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Causal relationship between Crypto currencies: An Analytical Study between Bitcoin and Binance Coin

*SANTOSHA KUMAR MALLICK

PhD Research Scholar, Department of Business Administration, Utkal University, India.
Email:santoshmal@gmail.com,

Abstract: The author in this article studies the price volatility of Binance Coin to its volume and Bitcoin price and analyzes the theoretical and useful relationship between Bitcoin and Binance Coin cryptocurrencies. The current increase on the importance of cryptocurrencies is examined by generalizing the available literature on the essential characteristics and association of Bitcoin and Binance coin prices. On the basis of the problems and existing research on cryptocurrencies the relationship between Binance coin and Bitcoin prices is analysed. A statistical model of the cryptocurrency relationship analysis is offered, which may be useful to establish that the relationship among cryptocurrencies. The main findings is that that a relationship exists between the prices of Bitcoin and Binance coin, and this relationship can be applied for diversification of portfolio and risks when trading on the cryptocurrency exchange. The rationale of this study is to construct an instrument which can explain the relationship between the price of Binance coin and its volume and the price of Bitcoin and to forecast their changes over a period of time. This article analyzes the price volatility of Binance coin as dependent on the price of Bitcoin.

Keywords: Bitcoin, Binance coin, Cryptocurrency, Volatility , Investment

INTRODUCTION:

With the changing times and rapid progress in technological development and innovation that led to the perverasive Cryptocurrency phenomenon. Progress in technological innovation that made this possible is quite surprising and interesting at the same time. However, from the perspective of investors individuals large and small, the significant question is whether they should invest in the digital currency or shun it. Though, the future of Cryptocurrencies is uncertain. it has been developing very dynamically and creating a frenzy in the minds of the investors. They started to impact the economy and become too big to ignore.

Current economics and finance literature is being flooded with the idea of Cryptocurrencies and they develop into one of the major trending topics for discussions. The booming e-commerce market and the revolutionary changes that brought into the market structure has presented immense scope in front of the businesses and among the investors to encash the potential of technology enabled digital currencies. To exploit the anomalies of the digital market and consumers becomes tech-savvy and started to use more digital platform. The appetite of investors for earning profit became insatiable as investment in the online market increased in spite of concerns about the future regulation and after the dot-com bubble and despite serious security concerns about the of online transactions.

The market capitalization and trading volume of Binance coin and Bitcoin are huge. They are in third and first position, respectively. Inefficiency in Bitcoin market is demonstrated by the impact of volatility of Bitcoin to the Binance coin volatility and the full volatility impact can be checked by providing adequate time for shock absorption. Particularly, these crypto-series places adequate room for considerable profits and generate an interest in the minds of traders and investors for predicting future prices in this actively traded crypto-currency. Traders and investors can build a profitable strategy in this derivatives market. It is imperative to traders and investors those who are averse to include any crypto-currency in their portfolio that are not highly traded to construct a profitable strategy in the crypto-currency market. Hence, possessing Bitcoin can benefit by generating huge returns but may not be useful as a hedge fund during slow demand in the Bitcoin (BTC) and Binance coin(BNB) market.

Binance exchange runs the Binance crypto-coin (BNB), and the trading symbol is BNB. Binance coin (BNB) can also be exchanged or traded with other cryptocurrencies, such as Ethereum, Litecoin,Bitcoin etc. Binance Coin was first produced in July 2017 and at first worked on the ethereum blockchain with the token ERC-20 then it turn out to be the native currency of Binance's own blockchain, the BinanceChain. At present, Binance coin ranks as one of the most popular cryptocurrencies in the world. Binance coin has a strict maximum of 200 million BNB tokens.

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As of April 2021, Binance Exchange is one of the largest cryptocurrency exchange in the market, sustaining more than 1.4 million transactions per second. In July 2017, through an initial coin offering (ICO), Binance coin established. 10,40 and 50 percent of the Binance coin(BNB) tokens given to angel investors, the founding team and to the other investors through the initial coin offering .It is pertinent here to mention that ten, forty and fifty percent of the Binance coin(BNB) tokens are valued around 20 million, 100 million 80 million respectively. For branding and marketing around 50 percent of the raised money were provisioned while for developing Binance trading platform and for other necessary upgradation of the ecosystem around 33% of the money proposed.

