

Bitcoin's Economic Relationships: Insights from a 10-Year Correlation Study

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ABSTRACT: This study examines the correlation of the price of Bitcoin to eight other key market indicators for the period January 2014 to July 2024. The study's objectives were to determine which indicators had the highest correlation to the price of bitcoin and whether the correlation changed over this period. If there was a change in correlation over this time, the study will attempt to determine the causation of the change. The nine key economic indicators reviewed for correlation to Bitcoin price are (1) the price of gold, (2) Consumer Confidence Index (CCI), (3) US dollar, (4) NYSE Composite Index, (5) NASDAQ Composite Index, (6) Nikkei 255 Index, (7) Hang Seng Index, and (8) the FTSE index.

The conclusion of the paper regarding the price of Bitcoin during our study period is that:

- There was a strong positive correlation with stock exchange indices that were increasing during the period analyzed.
- A positive relationship also existed with the price of gold over the entire study period; however, it was statistically lower during the 5-year sub-periods analyzed.
- There was no statistically justified relationship between the price of Bitcoin and the CCI, US Dollar Index or any of the stock indices that had declined during the study period.

KEYWORDS: Bitcoin; Cryptocurrency; Correlation; Financial Markets, Gold

JEL Classification: E44, G15, G12

1.0 INTRODUCTION

Over the last decade, the cryptocurrency market has grown exponentially in trading volumes and the number of digital currencies available to investors. Many of these currencies have experienced significant price increases over this time. This study aims to determine the relationship between the price of Bitcoin (BTC) and other key economic indicators. Since Bitcoin is the largest and most prominent cryptocurrency as of 2024 (Cloonan, 2024), we have used the price of Bitcoin as a representation of the general trend in the cryptocurrency market. The starting date for our data collection is January of 2014 since it was during this time period that the price of Bitcoin was in the range of \$1,000, and it had started to gain acceptance in the marketplace. The period of data collection covers the 10.5-year period from January 2014 to July 2024.

This data collection period was also divided into two separate 5-year periods to review whether the correlations had changed during this time. Since Bitcoin is a relatively new investment that started in 2009 (Pinkerton, 2024), its market presence has changed significantly over the period analyzed. The 5-year periods allow us to review whether there were

changes in correlation to the economic indicators reviewed at different stages in the life of Bitcoin. The first period covered 5 years ending July 2019 when Bitcoin had crossed a valuation of US\$10,000. It covered a period of dramatic growth and acceptance for an investment that was not initially well known. The second period covered the 5 years ending July 2024 in which Bitcoin was trading over US\$60,000. Bitcoin gained more acceptance in the mainstream market during this period, as evidenced by its growing market capitalization (*Market Capitalization of Bitcoin (BTC) from April 2013 to January 29, 2025, 2025*).

2.0 LITERATURE REVIEW

2.1 Overview

The purpose of this study is to determine how Bitcoin is correlated to traditional assets and what factors are influencing the correlation. It is important to assess these questions since understanding these relationships may assist investors in their investment strategies and decisions. Understanding the relationships analyzed in this study will also help to determine whether the motivation for investments

in Bitcoin is based on classifying it as a currency, financial asset or a hedge against economic risk.

The research question we will address is: Has there been a correlation between the price of Bitcoin with the price of gold, the US dollar, the major stock markets or the Consumer Confidence Index over the last decade? If so, has this relationship changed over this time?

2.2 Data Set and Methodology

In reviewing the data, we have reviewed the following economic indicators to determine if a correlation existed:

1. Gold Price
2. CCI – US Consumer Confidence Index
3. US Dollar Index
4. NYSE Composite Index - US
5. NASDAQ Composite Index - US
6. Nikkei 225 Index – Japan
7. Hang Seng Index – Hong Kong
8. FTSE Index - London

The first two economic indicators listed affect investor sentiment and desire to hedge risk in difficult economic times.

The US Dollar Index was used as the third economic indicator since it a basis for determining whether investors are treating Bitcoin as a currency alternative. The remaining five indicators are various geographical stock market indices that give an overview of investment profitability over time. These were selected to determine whether we could conclude whether Bitcoin investors are motivated by hedging risk during volatile economic periods or whether they are treating it as an investment like equities.

Data was selected from publicly available historical price data published on several finance websites. Monthly price data was collected for each variable over the study period by a research assistant and independently verified by a second research assistant.

2.3 Price Volatility

The chart below shows the growth of Bitcoin's price over the study period and provides an overview of changes in price volatility over the last decade.

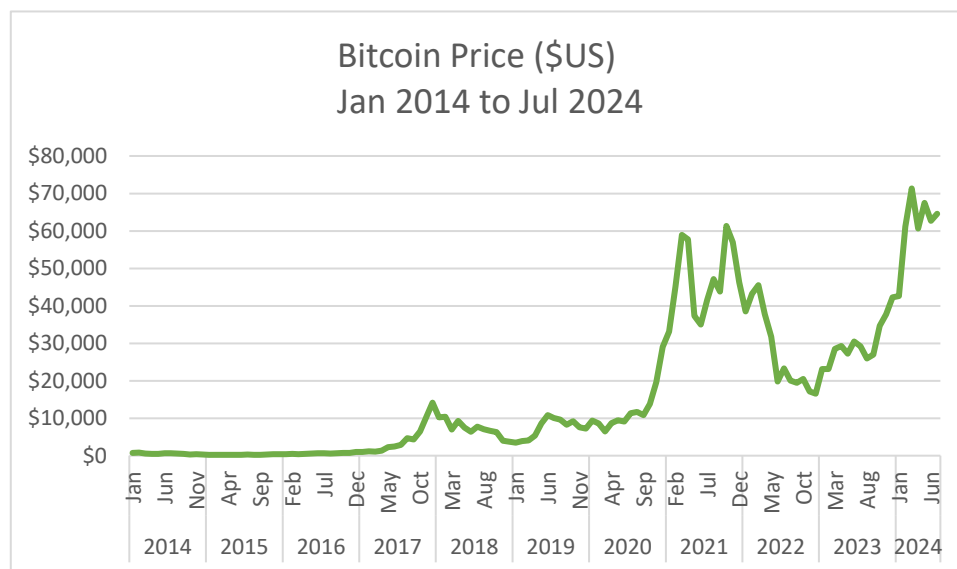


Figure 1: Price History of Bitcoin

2.4 Gaps in the Literature

Studies in the past have attempted to compare a correlation between Bitcoin price and economic variables. However, Bitcoin is a relatively new asset, and it has evolved significantly from its creation in 2009. Some studies have focussed on short term relationships between Bitcoin and economic indicators, but there have not been longer term studies including recent price data. Additionally, few studies have examined multiple independent variables in their analysis. This is particularly important because of the multiple motivations for the demand for Bitcoin.

A few studies that have reviewed these relationships are listed below:

- (Corbet et al., 2018) examined the interrelationship between Bitcoin, Ripple and Litecoin along with

correlation to financial markets. The results covered the period 2013 to 2016.

- (Kliber et al., n.d.) analyzed the use of cryptocurrencies as a safe haven for stock investors during the COVID-19 pandemic.

While these and other studies have examined some of the relationships covered in our study, there has not been a comprehensive study with a data period over 10 years examining multiple variables.

2.5 Summary

This goal of this paper is to attempt to address the current literature gaps by performing a long-term review on multiple independent variables and their correlation to the price of Bitcoin. The indicators reviewed were selected to determine

whether investors are motivated to purchase Bitcoin as a currency, financial asset or a strategy to hedge financial risk.

3.0 ECONOMIC INDICATORS ANALYZED:

3.1 Gold:

During the 10.5-year period of analysis, the price of Bitcoin increased from approximately \$1,000 to \$80,000. Over this time, the correlation with the price of gold of 0.856 indicates a strong positive relationship between the price of Bitcoin and gold (measured in US\$). The R^2 of 0.7327 also supports the statistical presence of a strong relationship over this period.

Gold has traditionally been used as a store of value, particularly in times of economic uncertainty. The strong positive relationship may imply that Bitcoin is now being used as an alternative to gold (Baur & Hoang, 2021). One

major advantage of Bitcoin is that there is no need for physical delivery of the asset or safeguarding, so it is easier to manage logistically. The major disadvantage is that Bitcoin has price volatility associated with new investments, which offsets the benefit of using it for safety purposes. As Bitcoin becomes more mainstream, this disadvantage may decline; however, it will take some time. An example of growing acceptance is the ability to link credit cards like Visa (Mason, 2021) to cryptocurrency wallets. This functionality allows it to be essentially used as a currency anywhere credit cards are accepted, making it more usable as currency than gold.

Individual 5-year periods do not show a significant correlation. Starting and ending dates may impact this. The first 5-year period was the least predictive since it was relatively new and uncommonly held.

Table 1: Correlation between Bitcoin and the Price of Gold

Bitcoin Price vs. Gold Price		
Time Period of Analysis	Correlation	R^2
Jan 2014 to Jul 2024 - 10.5 years	0.8560	0.7327
Aug 2019 to Jul 2024 - 5 years	0.6686	0.4471
Aug 2014 to Jul 2019 - 5 years	0.5434	0.2952

The scatter charts below show a directionally positive relationship between the price of Bitcoin and Gold, as illustrated by the following formula:

$$\text{Bitcoin Price (US\$)} = 49.09 \times \text{Gold Price (US\$)} - \$58,822$$

However, the regression line variance is sometimes significant (particularly in the 5-year charts). Accordingly, the formula's predictive value is limited, and causation cannot be demonstrated statistically.

