute. [15] indicated that stock prices changed due to the strong correlation before the trade dispute happened. The trade war had reduced the stock prices and attacked economic activities. Moreover, risk between the two giant stock market rises according to a reduction of the U.S.-China international trade volume. Moreover, stock markets of the U.S. had not affected by the trade dispute among the U.S. and China while the dispute influenced stock markets negatively in emerging economies.

[16] indicated that the relationship between Bitcoin/gold/commodities and stock markets is not certain. [17] found that U.S. stock market returns have positive effects on Bitcoin returns. [18] showed a positive relationship between Bitcoin and the stock markets. [19] showed that although sensitivities of Bitcoin and stock prices have similarities for high volatile or risk averse periods, the relationship between them does not continue.

[20] examined the movements of Bitcoin's price from 2011 to 2018 and its relationship with the worldwide financial markets employing EGARCH. The empirical results indicated that fundamentals and some kinds of events show a significant sign for making exchange rates movements. [21] found that Bitcoin and gold price have an important role for safe haven and hedging instruments. [22] indicated that Bitcoin plays a role for a good hedging asset in portfolios with gold, and gold plays a larger role as a safe-haven commodity than Bitcoin. [23] revealed that under stress in markets, gold is a safe haven for examined stock markets. [24] found that gold is a weak safe haven, while Bitcoin provides no shelter because of its increased variability during the COVID-19 periods. Finally, [25] found the attractiveness of Bitcoin as a hedging instrument against shocks in uncertainty in the U.S. economic policy. However, there are few studies that focus on political issues for deterministic elements of cryptocurrency prices. Also, there has been many studies examining the impacts of the U.S.-China trade dispute. However, the number of studies examining a long period is few.

EMPIRICAL METHODS FOR ANALYZING TRADE DISPUTE ON CRYPTOCURRENCY

To analyze the effects of the trade dispute between the U.S. and China on the cryptocurrency price, daily data are used for estimation. As explanation variables, asset prices and news related with the trade dispute between the U.S. and China are employed. The estimation equation is as follows (1).

$$\text{CRYPTOCURRENCY PRICE}_{it} = \alpha_0 + \alpha_1 \text{ASSET PRICE}_{it} + \alpha_2 \text{GOOD NEWS} + \alpha_3 \text{BAD NEWS} + \varepsilon_{it} \quad (1)$$

In this equation (1), i denotes country, t denotes time (daily). ε means error term.

GOOD NEWS and BAD NEWS denote the date that the U.S. and China's new trade policies were conducted from 2018 to the end of 2021. The lists are as in Table 1 (see [9], for example). As explained above, there are few studies examining a long period.

GOOD NEWS means the movements of expanding trade volume such as reducing tariffs, trade restriction, and so on. BAD NEWS means the opposite case.

Table 1. Major trade measures and announcements of the U.S. and China

DATE	CONTENTS
January 22, 2018	President Trump announced tariffs were imposed on solar panels and washing machines.
March 22	President Trump directed the U.S. trade representative (USTR) to examine when applying tariffs on U.S.\$50-60 billion worth of Chinese products. An additional 1,300 categories of imported products from China were listed for tariffs; they included aircraft parts, batteries, flat-panel televisions, medical devices, satellites, and various weapons.
April 3	The office of the USTR published a candidates list of over 1,300 kinds of Chinese products to impose tariffs on; they included products like flat-screen televisions, weapons, satellites, medical devices, aircraft parts and batteries.
July 6	The U.S.'s tariffs on \$34 billion of Chinese products were applied in reality. As a countermeasure, China conducted retaliatory tariffs on the U.S. products at about the same level.
August 8	USTR's office of the U.S. published its finalized list of 279 Chinese products, which were valued at \$16 billion, to be managed to a 25% tariff from August 23. Against the U.S.'s measure, China imposed the same 25% tariffs; about \$16 billion of products from the U.S.
August 5, 2019	China requested their state-owned companies to stop purchasing the U.S. agricultural products against the President Trump's announcements about imposing tariffs.
September 18, 2020	The U.S. District Court in Washington issued an injunction against TikTok download bans.
November 17, 2020	The Commerce Department follows an injunction ordered by the U.S. District Court in Washington to postpone the TikTok ban.
January 13, 2021	President Trump's administration banned imports of cotton and tomato products originating from China; they included products manufactured outside of China but using cotton and tomatoes from China due to the forced labor allegations which the U.S. considered.

In the equation (1), GOOD and BAD NEWS are dummy variables, when the good ones listed in Table 1 happens, it takes 1, and 0 otherwise, respectively. Moreover, as an ASSET, three assets are used for estimations. They are exchange rate (against Euro to the U.S. dollar), gold and oil price.