With the increasing popularity of cryptocurrency exchanges, many traders and investors began to dump the mining of cryptocurrencies and started to speculation in cryptocurrency coins. With the release of Binance coin to the cryptocurrency market, the idea of "volatility" for investors assumed significant importance. Due to fluctuation and rapid growth of the Binance coin more investors were turning into speculation. The simplicity of entry to cryptocurrency exchanges and the hunger for profit attracts more amateur investors who does not have clear understanding of the fundamentals and the mechanisms of how price is calculated, what factors the price depends, and the factors to which prices reacts. For this cause, almost every second, a cryptocurrency investor bears loss (Grossman and Petrov 2017).

Due to the instability of the cryptocurrency market, many traders and investors are searching for tools and techniques that can predict the future price of cryptocurrencies. It is not a secret that all cryptocurrencies reacts to the dynamism of bitcoin, the number one cryptocurrencey in terms of price and volume and Binance coin is no isolated from it. The price of Bitcoin, other factors can influence the price of a currency, such as the volume of its own currency (Musa-zade 2018).

The Musa-zade (2018) article substantiates the practical application of multifactor correlation and regression analysis in the construction of an equation that can most accurately identify the price of Ethereum from an analysis of its volume and the price of Bitcoin. She evaluates the Ethereum price relationship by conducting regression analysis, considering in particular multiple linear regression and multiple power regression. Within the framework of these regressions, their main estimated indicators are calculated: determination coefficient, Fisher coefficient, average error of testing, and other significant indicators.

Study Relevance

Considering the absence of a tool and technique to predict the change in price of a cryptocurrency, this study is relevant and useful to traders and investors trading on cryptocurrency exchanges and to diversify portfolio risks.

Study Aim

The aim of the study is to identify a regression equation that can explain the relationship between Binance coin's price and its volume and Bitcoin's price as accurately as possible and also to forecast their changes over time.

Study Objective

The object of the study is to analyze the relationship between the price of Binance coin and its volume and the price of Bitcoin.

Study Subject

Mechanism of multifactor correlation-regression and multiple power regression analysis.

Research Methodology

Methods for building Descriptive analysis, Durbin Watson's test, Multifactor correlation regression models and multiple power regression are used. The standard estimates of the regression equation are employed to select the type of equation relating most accurately the relationship between Binance coin's price and its volume and Bitcoin's price.

Results and Significance

This article identifies the most specific type of regression equation to describe the relationship between the investigated indicators i.e Binance coin's price and its volume and Bitcoin's price. The identified multiple regression equation can be used to construct operational analytical programs capable of forecasting the movement of Binance coin's price in real time.

LITERATURE REVIEW

In recent years, cryptocurrency has become one of the most widely used economic and financial tools. On a regular basis, 5213 crypto-currencies i.e digital-currencies are traded in the exchange market, with a market capitalization of $1.68 trillion (https://coinmarketcap.com). To prevent counterfeiting and frauds, a cryptocurrency or a digital currency utilizes trustworthy cryptography and the currency intended to function as a standard of exchange. Bitcoin – the first cryptocurrency ever introduced, is currently trading at around $7,800 (https://coinmarketcap.com) – remains at number one position in terms of market capitalization and volume. In

2009, by using the fictitious name Satoshi Nakamoto, Bitcoin was invented (Nakamoto, Satoshi. 2008) and has piqued the interest of policymakers and investors due to its reliance on a completely decentralised technology that bypasses financial regulator, transacting extremely swift and have zero transaction cost.

Since cryptocurrencies have fascinated the attention of investors in the current time,there is also manifold enhancement in the academic interest on this area. The unexpected growth of Bitcoin has enthused academic fraternity significantly. The first scientific article about Bitcoin was published by Grinberg (2011) addressing gold-covered currencies, the digital world, and game-simulated trade. Ever since the pace of research into cryptocurrencies has gather speed significantly.

The majority of these studies have concentrated on whether Bitcoin's future will be based on as a speculative investment instrument. Other studies were there on the volatility and medium of exchange feature of Bitcoin. Entire cryptocurrency market were studied by a few researcher (Cansu Şarkaya İçellioğlu and Selma Öner,2019).

Ccurrency and speculative instrument of Bitcoin was studied by Yermack (2013), concluding that "Bitcoin appears to behave more like a speculative investment than a currency due to its excessive volatility, hacking and theft risks, scarcity of merchants who accept it, and the relatively high level of computer knowledge required for using it, the risky transactions caused by a lack of basic consumer protection, and finally, the long-term structural economic problem associated with the limit of 21 million units that can ever be issued, with no expansion of the bitcoin supply possible after the year 2140." (Yermack ,2013).