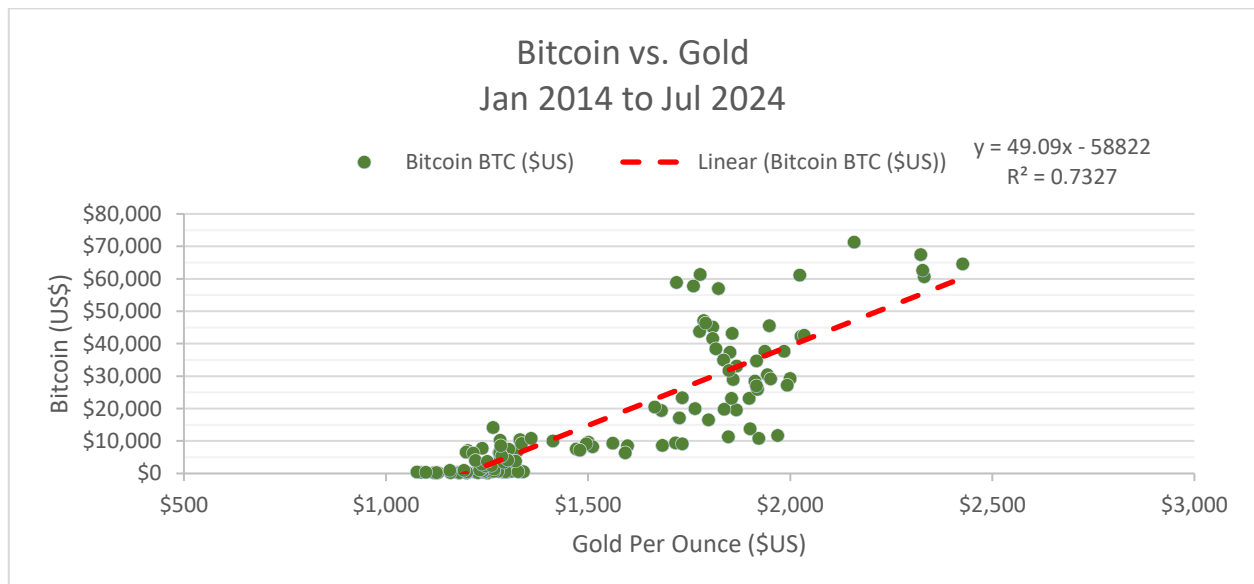


Figure 2: Correlation between Bitcoin and the Price of Gold (January 2014 to July 2024)

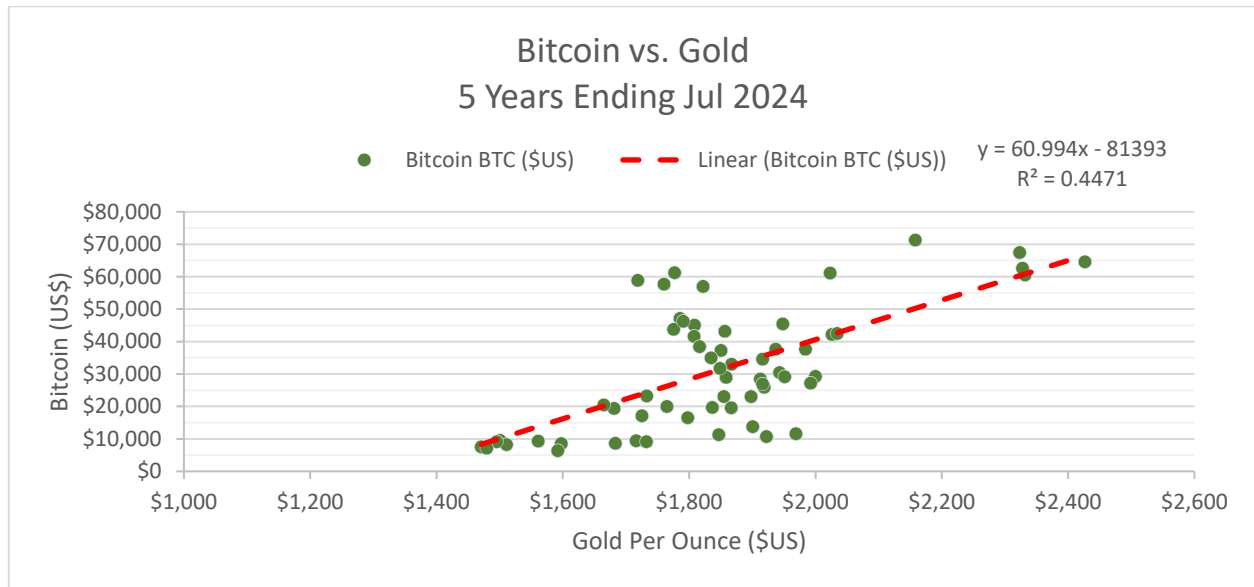


Figure 3: Correlation between Bitcoin and the Price of Gold (August 2019 to July 2024)

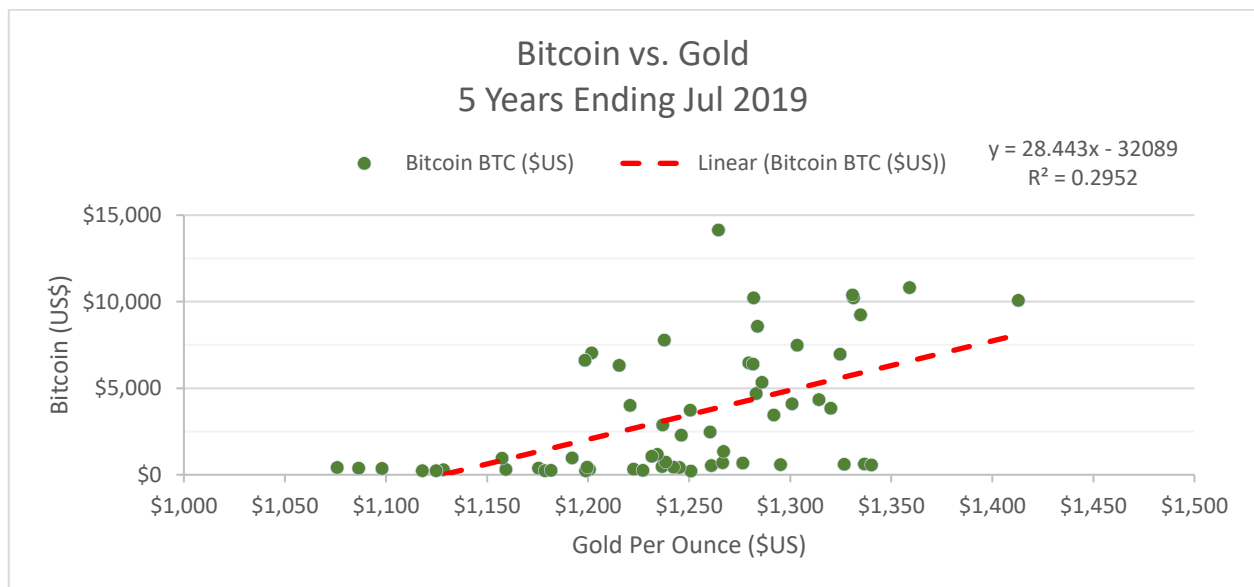


Figure 4: Correlation between Bitcoin and the Price of Gold (August 2014 to July 2019)

3.2 US Consumer Confidence Index (CCI):

As with gold, the intuitive expectation could be that a loss of confidence in the economy would result in investors seeking safety and moving funds to Bitcoin. This would imply a strong negative correlation, but this is not true in the analyzed period. The 10.5-year correlation is moderately negative, while the R^2 of 0.1877 is low. The 5-year period ending in July 2019 has a higher correlation of 0.7759, but it is positive,

implying that Bitcoin was not being used as a method of safety. The next 5-year period has a very low correlation and R^2 , implying that there is no relationship. Given the disparity in results over the various time periods tested, there is no support for the fact that the price of Bitcoin is impacted consistently, either positively or negatively, by the US Consumer Confidence Index. The regression charts for these time periods support this conclusion.

Table 2:

Correlation between Bitcoin and the US CCI

Bitcoin Price vs. US Consumer Confidence Index		
Time Period of Analysis	Correlation	R^2
Jan 2014 to Jul 2024 - 10.5 years	-0.4332	0.1877
Aug 2019 to Jul 2024 - 5 years	0.1853	0.0343
Aug 2014 to Jul 2019 - 5 years	0.7759	0.6021

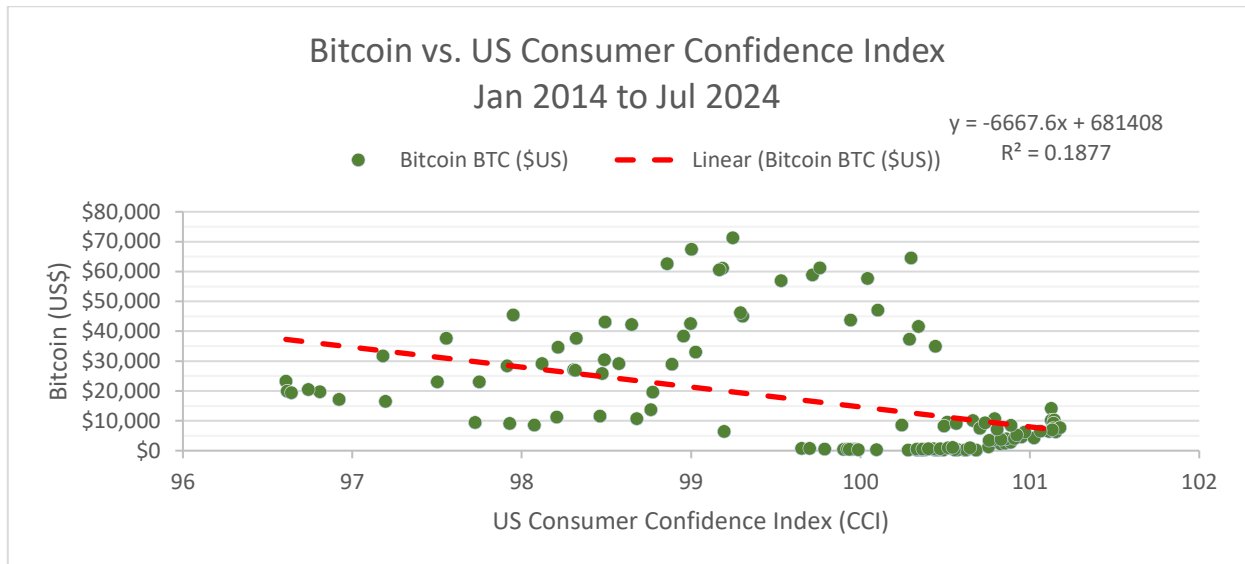


Figure 5: Correlation between Bitcoin and the US CCI (January 2014 to July 2024)