All of the data are from NIKKEI TELECOM in Japan. The regression method is OLS (Ordinary Least Squares).

EMPIRICAL RESULTS

The sample data is from the year of 2018 to 2021. The number of the observations is 883. Table 2 is the statistical description of each price. Finally, Table 3 is the regression results of the equation (1).

Table 2. Statistical description of prices

	mean	medium	maximum	Minimum	std.dev.	skewness	Kurtosis
PRICE	18730.66	9537.51	67527.50	3296.89	17923.36	1.26	3.04
EURO	1.15	1.15	1.25	1.07	0.04	0.69	2.33
GOLD	5480.20	5479.00	7033.00	4164.00	826.39	0.02	1.41
OIL	60.96	63.40	84.10	13.00	13.79	-0.94	3.49

Table 3. Regression results

ASSET	EURO	GOLD	OIL
C	7.8706*** (76.7732)	-25.6843*** (-23.8210)	6.9694*** (17.1627)
Coefficient	11.0267*** (15.8666)	4.0861*** (32.5885)	0.6083*** (6.1179)
Good News	1.4171*** (3.3128)	0.7014** (2.1435)	1.2351*** (2.5943)
Bad News	-0.5361** (-2.0348)	0.2890 (1.4372)	-0.2912 (-0.9970)
Adj.R-squared	0.2279	0.5502	0.0473
F-statistic	87.7981	360.6687	15.6226
Prob (F-statistic)	0.0000	0.0000	0.0000
Akaike Info criterion	2.2392	1.6988	2.4493
Durbin-Watson stat.	0.0412	0.0247	0.0213

Note) Parentheses in the Table is t-value. * denotes significant at 1%, ** 5%, and * 10% respectively.**

Depreciation of the Euro against the U.S. dollar is linked with the rising of cryptocurrency price. U.S. dollar price (appreciation) seems to be positively related with cryptocurrency price. Gold price is negatively related with cryptocurrency price, however, positive influence can be found for the case of oil price. Gold seems to be a substitute for cryptocurrency for speculation or hedging instrument, on the other hand, oil seems not to be.

Granger causality tests are conducted to examine the relationship among variables, independent variables and dependent variables. This test is as follows: a time series A can be said as Granger-cause B if one can show a series of t value and F value on lagged values of A and those A values provide statistically significant values of B. The results are in Table 4.

Table 4. Pairwise Granger causality test

Null hypothesis	F-statistic	Prob (F-statistic)
EURO does not Granger cause PRICE	1.4774	0.2288
PRICE does not Granger cause EURO	0.9554	0.3851
GOLD does not Granger cause PRICE	4.7712	0.0087
PRICE does not Granger cause GOLD	0.2697	0.7637
OIL does not Granger cause PRICE	7.2450	0.0000
PRICE does not Granger cause OIL	0.5820	0.5590

Except the case of exchange rate (Euro), gold price and oil price influence on cryptocurrency price. Causality existence between exchange rate and cryptocurrency is not so clear. There would be some elements that have impacts on exchange rates, so a determinist causality

relationship cannot be found. However, a significant deterministic relationship exists 1) between gold price and cryptocurrency price and 2) oil price and cryptocurrency price. However, the coefficients of asset prices are significant at the 1% level. So the equations fit well for analyzing the determinist elements of cryptocurrency prices.

It should be noted that good news about the U.S. and China the trade conflict had positive impacts on cryptocurrency price. On the other hands, bad news has not had strong impacts on cryptocurrency prices. Market participants invest capital into cryptocurrency as a strong speculative instrument. They seem to trade cryptocurrency aggressively looking for the opportunity of obtaining large profits. In general, when the economy expands considerably, such opportunity is born.

COVID-19 has been spreading rapidly and continuously. It damaged the economies of the U.S. and China. The coronavirus has had negative impacts on economic activities, for example, on those of international supply chains. While some economies have already recovered gradually from the view of economic aspects, and a lack of semi-conductors occurred, such confusion will not disappear soon. They have hit the economies severely. Once this pandemic disappears, many countries should implement policies to boost domestic companies and decrease the reliance on foreign supply chains. The lack of machinery parts, semi-conductors and so on has been continuing, for example. Such phenomena would cause competition between the U.S. and China.

CONCLUSION

This study examined the deterministic elements of cryptocurrency prices and focused on political issues. This point has not yet been discussed to a large extent and it has not reached a common consensus. However, there would be some possibility that political influences instead of economic influences may also have significant impacts on the prices of cryptocurrency. This study employed U.S.-China trade disputes and examined the effects on prices of cryptocurrency. It should be noted that good news about the trade dispute have positive impacts on cryptocurrency price. Market participants seem to regard cryptocurrency as a speculative instrument and look for good opportunities to get large profits.

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