Vejaka (2014) investigates Bitcoin and Litecoin's volatility and evaluates the euro-US dollar money pair and with the volatility of major commodities and stock indices. In addition, the study briefly investigates and discusses other fundamentals of cryptocurrencies such as the impact of legislation, anonymity and awareness. According to the findings of the research, (i)the basic investment instruments are less volatile than cryptocurrencies (ii) because of the large increase in their exchange rates they be used as an instrument of exchange in the black economy which may result in a change in the function of cryptocurrencies.

Internal and external factors that influenced cryptocurrency were) investigated by Poyser (2017) The study was focused on Bitcoin. According to the findings, "supply and demand of a cryptocurrency are the primary internal factors that have a direct impact on its market price. Because Bitcoin's supply is determined exogenously, only the demand side can influence its price. External drivers, on the other hand, include a few crypto-market, macro-financial, and political factors. All of the external factors studied, such as Supply & Demand, Crypto-market, Macro-financial, and Political, indicate that Bitcoin may be entering a new phase. In this regard, the increasing effect of attractiveness, for which search trends and Wikipedia article views are used as proxies in the majority of papers, may be an indicator of such an argument's prospects and also the consequences signals government's policies to find a legal framework."

By using ARDL technique, Sovbetov (2018) investigated the factors influencing the prices of Bitcoin, Moner, Ethereum, Litecoin and Dash on weekly basis on data from 2010 to2018. Their interaction with macroeconomic indicators such as interest rate, gold prices and SP500 index was specifically examined. The findings show that prices in the crypto-market, volume of trade and volatility have a statistically vital impact in both the long and short run. In the short run Ethereum and Bitcoin are very susceptible to crypto-market fluctuations. In long term with high trading volume Bitcoin, Moner, Ethereum, Litecoin and Dash were sensitive to market fluctuations. In general volatility have significant effect on the attractiveness and performance of Bitcoin, Moner, Ethereum, Litecoin and Dash.

Efficiency of the cryptocurrency market with focus mainly on bitcoin and litecoin was studied by Nadarajah and Chu (2017). At the same time, the increase in liquidity in crypto-currencies offers additional confirmation about the relationships between currencies (Brauneis and Mestel,2018) (Wei,2018).

Kristoufek (2013) found a high correlation matrix between Bitcoin and Searching of Trending information in Google and Wikipedia. Furthermore, he believes that long-term bitcoin prices are influenced by trade volume, price and money supply which are fundamental factors in a market.

Furthermore, Ciaian, Rajcaniova, and Kancs (2018)'s main findings indicate that the fundamental foundations of the bitcoin market and its attractiveness to investors.

A quantile-based approach was used by Balcilar et al. (2017) and the result was that for predicting returns, use of volume is necessary, but the same can never be used calculate volatility.

Due to the inherent complexities of the cryptocurrency market problem, no scientific studies have performed on correlation-regression analysis of the dependence of Binance coin's price on its volume and on the price of Bitcoin (Trenev 2018).

TRENDS IN THE DEVELOPMENT OF BIT-COIN AND BINANCE COIN AS A MEANS OF INVESTMENT

Looking at the trends of Cryptocurrencies market, it is developing into a new asset class, with high market capitalization (global crypto market cap is $1.66T as on 20th May2021), a emergent ecosystem, and a varied community. Cryptocurrencies such as Bitcoin and Binance coin accounts for more than 60% of this market.

Bitcoin's price is currently $39,441.78 and Bitcoin's dominance is currently 44.37%, Where as Binance coin price is currently $358.43 and having market cap of 16.39%.Theblockchainwith underlying complex technology, in a decentralized open system achieves consensus and permits innovation in industries that conventionally rely on trusted authorities. Examples of such services include land records, domain name registration, and voting. Decentralization signifies a key feature that enlarges the capabilities of such services and marks these platforms interesting. These services are technologically easy to build without this decentralization, however requires confidence in a centralized administrator. The characteristics of Bitcoin and Binance coin are essentially not so similar from a fiat currency. The major advantages of fiat currency is that it has the trust and guarantee of its sovereign government. Each country's central bank controls the fiat currencies in centralized activities. On the contrary, the values of Bitcoin and Binance coin are entirely determined by the price investors are ready to pay in any point of time. To ensure that all investors are treated fairly without the need for a central server they make use of a peer-to-peer block-chain technology. It is pertinent here to mention that most cryptocurrencies have a production limit, Hence the supply of crypto-conversions will reduced over time, which ultimately lead to a higher price (inflation),having all other things being constant.