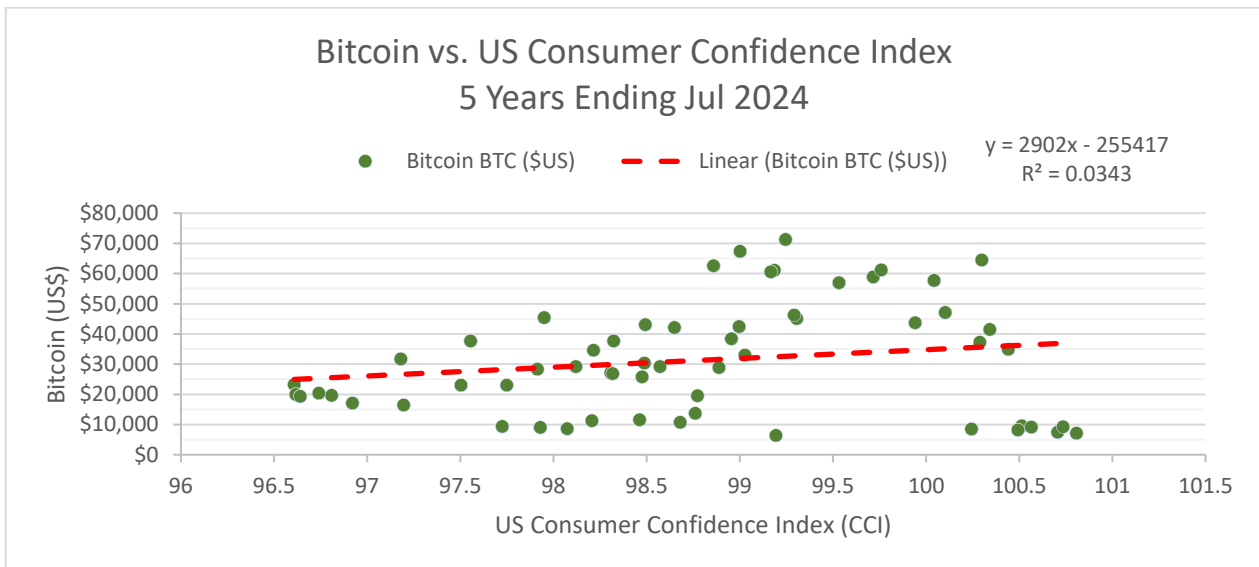


Figure 6: Correlation between Bitcoin and the US CCI (August 2019 to July 2024)

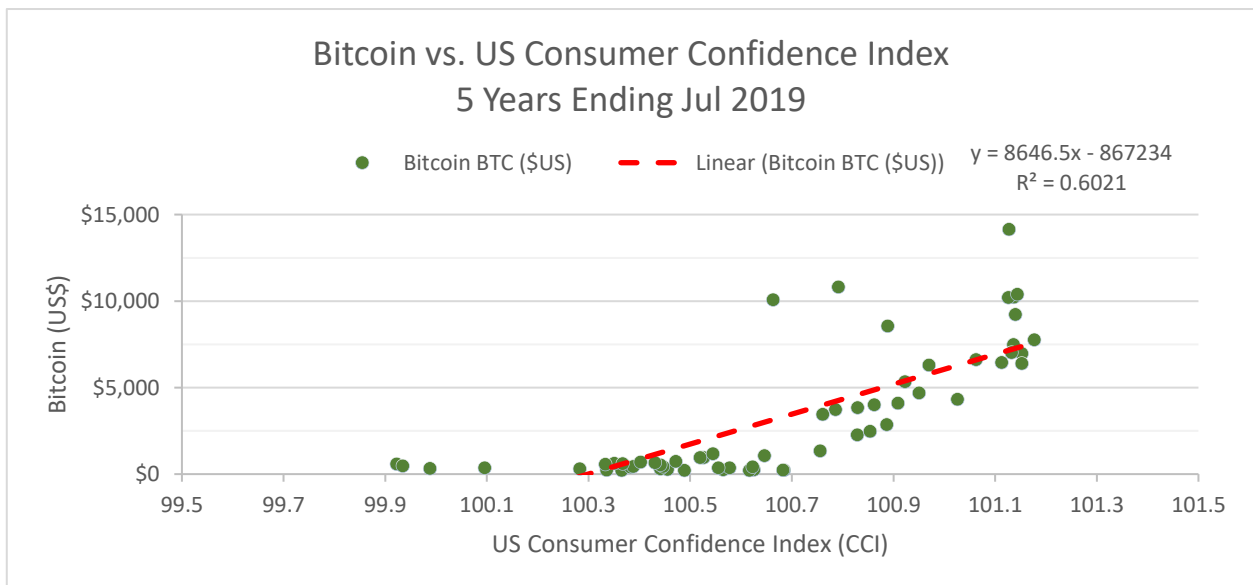


Figure 7: Correlation between Bitcoin and the US CCI (August 2014 to July 2019)

3.3 US Dollar Index:

If the value of Bitcoin is determined as a currency rather than a speculative investment, then it would be reasonable to assume that its price may be correlated with other currencies. The US Dollar Index was used as the basis for our analysis since the US dollar is the most used currency in the world (*Most Used Currency in the World for International Payments in SWIFT from January 2019 to December 2024, Based on Share in Total Transaction Value, 2024*). If investors consider Bitcoin a currency like the US dollar, we expect to find a strong positive correlation in the data. On the other hand, if Bitcoin is considered an alternate currency,

perhaps as an investment of safety, then we expect to have a strongly negative correlation.

The results show a very low correlation in all the time periods analyzed as part of our study, implying that Bitcoin is not considered an alternative currency to holders of the US dollar or a hedge against the US dollar. This is a logical conclusion since one of the key attributes of a commonly accepted currency would be stability. If price stability were a characteristic of Bitcoin, then demand by investors would decrease since most Bitcoin investors intuitively purchase it with the expectation or hope of price appreciation. This would be inconsistent with the expectation of a stable future currency price.

Table 3: Correlation between Bitcoin and the US Dollar Index

Bitcoin Price vs. US Dollar Index		
Time Period of Analysis	Correlation	R ²
Jan 2014 to Jul 2024 - 10.5 years	0.3463	0.1199
Aug 2019 to Jul 2024 - 5 years	0.0159	0.0003
Aug 2014 to Jul 2019 - 5 years	-0.1996	0.0398

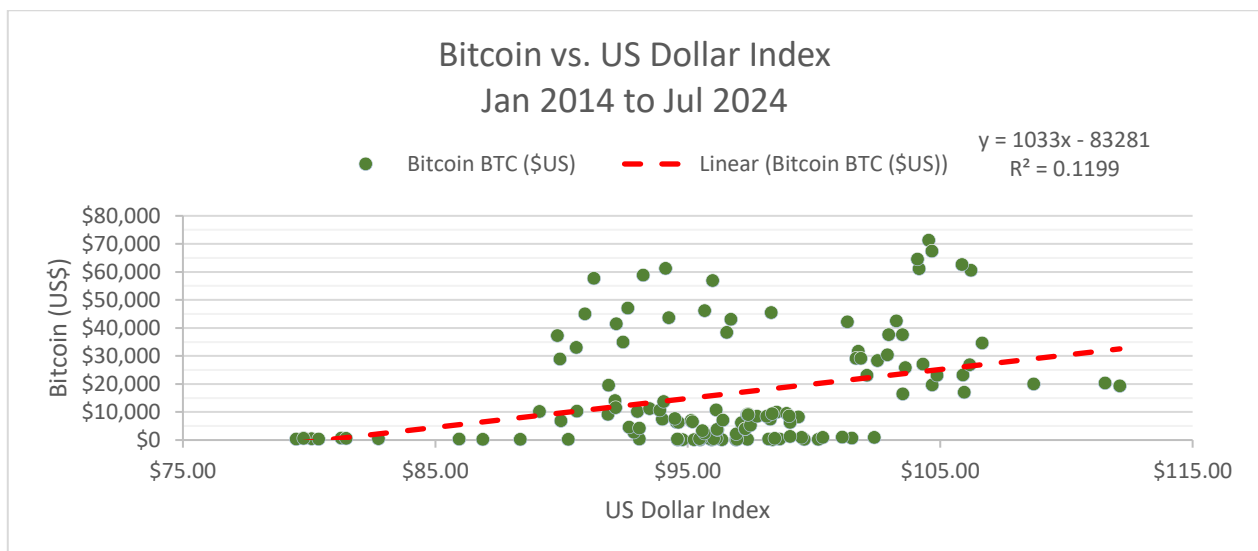


Figure 8: Correlation between Bitcoin and the US Dollar Index (Jan 2014 to Jul 2024)

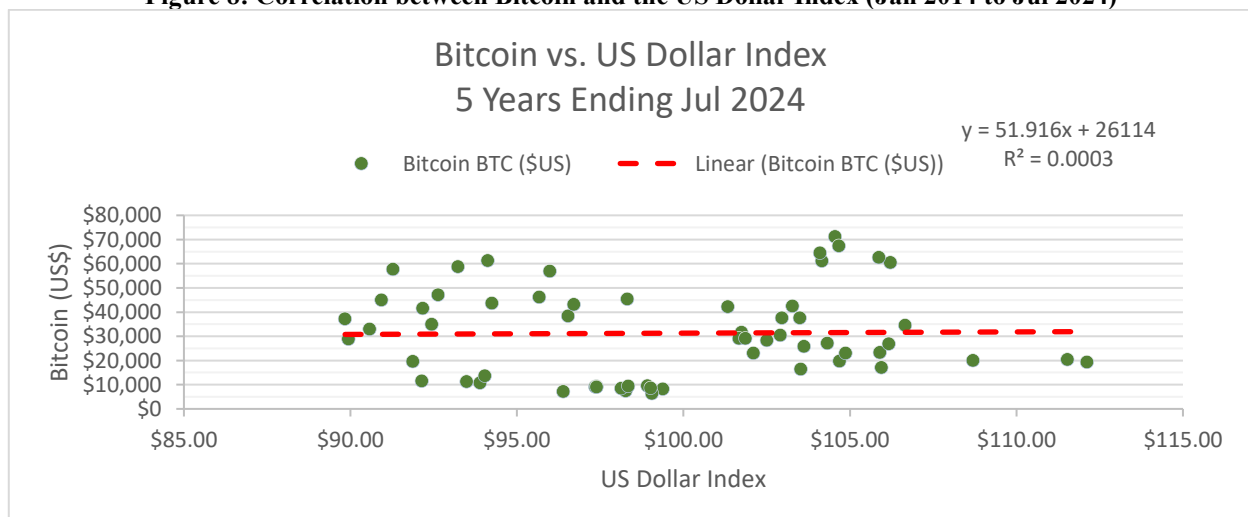


Figure 9: Correlation between Bitcoin and the US Dollar Index (Aug 2019 to Jul 2024)

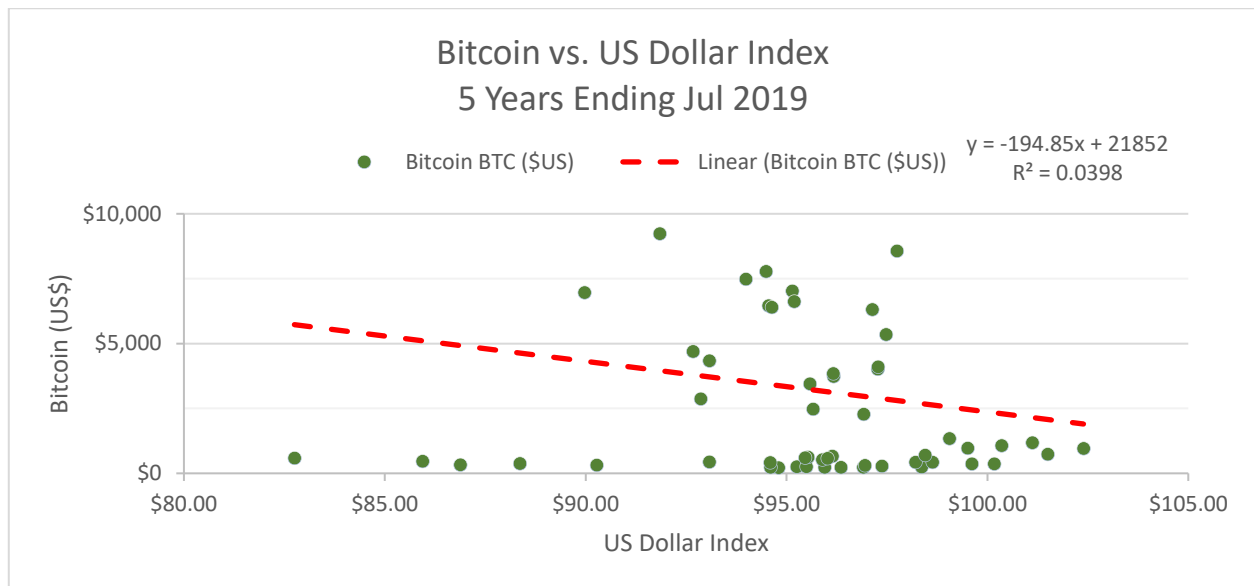


Figure 10: Correlation between Bitcoin and the US Dollar Index (Jan 2014 to Jul 2019)

3.4 NYSE (New York Stock Exchange) Index:

The New York Stock Exchange (NYSE) is the largest stock market in the world (Capital.com Research Team, 2024) and is a good indicator of the broad investment market in the US. The data analyzed shows a strong positive correlation between the price of Bitcoin and the NYSE Composite Index over all the periods. The correlation and R^2 over each of the periods also support a strong positive relationship. While causation is not determined by this result, the positive relationship may imply that Bitcoin's value is being treated as

a traditional investment such as equities. Another possible implication is that it is being treated as an investment that moves directly with the US economy since the stock market is a good leading indicator of the economy (Kader, 1985). Although the US does not have the most Bitcoin holders in the world (“Cryptocurrency Ownership Data,” 2023), the high correlation indicates that there is a strong relationship. The following formula represents the relationship determined by a regression analysis:

$$\text{Bitcoin Price (US\$)} = 7.379 \times \text{NYSE Composite} - \$80,926$$

Table 4: Correlation between Bitcoin and the NYSE Index

Bitcoin Price vs. NYSE Index		
Time Period of Analysis	Correlation	R^2
Jan 2014 to Jul 2024 - 10.5 years	0.9241	0.8540
Aug 2019 to Jul 2024 - 5 years	0.8677	0.7529
Aug 2014 to Jul 2019 - 5 years	0.8569	0.7343

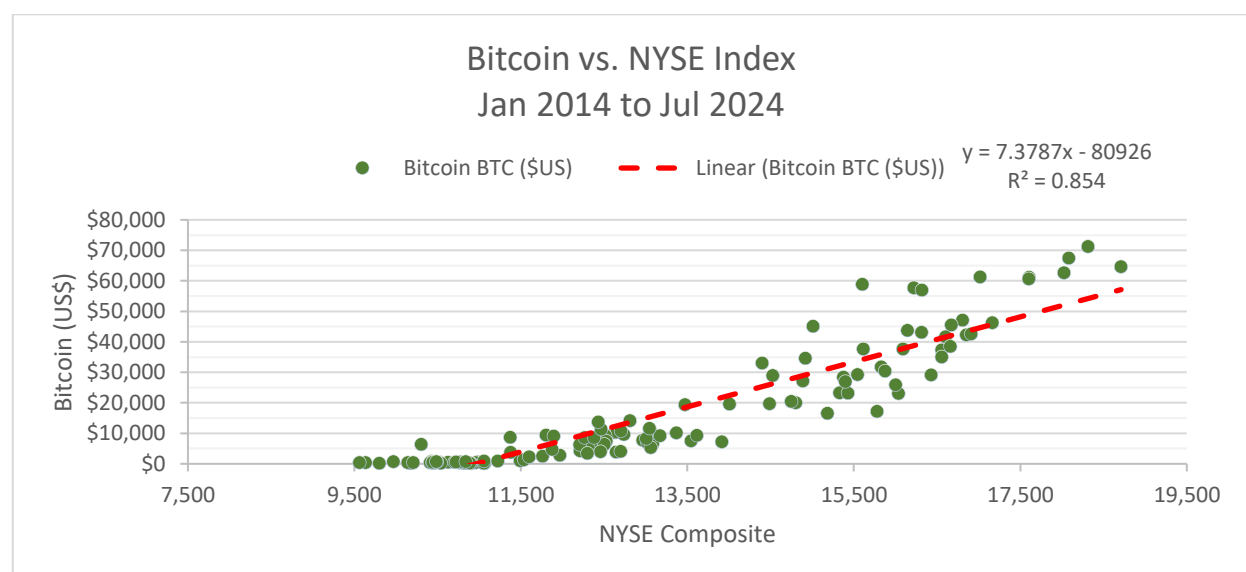


Figure 11: Correlation between Bitcoin and the NYSE Index (Jan 2014 to Jul 2024)

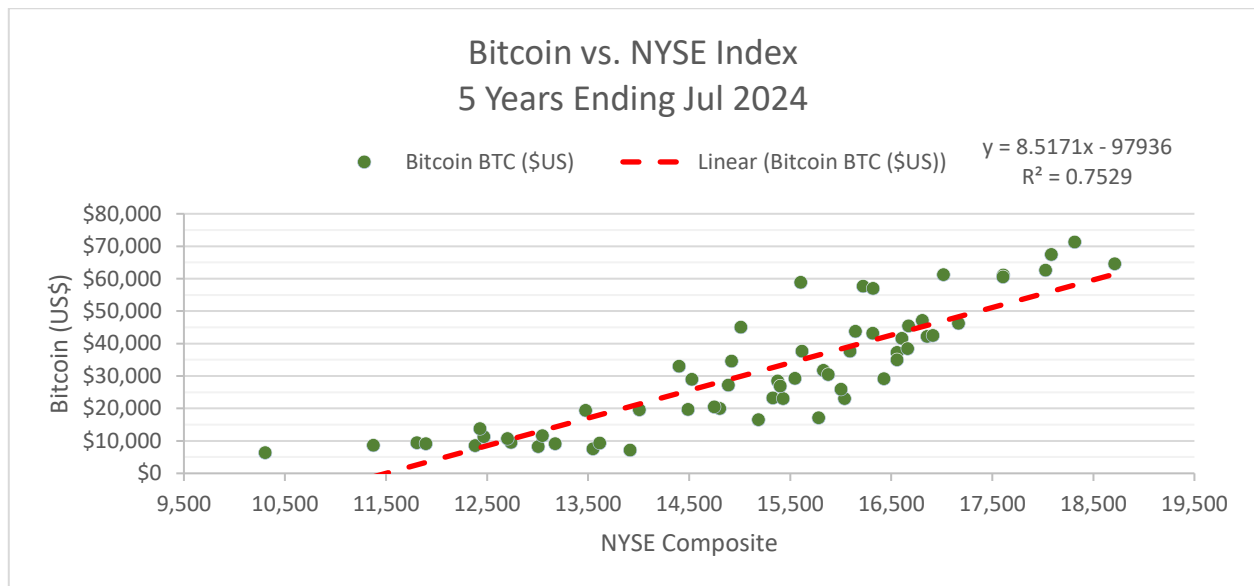


Figure 12: Correlation between Bitcoin and the NYSE Index (Aug 2019 to Jul 2024)

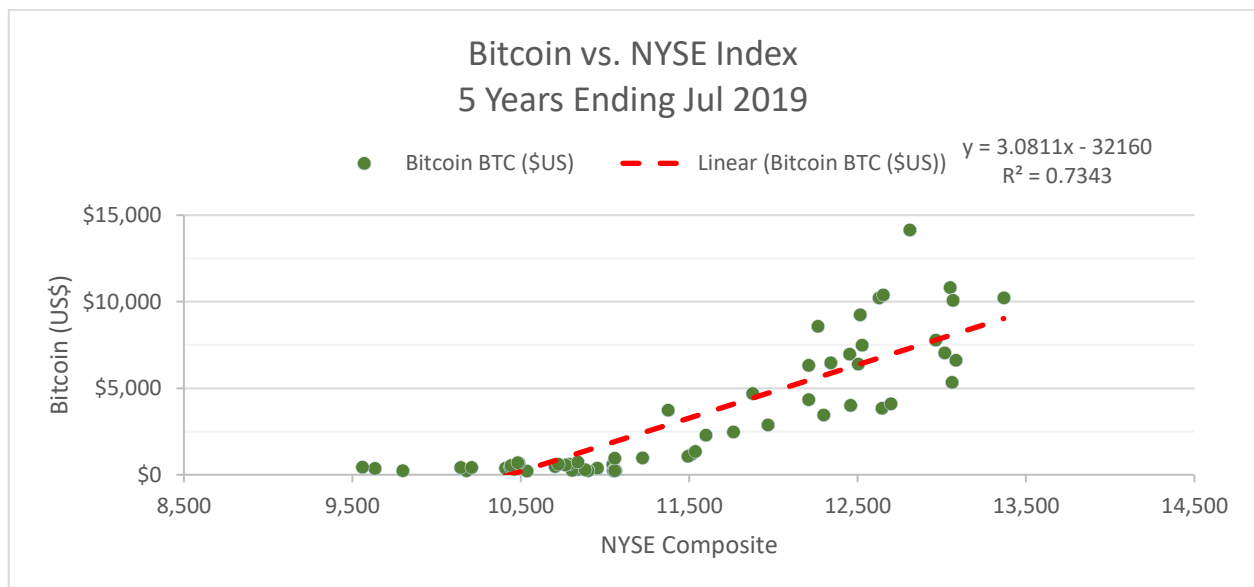


Figure 13: Correlation between Bitcoin and the US Dollar Index (Aug 2014 to Jul 2019)