RESEARCH PROBLEMS

The primary reason of this article is to recognize the main dependencies used in multifactor regression analysis. In the data frames of dependency types, market analysts must create relations of multiple regression; in these equations, estimate the close proximity of nonlinear connections, evaluate the quality of the equation, and find average or partial elasticity coefficients; and select the equation that best describes the relationship between the incoming parameters (Svetovtseva, Mamiy, and Bochkova 2018).

As part of this assignment, this article investigates the applicability of computational intelligence methods from financial analysis point of view to a number of bitcoin and Binance coin exchange rates. Because of the prices of bitcoin is non-stationary and tends to augment .The time series data need to be transformed into logarithmic functions. If the absolute value of the logarithmic functions return is large, it exhibits an intense event (such as bullish or bearish, depending on the sign). On the basis of this knowledge, it is possible to find out realized volatility as an intraday indicator of market stability. Given that the market development mixes both deterministic and stochastic models, the limit of the predictive power of the proposed model is not a priori clear. In this article, the main result shows that the root-mean-square error of the forecast is limited only by the level of realized volatility, which is implemented further based on the research model.

RESEARCH MODEL

Multiple regression is a statistical technique and is an extension of simple linear regression. By utilizing the values of two or more independent variables, it is used for predicting the value of a dependent variable. Dependent variable called as the criterion, target or outcome variable. Whereas predictor, explanatory, or regressor variables are the other names for independent variables

To determine the model's overall fit (variance), multiple regression is used. Also, it is used to calculate the relative contribution of each independent variable to the total variance.

As per Grossman and Petrov(2017) multiple linear regression equation in generalized form is:

$Y_{calc} = \beta_0 + \beta_1X_1 + \beta_2X_2 + \beta_3X_3 + \ldots. + \beta_nX_n + \varepsilon$

The general form of multiple power regression (Grossman and Petrov 2017) is:

$Y_{calc} = \beta_0 + X_1^{\beta 1} * X_2^{\beta 2} * X_3^{\beta 3} * \ldots. * X_n^{\beta n}$

Transformation equation of the multiple power regression to linear form, we have:

$Ln(Y_{calc}) = Ln(\beta_0) + \beta_1 * Ln(X_1) + \beta_2 * Ln(X_2) + \ldots\ldots\ldots + \beta_n * Ln(X_n)$

$Y'_{calc} = \beta_0' + \beta_1*X_1' + \beta_2*X_2' + \ldots\ldots\ldots\ldots + \beta_n*X_n'$

HYPOTHESIS

Null Hypothesis H_0 =(β_1 equals to 0, β_2 equals to 0, β_3 equals to 0... β_n equals to 0)

Null hypothesis states the all the multiple regression coefficients are zero.

Alternate hypothesis H_1= at least one coefficient not zero (β_1 other than zero, β_2 other than zero, β_3 other than zero).

Confidence level is 95% and total number of observation (n) is equal to 506.

RESULTS AND CONCLUSIONS

This study was conducted for the period from December 29, 2020 to May 16, 2021. The duration of the study was from the date when the first case of Covid-19 detected and reported till May 16, 2021. Data were taken from Coinmarketcap.com. Input data include Binance coin price ($Y_{calc.}$), Binance coin volume (X_1), and Bitcoin price (X_2), with a sample size of 506 observations.

Figure-1 and Figure-2 shows the Line chart of Bitcoin prices and Binance coin prices.