3.5 NASDAQ Composite Index:

The NASDAQ Composite Index was selected as an economic indicator since it is the second-largest stock market in the world (Capital.com Research Team, 2024) and is technology-focused. This may make it more relevant to the cryptocurrency market than a broad stock market index. The results show that, like the NYSE, the NASDAQ Composite Index has a strong positive correlation to the price of Bitcoin. The correlation was higher in the second 5-year period analyzed, but even the first period had a statistically strong correlation. One likely rationale for the higher correlation in the second period is that Bitcoin had become more mainstream. The price was over US\$10,000, and the trading volume increased. As it became more acceptable as an

investment, it would be reasonable to expect a higher correlation with a technology-based market index such as NASDAQ. Also, the NASDAQ lists many companies that have a financial relationship with Bitcoin which could impact the positive relationship. A few examples of this would be Coinbase which is a major cryptocurrency exchange and Tesla, which holds \$1 billion of Bitcoin on its balance sheet (*Tesla (TSLA) Owns \$1 Billion Worth of Bitcoin*, 2025). The following formula represents the relationship determined by a regression analysis:

$$\text{Bitcoin Price (US\$)} = 4.553 \times \text{NASDAQ Composite} - \$24,785$$

Table 5: Correlation between Bitcoin and the NASDAQ Index

Bitcoin Price vs. NASDAQ Index		
Time Period of Analysis	Correlation	R ²
Jan 2014 to Jul 2024 - 10.5 years	0.9329	0.8704
Aug 2019 to Jul 2024 - 5 years	0.9113	0.8305
Aug 2014 to Jul 2019 - 5 years	0.8433	0.7111

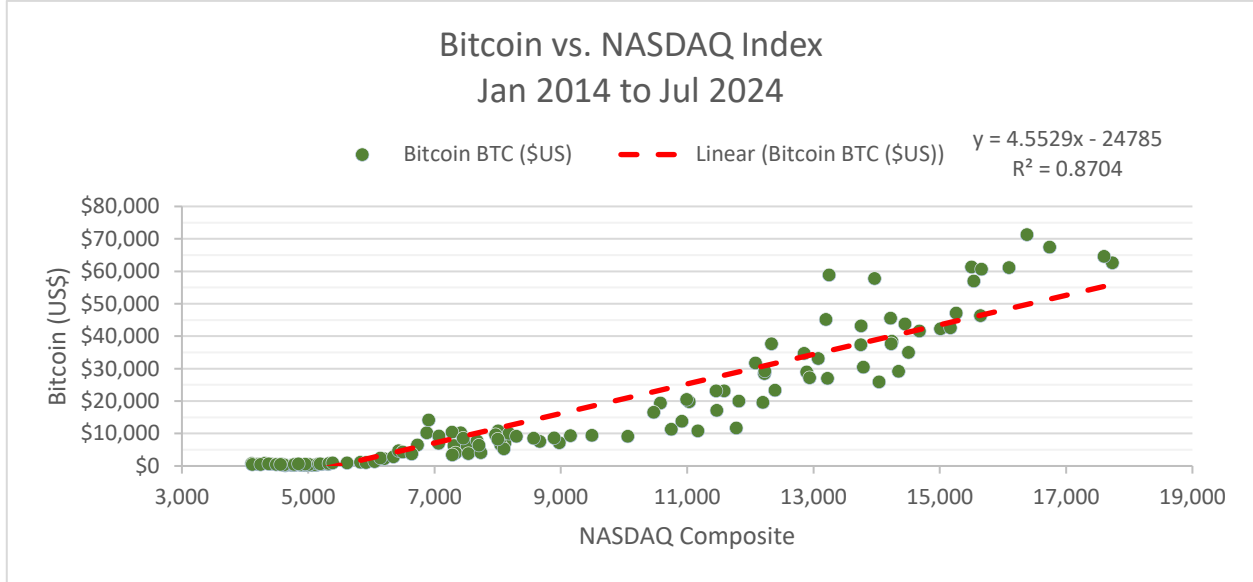


Figure 14: Correlation between Bitcoin and the NASDAQ Index (Jan 2014 to Jul 2024)

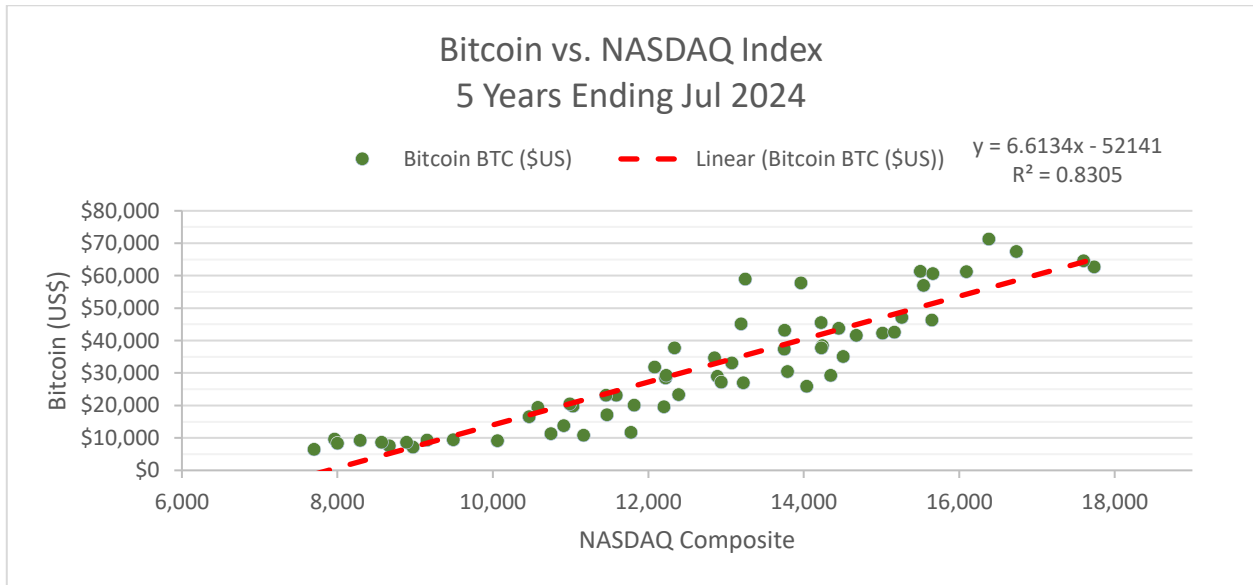


Figure 15: Correlation between Bitcoin and the NASDAQ Index (Aug 2019 to Jul 2024)

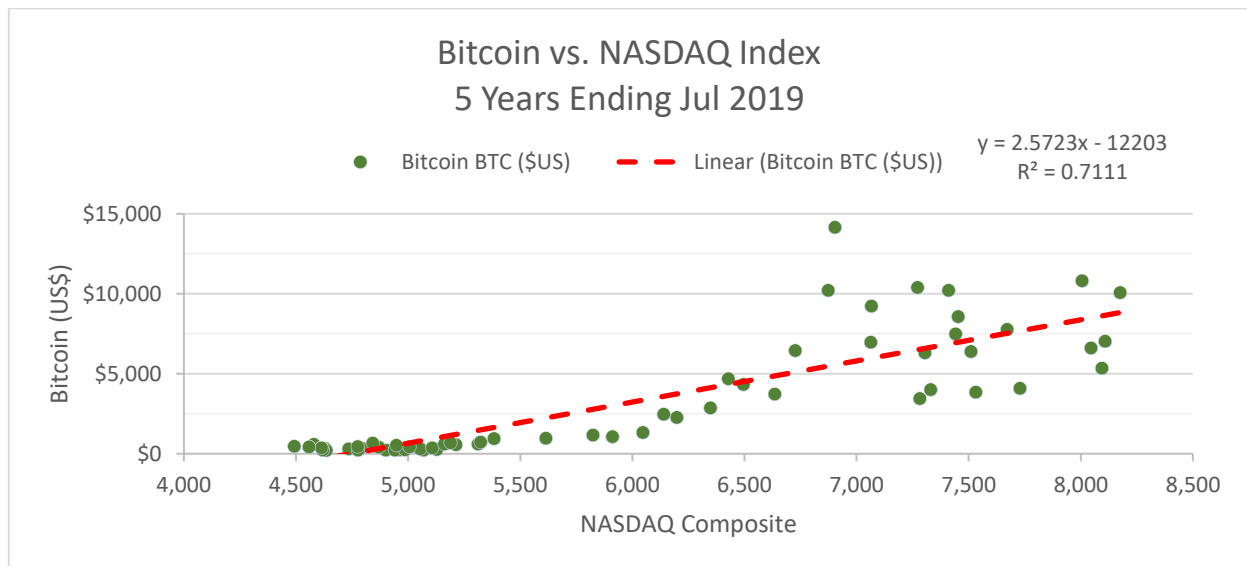


Figure 16: Correlation between Bitcoin and the NASDAQ Index (Aug 2014 to Jul 2019)

3.6 Nikkei 225 Index:

The Nikkei 225 Index is based on the Tokyo Stock Exchange and is one of the leading indicators of the Japanese economy. It was selected for analysis since Japan is one of the countries with the highest Bitcoin trading volumes. Our analysis shows that there is a strong positive correlation between the price of Bitcoin and the Nikkei 225, similar to the US exchange indices. It is slightly lower than the US correlation but still shows a strong positive relationship.