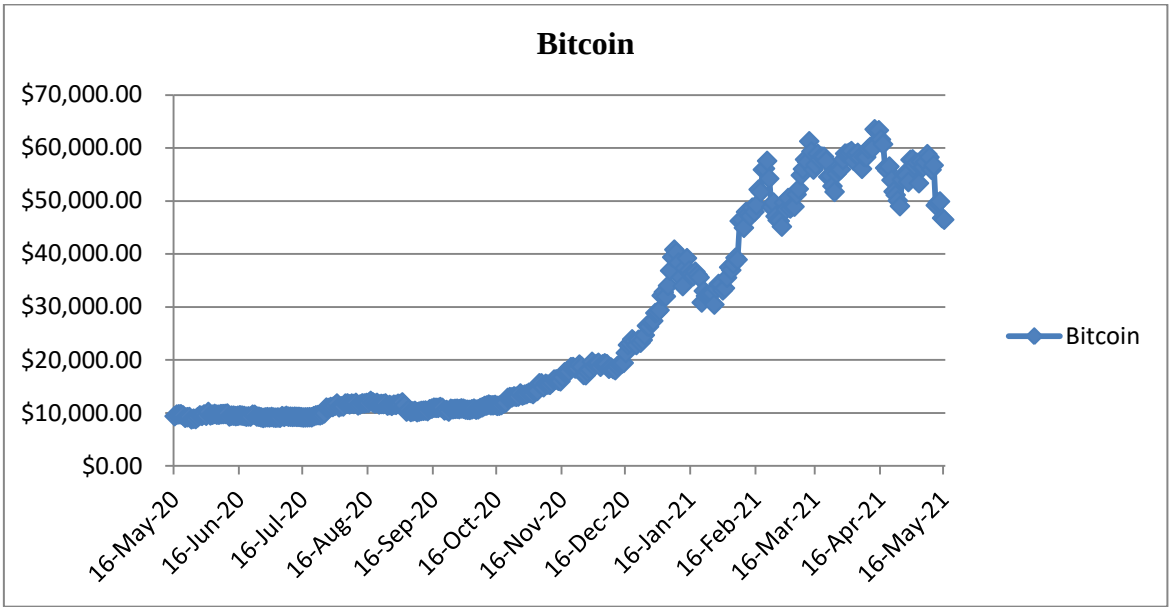

Fig.1: Line chart of Bitcoin prices

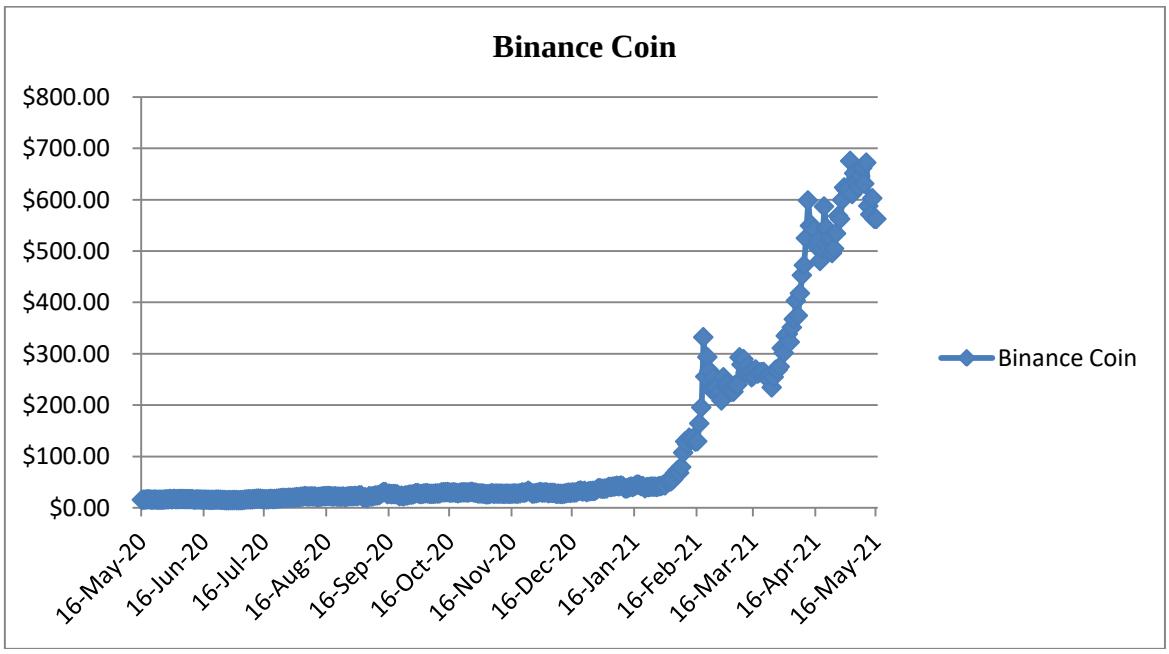

Fig.2: Line chart of Binance coin prices

Table 1: present the descriptive statistics of Binance coin price, Binance coin volume, and Bitcoin price data.