During the period examined, the Nikkei 225 grew significantly, similar to US growth. Causation cannot be proven for this correlation, but a similar rationale could be

explored for the US markets. Since both the US and Japan represent large, growing economies, they are traditional options for equity investors. As the economies have continued to grow, more investors are attracted, and some will consider non-traditional investments such as cryptocurrency, thereby bidding up the price of Bitcoin as their stock indices increase. The following formula represents the relationship determined by a regression analysis:

$$\text{Bitcoin Price (US\$)} = 2.837 \times \text{Nikkei 225 Composite} - \$50,143$$

Table 6: Correlation between Bitcoin and the Nikkei 225 Index

Bitcoin Price vs. Nikkei 225 Index		
Time Period of Analysis	Correlation	R ²
Jan 2014 to Jul 2024 - 10.5 years	0.8981	0.8066
Aug 2019 to Jul 2024 - 5 years	0.8071	0.6514
Aug 2014 to Jul 2019 - 5 years	0.7843	0.6151

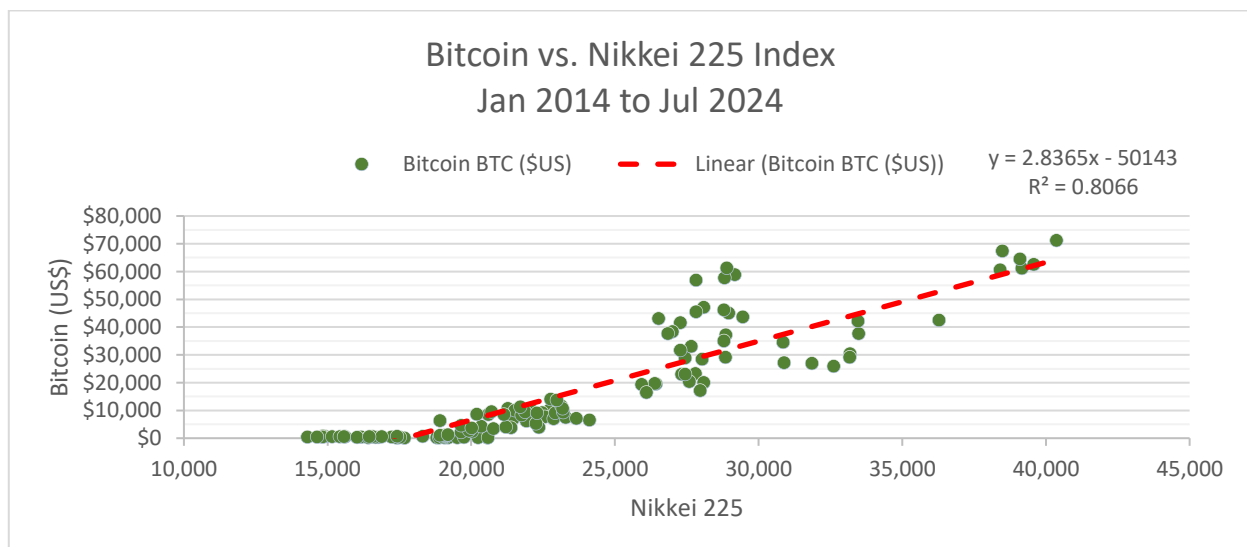


Figure 17: Correlation between Bitcoin and the Nikkei 225 Index (Jan 2014 to Jul 2024)

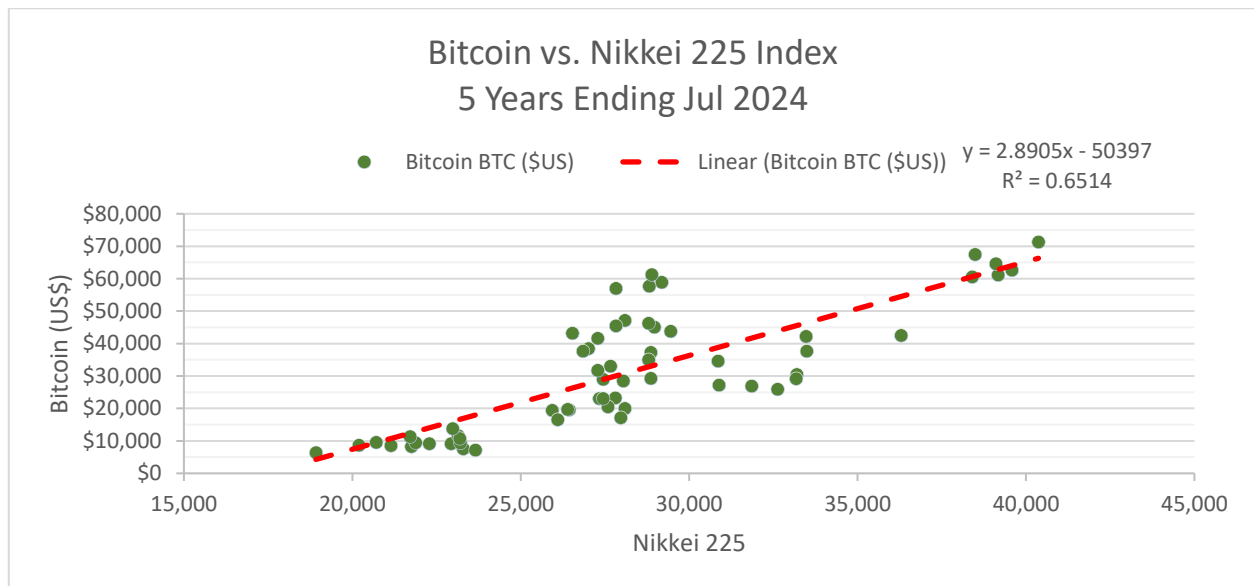


Figure 18: Correlation between Bitcoin and the Nikkei 225 Index (Aug 2019 to Jul 2024)

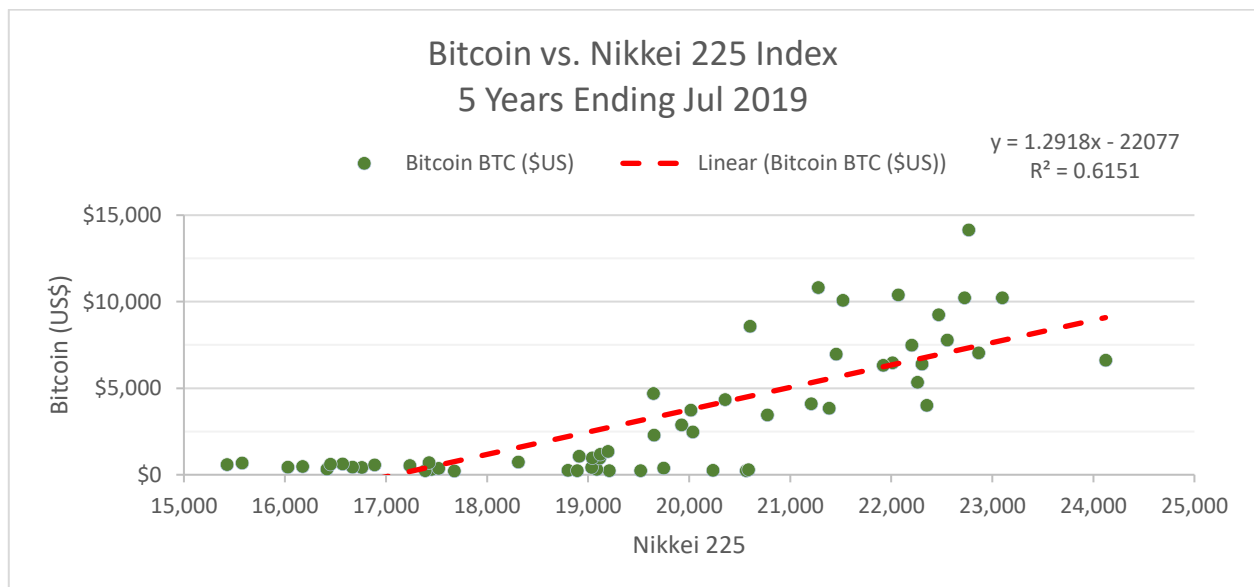


Figure 19: Correlation between Bitcoin and the Nikkei 225 Index (Aug 2014 to Jul 2019)

3.7 Hang Seng Index:

The Hang Seng Index is a general economic indicator for the Hong Kong market and is often used as a gauge for the economies in Asia. Based on the strong positive correlations our study found for the stock indices reviewed in the US and Japan, it was expected that we would see a similar correlation to the Hang Seng. However, as the data below shows, there is no statistical indication of a correlation between the price of Bitcoin and the Hang Seng Index. The initial 5-year period implied a possibility of a positive relationship, but the second

5-year period and the entire period show very low correlation values with the direction changing to negative.

One interesting observation from the analyzed data was that the correlation was positive and higher when the index increased during the first 5-year period examined where the correlation with the price of Bitcoin was 0.79. However, in the second 5-year period, and the decade as a whole, the Hang Seng declined, and in both cases, the correlation values dropped significantly and became negative. This data indicates that there is no consistent correlation between the Hang Seng Index and the price of Bitcoin.