Table 1: Descriptive Statistics			
Statistics	Binance_Price	Binance_Volume	Bitcoin_Price
Mean value	91.45733202	1248844109	21266.59435
Standard Error	7.021642195	93637888.11	797.0628807
Median	24.545	401516827	11105.84
Standard Deviation	157.9479354	2106332208	17929.48614
Variance of the sample	24947.55031	4.43664E+18	321466473.3

Kurtosis	4.338979954	13.20204275	-0.303127749
Skewness	2.331379519	3.14635152	1.148018882
Range	666.29	17846345944	58532.67
Minimum	9.39	136599245	4970.79
Maximum	675.68	17982945189	63503.46
Count	506	506	506
Largest(1)	675.68	17982945189	63503.46
Smallest(1)	9.39	136599245	4970.79
Confidence Level (95.0%)	13.79522771	183967788.8	1565.967566

Source: Author's analysis

We perform correlation and regression analysis of the relation of the Binance coin price to its volume and to the Bitcoin price. We construct a correlation matrix from a multilevel linear regression analysis (Afanasyev et al. 2017), as shown in Table-2.

Table 2: Correlation Matrix

	Binance_Price	Binance_Volume	Bitcoin_Price
Binance_Price (Y)	1		
Binance_Volume(X1)	0.809142632	1	
Bitcoin_Price(X2)	0.838158761	0.782725315	1

Source: Author's analysis

A high degree of correlation between the variables is of high degree around 0.8. There is also multicollinearity of 0.7827 between dependent variables Binance Volume and Bitcoin Price. As the dependent variables are highly correlated with each other and the standard errors of 77.042711 we are not able to assess the impact accurately (Dashkina 2017).The regression coefficient for evaluations become less exact.

The regression equation is:

$Y_{calc}=\beta_0+ \beta_1X_1+ \beta_2X_2+ \beta_3X_3+\ldots.+ \beta_nX_n+\varepsilon$

$Y_{calc} = -44.62301+ 2.9638E-08 * X_1+ 0.00465833 * X_2+ 77.042711$

From Table-4 the regression coefficients as calculated are β0= -44.623, β1=2.9638, and β2=0.00465 , Ɛ=77.042. Table-3 lists the Statistical results of multiple linear regression. A cursory examination of the results reveals that the data fits fairly well as per the regression equation. The multiple regression coefficient is 0.7630. According to the calculations, the Binance Volume and Bitcoin Price can explain 76.30% of Binance price variation. The coefficient of determination (R^2) is quite high at 0.76. As this ratio approaches unity, the regression equation explains Y's attitude more fully (Koretskaya 2008). The coefficient of multiple correlation (R^2) is an alternative for the square of the correlation between them.

To determine the relevance of the regression equation, the following inequality must be calculated:

$F_{crit.} < F_{calc.}$

Accordingly, 5.495 is less than 809.770. The ANOVA (Table-4) advocates that the regression equation fits the data well, similar to the coefficient of multiple correlation. Therefore, the equation is adequate and statistically significant. H_0 is rejected.

Table 3:Statistical results of multiple linear regression

Calculated_Multiple R	0.87351012
Calculated_R Square	0.76301994
Adjusted R Square	0.76207767

Calculated_Standard Error	77.042711	
Observations	506	

Source: Author's analysis

Table 4: ANOVA Statistics of multiple linear regression

	df	SS	MS	F	Significance F
Regression	2	9612916.513	4806458	809.77071	5.4957E-158
Residual	503	2985596.395	5935.58		
Total	505	12598512.91			
	Coefficients	Calculated_Standard Error	t Stat	P-value	Lower 95%
Calculated_Intercept	-44.62301	5.628695445	-7.9278	1.451E-14	-55.681659
Binance_Volume	2.9638E-08	2.61524E-09	11.3329	1.136E-26	2.45002E-08
Bitcoin_Price	0.00465833	0.000307235	15.1621	4.877E-43	0.004054703

Source: Author's analysis

To verify the autocorrelation of the regression model, we have adopted the Durbin–Watson (DW) test statistics (Bazilevsky 2018, p. 15). The DW-statistic expressed as:

$$d = \sum_{t=2}^{T} (e_t - e_{t-1})^2 / \sum_{t=1}^{T} {e_t}^2$$

Here, T is the sum total of observations and from regression model e_t is the t^{th} residual .

The test statistic is always between 0 and 4,with $d > 2$ indicating negative serial correlation, $d = 2$ representing no autocorrelation and <2 signifying positive serial correlation.

The Durbin Watson (DW) score of 0.21776 indicates the autocorrelation of residuals (Table-5). The standard value of Durbin Watson (DW) is between 0 and 4.