Table 7: Correlation between Bitcoin and the Hang Seng Index

Bitcoin Price vs. Hang Seng Index		
Time Period of Analysis	Correlation	R ²
Jan 2014 to Jul 2024 - 10.5 years	-0.3200	0.1024
Aug 2019 to Jul 2024 - 5 years	-0.2423	0.0587
Aug 2014 to Jul 2019 - 5 years	0.7903	0.6247

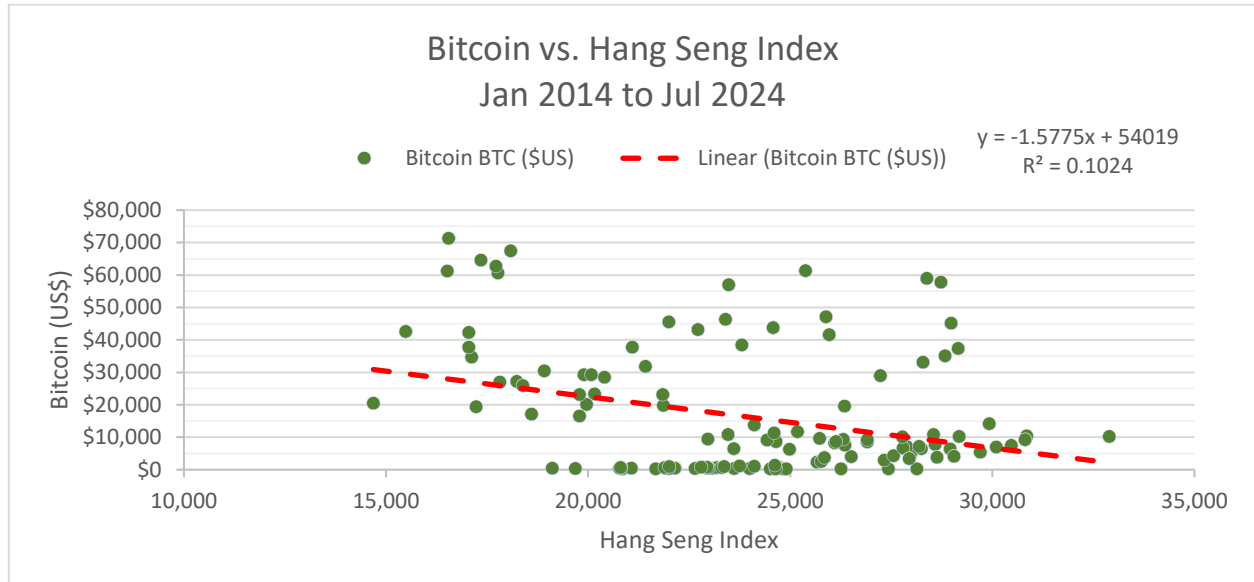


Figure 20: Correlation between Bitcoin and the Hang Seng Index (Jan 2014 to Jul 2024)

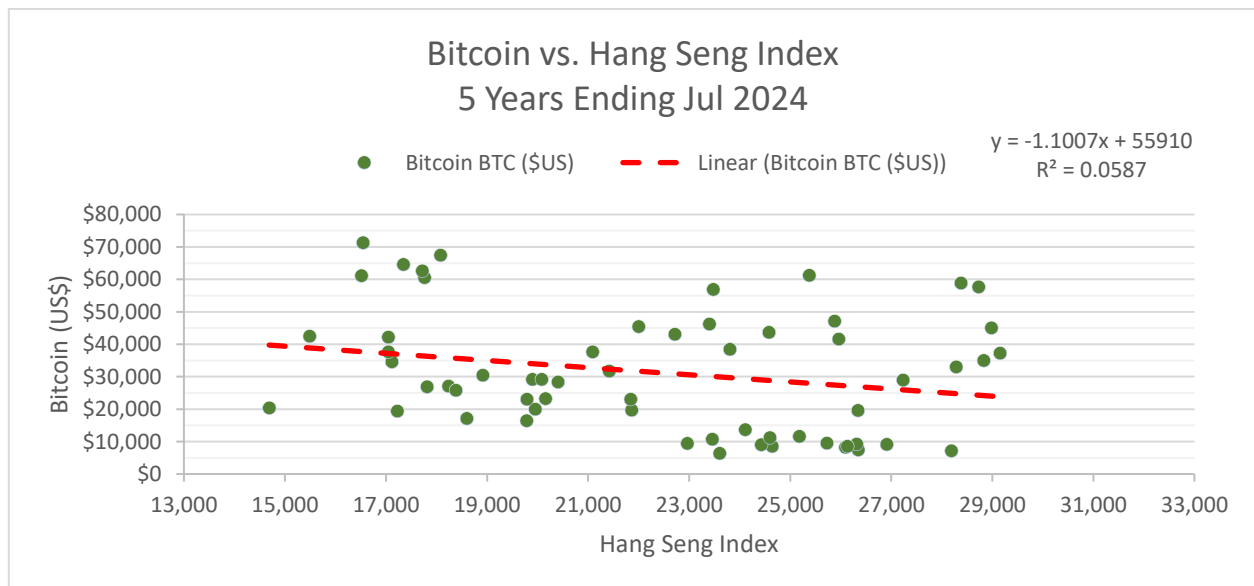


Figure 21: Correlation between Bitcoin and the Hang Seng Index (Aug 2019 to Jul 2024)

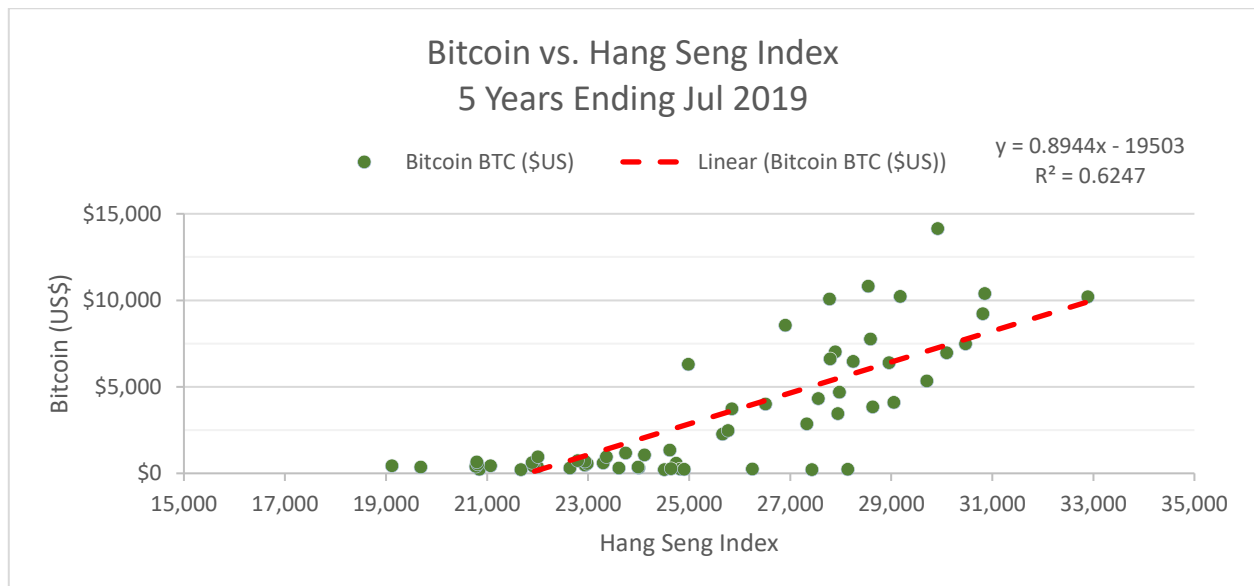


Figure 22: Correlation between Bitcoin and the Hang Seng Index (Aug 2014 to Jul 2019)

3.8 FTSE Index:

The FTSE index is the major indicator for the London Stock Exchange. Unlike the US stock indices examined which experience strong growth, the FTSE has had a very low growth period over the last decade. The correlation was directionally negative in all periods examined but low, as were the correlation and R^2 . The scatter plot chart shows that a downward-sloping regression line is present, but individual points vary significantly from the regression line. This indicates that there was no statistical relationship between the

price of Bitcoin and the FTSE Index during the time periods examined.

An interesting overall observation is that there was a strong positive correlation between the price of Bitcoin and a stock exchange index if it was growing, like the NYSE, NASDAQ and Nikkei 225. However, if the stock index was declining or low-growth, such as the Hang Seng and the FTSE, there was no statistically justified relationship between that index and the price of Bitcoin.

Table 8: Correlation between Bitcoin and the FTSE Index

Bitcoin Price vs. FTSE Index		
Time Period of Analysis	Correlation	R^2
Jan 2014 to Jul 2024 - 10.5 years	-0.3204	0.1026
Aug 2019 to Jul 2024 - 5 years	-0.1801	0.0324
Aug 2014 to Jul 2019 - 5 years	-0.6869	0.4718

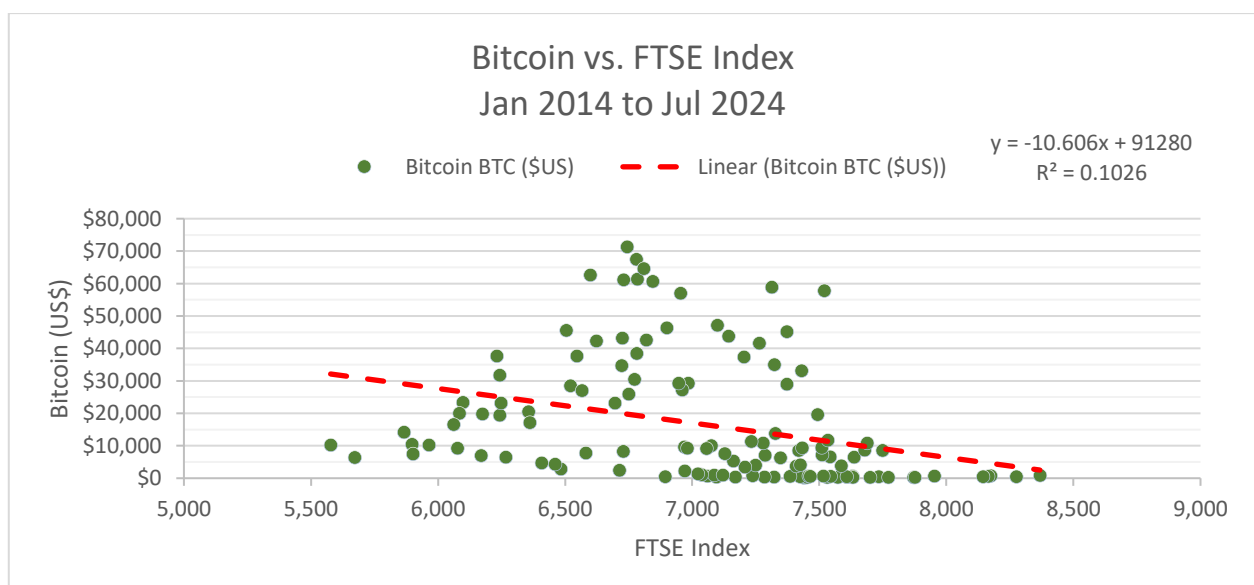


Figure 23: Correlation between Bitcoin and the FTSE Index (Jan 2014 to Jul 2024)