Table 5:Durban Watson statistic

Sum of diff squared residuals		8.67933
Sum of Squared residuals		39.8577
Durbin-watson value		0.21776

We calculate the elasticity coefficient (E) to assess the change in average percentage of dependent variable Y when x1 and x2 change by 1%. We find that Ex1 is 2.96, which means that the Binance price increases on average by 2.96% with aincrease in volume of 1% (Golovenchik 2018). Likewise, Ex2 is 0.00465, so the Binance price increases on average by 0.00465 % with a increase in bitcoin price of 1%

Next, we apply a multilevel power regression analysis. For this analysis, a power function should lead to a linear form (Table-8).

The linear equation of power regression has the form:

$Ln(Y_{calc}) = Ln(\beta_0) + \beta_1 * Ln(X_1) + \beta_2 * Ln(X_2)$

$Ln(Y_{calc}) = Ln(-14.78673843) + 0.567247013 * Ln(X_1)\ 0.720942896 * Ln(X_2)$

Table-6 displaying the results of the power regression model. R^2 of the power regression analysis is close to 1, indicating that the regression equation is reliable (Petrov and Bortsova 2018).

Table 6: Statistical results of Power regression analysis	
Multiple R Calculated	0.9663
R Square	0.93373
Adjusted R Square	0.93347
Calculated_Standard Error	0.29604
Observations	506

For Checking the significance of the regression equation, the following inequality must be satisfied:
$F_{crit.} < F_{calc.}$
Accordingly, 3543.57 is less than 3.6429. The ANOVA (Table-7) advocates that the regression equation fits the data well, similar to the coefficient of multiple correlation. Therefore, the equation is adequate and statistically significant. H_0 is rejected.
Ex_1 is 0.5672, so the Binance price increases on average by 0.5672% as volume decreases by 1%. Ex_2 is 0.7209, so the Binance price increases on average by 0.7209% with a decrease in Bitcoin price of 1%. The approximation error is 29.60%, which satisfies the condition of an approximation error greater than 10% to signal that the equation has an average degree of accuracy. Thus, the power-law model possesses the best values of model characteristics: the smallest average approximation error (best mathematical accuracy), the highest correlation index (strongest nonlinear relationship), and the highest calculated value of the Fisher criterion (most adequate description of the source data).

Table 7: ANOVA Statistics of Power regression analysis					
	Degrees of freedom	SS	MS	F	Significance F
Calculated_Regression	2	621.0992487	310.55	3543.5727	3.6429E-297
Residual	503	44.08162989	0.08764		
Total	505	665.1808785			
	Coefficients	Calculated_Standard Error	t Stat	P-value	Lower 95%
Calculated_Intercept	-14.78673843	0.252780265	-58.496	1.51E-226	-15.2833736
Ln(Binance_Volume)	0.567247013	0.0228596	24.8144	2.331E-89	0.522334955
Ln(Bitcoin_Price)	0.720942896	0.033608192	21.4514	5.679E-73	0.654913174

Table 8: Fragment of the Equation Linearizing for Multilevel Power Regression Analysis								
Date	Binance Price	Binance Volume	Bitcoin Price	Ln(Binance Price)	Ln(Binance Volume)	Ln(Bitcoin Price)	Predicted Y by Data	Predicted Y by Trend
	Y_{val}	X_1	X_2	$Ln(Y_{val})$	$Ln(X_1)$	$Ln(X_2)$	Y-Predicted	Y-Trends
4/23/2021	$526.57	$8,893,557,870	$51,093.65	6.26638	22.90859	10.84142	$413.28	$555.34

4/22/2021	$506.01	$8,342,960,849	$51,762.27	6.22656	22.84468	10.85442	$402.32	$521.51
4/13/2021	$549.59	$9,433,830,832	$63,503.46	6.30917	22.96757	11.05885	$499.87	$588.51
4/12/2021	$598.72	$14,436,315,725	$59,893.45	6.39479	23.39301	11.00032	$610.01	$894.29
2/22/2021	$267.51	$7,885,768,925	$54,207.32	5.58916	22.78833	10.90057	$402.85	$493.39
2/21/2021	$293.92	$8,505,963,719	$57,539.94	5.68331	22.86403	10.96023	$439.01	$531.53
2/20/2021	$255.95	$9,680,520,706	$56,099.52	5.54498	22.99338	10.93488	$463.87	$603.64
2/19/2021	$332.62	$17,982,945,189	$55,888.13	5.80700	23.61269	10.93111	$657.33	$1,109.97
2/18/2021	$195.93	$6,110,987,389	$51,679.80	5.27776	22.53335	10.85282	$336.81	$383.96
2/17/2021	$164.67	$5,236,224,271	$52,149.01	5.10394	22.37887	10.86186	$310.56	$329.83
2/16/2021	$130.06	$1,925,775,294	$49,199.87	4.86800	21.37859	10.80365	$168.85	$123.32
2/15/2021	$129.57	$2,414,986,848	$47,945.06	4.86422	21.60496	10.77781	$188.44	$154.07
2/14/2021	$136.43	$2,312,597,445	$48,717.29	4.91581	21.56164	10.79379	$186.00	$147.65
2/13/2021	$133.45	$2,116,751,635	$47,105.52	4.89373	21.47315	10.76015	$172.65	$135.34
2/12/2021	$136.95	$2,981,627,650	$47,504.85	4.91962	21.81574	10.76859	$210.97	$189.56
2/11/2021	$124.43	$2,809,765,027	$47,909.33	4.82374	21.75637	10.77707	$205.23	$178.81
2/10/2021	$129.74	$7,000,323,240	$44,918.18	4.86553	22.66922	10.71260	$328.81	$438.85
2/9/2021	$107.90	$4,425,849,540	$46,481.10	4.68120	22.21073	10.74680	$259.84	$279.56

DISCUSSIONS AND CONCLUSIONS

Cryptocurrencies become a global phenomenon because it opens up new sets of opportunities and perspectives in terms of digital currency payment system and transactions. At the same time Cryptocurrencies attracts significant media attention and also the attention of finance professionals, analysts, experts, regulators and government authority.

Since 2017 there is rapid growth of various cryptocurrencies especially of Binance coin and Bitcoin. Cryptocurrencies have many similar features in as that of conventional economic assets such as treasury bills,bonds and stocks. Based on the performance, profitable trading strategies can be developed by taking into account the transfer of volatility from Bitcoin to Binance coin. Market competition between Binance coin and Bitcoin is a matter of high interest for investors. As of now, Bitcoin still number one having higher price and volume and than binance coin demand.

The major objective of this exercise is to evaluate the characteristics of volatility transfer, the properties of diversification, hedging, and security of Bitcoin against Binance coin in the cryptocurrency portfolio. Augmented volatility in one market may be transferred to another market. A side effect in volatilit with unrelated actions in the Bitcoin could exert volatility on the Binance coin—and the reverse could be true.

This study addresses the relationship between Binance coin and Bitcoin given the trading volume of Binance coin and prices of Bitcoin in the cryptocurrency market and extends this research by examining the transfer of volatility from one cryptocurrency to another. We completely investigated the volatility relationship between the Binance coin and Bitcoin, where Bitcoin is the highest market capitalization and second with third highest within the framework of vector autoregression (VAR), which enables slowing down the reaction to volatility. If a delayed transfer of volatility occurs between two cryptocurrencies here Binance coin and Bitcoin, profitable trading strategies can be formulated, keeping an eye on market performance.

Many of the research focused mainly on the side effects of volatility within traditional models of GARCH - generalized autoregressive conditional heteroscedasticity, without focusing on the time needed to overcome volatility shock. From market efficiency,investigating this issue may have significant inference for the investors. Volatility transmission and its impact have significant importance for portfolio analysis. Portfolio manager can allocating these two cryptocurrencies in an asset portfolio considering their volatility and risk. The study of the relationship between the prices of these cryptocurrencies too makes it possible to recognize at what level

Binance coin offers investors the advantages of management and diversification of risk. Therefore, the conclusion of this analysis can be used to predict the possibility of hedging Bitcoin or Binance coin against each other. Such conclusions can serve as a base for trade strategies leading to low-risk profits for investors.

This study revealed that prices of Bitcoin and Binance coin influence each other and the Prices of Binance coin depends on its trading volume and prices of Bitcoin. However, it should be noted that during the period under review (December 29, 2020 to May 16, 2021) where the Covid-19 pandemic is impacting the behavior of investors, their correlation increased to 0.84, so diversification opportunities was fragile, depriving the investors of the advantages of diversification between Bitcoin and Binance coin in hard times. Other significant conclusion is that the correlation between the Bitcoin and Binance coin is analyzed during the period of Covid-19 pandemic crisis where economic policy uncertainty exists. This indicator also points out that both currencies are volatile during the pandemic and there is scope for diversification .Particularly, these observed results are very helpful for diversification between Bitcoin and Binance coin. Generally speaking, these two cryptocurrencies started as simple diversifiers in the portfolio of cryptocurrency investors and traders. However in the Covid-19 pandemic period where policy uncertainty is high, their hedging abilities have declined significantly.

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