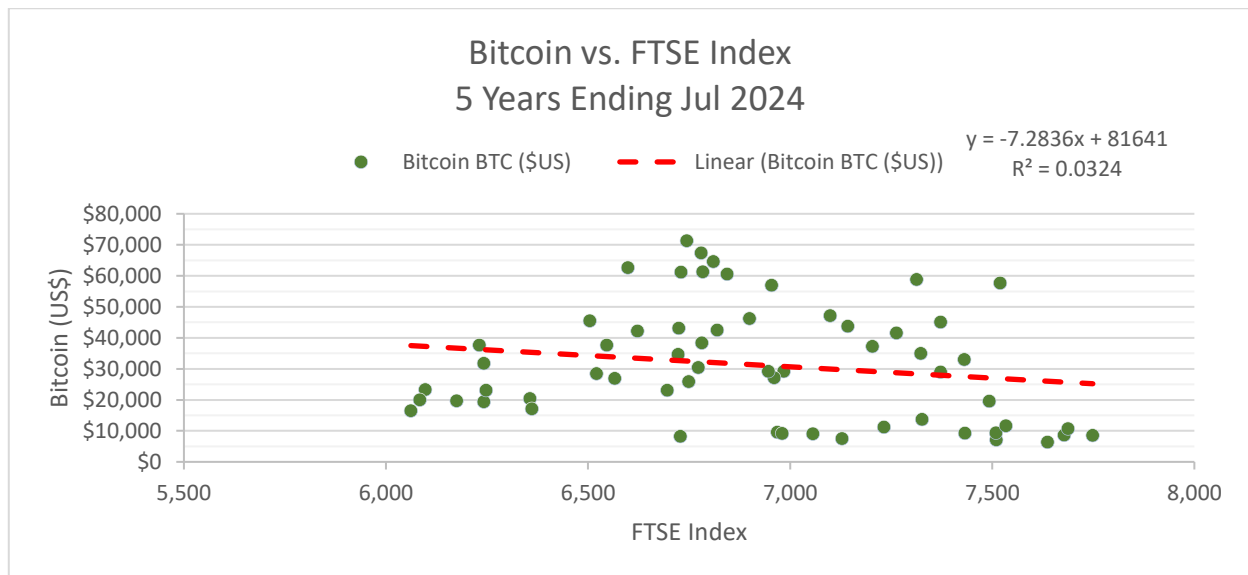


Figure 24: Correlation between Bitcoin and the FTSE Index (Aug 2019 to Jul 2024)

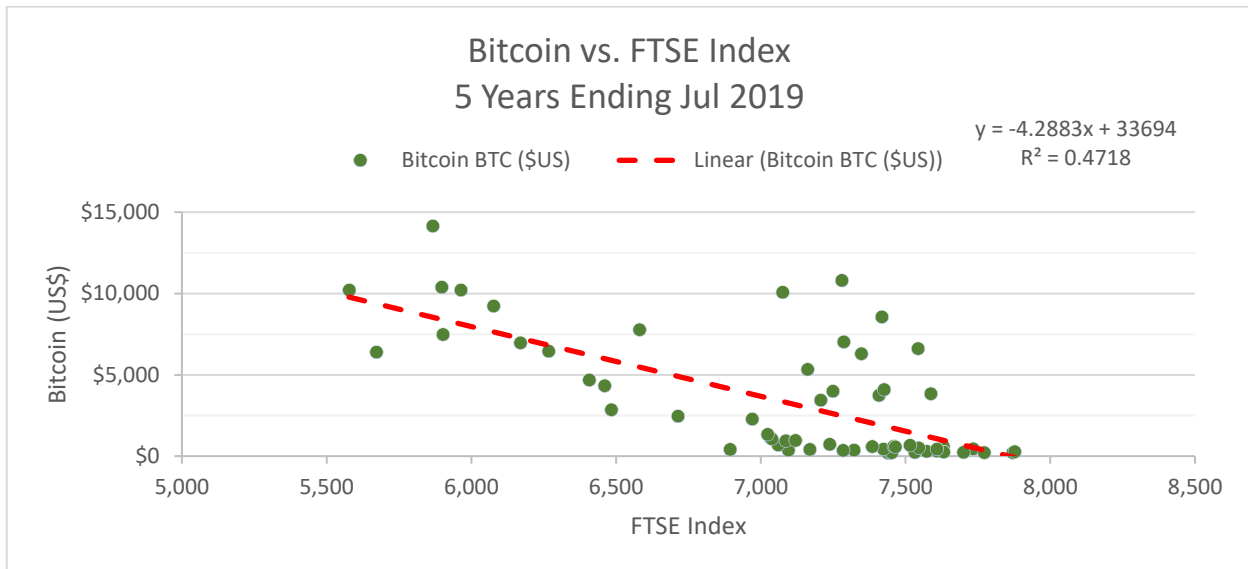


Figure 25: Correlation between Bitcoin and the FTSE Index (Aug 2014 to Jul 2019)

4.0 Multiple Regression Model with US Stock Exchanges:

Since the NYSE and the NASDAQ had the highest correlation and correlation indices when compared to the

price of Bitcoin, we have conducted a multiple regression analysis to determine the relationship over the last decade. The summary of the analysis is below.

Table 9: Multiple Regression Analysis Between Bitcoin and the NYSE and NASDAQ Indices

SUMMARY OUTPUT								
Regression Statistics								
Multiple R	0.938029333							
R Square	0.879899029							
Adjusted R Square	0.877961917							
Standard Error	6693.063701							
Observations	127							
ANOVA								
	df	SS	MS	F	Significance F			
Regression	2	40696580812	20348290406	454.2322969	8.54839E-58			
Residual	124	5554840612	44797101.71					
Total	126	46251421424						
	Coefficients	Standard Error	t Stat	P-value	Lower 95%	Upper 95%	Lower 95.0%	Upper 95.0%
Intercept	-47223.60888	7313.692847	-6.456876145	2.18694E-09	-61699.45571	-32747.76205	-61699.45571	-32747.76205
NYSE(NYSECO	2.850548315	0.909495371	3.134208712	0.002151276	1.050402211	4.650694418	1.050402211	4.650694418
NASDAQ.COMF	2.87697706	0.555862992	5.175694549	8.87738E-07	1.776768492	3.977185629	1.776768492	3.977185629

A multiple linear regression analysis was carried out to explore how the NYSE Composite Index and the NASDAQ Composite Index influence the price of Bitcoin. The model explained 88% of the variance in Bitcoin prices ($R^2 = 0.88$, Adjusted $R^2 = 0.88$). It shows a highly significant F-statistic of 454.23 ($p < 0.0001$). Both indices were found to have statistically significant effects during the regression analysis. Specifically, the NYSE Composite Index had a coefficient of 2.85 ($p = 0.002$, 95% CI: [1.05, 4.65]), while the NASDAQ Composite Index showed a coefficient of 2.88 ($p < 0.0001$, 95% CI: [1.78, 3.98]). The relationship is summarized by the following formula:

Projected Bitcoin Price (in US\$) = - \$47,223 + (2.8505 x NYSE Index) + (2.8770 x NASDAQ)

These findings suggest that changes in these two stock market indices are closely associated with movements in Bitcoin prices. While the results demonstrate a strong positive relationship during the study period, it is important to note that they do not imply causation. Even so, the analysis provides valuable insights into how broader financial markets and Bitcoin may be interconnected.

One possible indication from this analysis is that investors may be treating Bitcoin as an investment asset like an equity. Historically, investor sentiment and risk tolerance has changed along with the stock market's performance (Baker & Wurgler, 2007). The period of analysis showed growth for both stock market indices, which implies higher confidence among investors and an increased propensity for risk. Both factors contribute to increased investor demand for Bitcoin, which results in the price appreciation when these stock market indices are increasing.

5.0 CONCLUSION

As we initiated this study, we did not have any preconceived hypotheses about the relationship between the price of Bitcoin and various economic indicators. One of the unknowns was whether Bitcoin was being purchased as a currency alternative, a method to hedge risk, a speculative investment, or for some other reason. Accordingly, we compared the movements in the price of Bitcoin over the last decade to eight other economic indicators.

Gold was used as an indicator since investors have traditionally used it to hedge risk (Wang et al., 2021). The Consumer Confidence Index (CCI) in the US was also used since it is a common metric for gauging the expected outlook of the economy. The US Dollar Index was used since it is a major currency in the world (*Most Used Currency in the World for International Payments in SWIFT from January 2019 to December 2024, Based on Share in Total Transaction Value*, 2024) and could have a relationship with Bitcoin if investors are treating Bitcoin as a currency. The remaining five indicators were various major geographic stock market indices in the world.

Based on the data analyzed, we have observed the following regarding the price of Bitcoin during our study period:

- There was a strong positive correlation with stock exchange indices which had appreciated during the period analyzed. These included the NYSE Composite Index, the NASDAQ Index, and the Nikkei 225.
- Only indices that grew were positively correlated with Bitcoin, therefore Bitcoin unequivocally & relentlessly grew through all periods observed (10 years, 5 years).
- A positive relationship also existed with the price of gold; however, it was statistically lower during the 5-year sub-periods analyzed.
- There was no statistically justified relationship with the CCI, US Dollar Index or any of the stock indices that had declined during the study period, namely the Hang Seng and FTSE.

Although the study's results cannot confirm causation, there is a clear indication that the price of Bitcoin has a strong relationship with the major stock exchanges during growth periods. The major US stock markets, in particular, correlate very highly with Bitcoin price movements. One possibility is that investors are treating Bitcoin as an alternative investment to equities and use it to diversify their portfolios as the markets increase. Another is that positive investor sentiment associated with a growing stock index can cause a higher propensity for risk among investors, increasing the demand and price for Bitcoin. Interestingly, the lack of relationship between Bitcoin and the US Dollar Index indicates that investors were not treating Bitcoin as a currency alternative during this period.

The summary of our study is that statistical relationships exist for the US stock exchange indices, but we cannot conclusively confirm the causation of the relationship nor conclude that the formula derived from the multiple regression analysis will have predictive value. However, the strong correlation during our study period warrants future analysis to determine whether the trends continue and change during economic cycles.

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Declarations of interest: none

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