



A STUDY ON ANALYSIS OF SELECTED CRYPTOCURRENCIES

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ABSTRACT The aim of the study is to analyse selected crypto currencies using descriptive and inferential statistics. The data is collected from secondary sources namely yahoofinance.com and investing.com. Seven selected crypto currencies are the sample size of the study covering from Jan 2016 to Jan 2022. The study concludes that the average returns of Ethereum Crypto currency is the highest followed by 7.81% of XMR, 7.49% of DASH, 7.47% of Doge, 2.49% of BTC, -0.26% of XRP and -0.73% of XLM respectively. XRP is the only crypto currency having positive growth rate throughout the study period.

KEYWORDS : crypto currencies, Bitcoin (BTC-USD), Ethereum (ETH-USD), XRP-USD, Doge coin USD (DOGE-USD), Monero USD (XMR-USD), Stellar USD (XLM-USD) and Dash USD

INTRODUCTION:

Recent years have witnessed the emergence of a new type of tradable asset called cryptocurrencies. As the fundamental technology underlying cryptocurrency, blockchain provides a distributed and decentralized environment for transactions of emerging cryptocurrencies including Bitcoin. Along with the rapid development of blockchain technology, these block chain-based cryptocurrencies have also gained increasing popularity and attention in the past decade. As part of the second quarter of 2020, more than 7000 cryptocurrencies are actively traded and their total market cap has exceeded 300 billion U.S. dollars.

By employing peer-to-peer (P2P) transmission, consensus algorithms, and incentive mechanisms, the issuance and transactions of cryptocurrencies can be performed without a centralized authority. Empowered by block chain technology, all the transaction records of cryptocurrencies are irreversible and recorded in the blocks linked in chronological order.

Due to the open and transparent nature of block chain, cryptocurrency transaction records containing rich information and complete traces of financial activities are publicly accessible, thus providing researchers with unprecedented opportunities for data mining in this area. The main value of analyzing and mining the transaction data of cryptocurrencies is twofold: (1) Transaction records in traditional financial scenarios are relatively unexplored in existing studies as these transaction records are usually not publicly accessible for the sake of security and interest. Through analysis and mining of cryptocurrency transaction records, we can extensively explore the trading behaviors, wealth distribution, and generative mechanism of a transaction system, as well as infer reasons for fluctuations in the financial market of cryptocurrencies. This study can also provide a reference for knowledge discovery in other financial systems. (2) Due to the anonymity of blockchain systems and the lack of authority, various types of cybercrimes have arisen in the blockchain ecosystem during recent years. Extracting information from the transaction records can help track cryptocurrency transactions and identify illegal behaviors, thereby establishing effective regulation and building a healthier blockchain ecosystem.

Literature Review

Brian M.Lucey, et al. (2022) examined based on news coverage, the new Cryptocurrency Uncertainty Index (UCRY). Our UCRY Index captures two types of uncertainty: cryptocurrency price (UCRY Price) and cryptocurrency policy uncertainty (UCRY Policy). The study found that the constructed index exhibits distinct movements in response to major events in the cryptocurrency space. Finally, the study concludes that captures uncertainty beyond Bitcoin and can be used for academic, policy, and practice-driven research.

Yukun Liu & Aleh Tsyvinski (2021) Cryptocurrency returns are affected by cryptocurrency network factors but not by cryptocurrency production factors. The study builds network factors to capture cryptocurrency user adoption and production factors to proxy for cryptocurrency production costs. Furthermore, there is a strong time-

series momentum effect, and proxies for investor attention strongly predict future crypto currency returns.

Marcin Wątorrek, et al.(2021) examined the properties of the crypto currency market and the associated phenomena. The goal is to determine how far the characteristics of the complexity of exchange rates on the cryptocurrency market have converged with those of traditional and mature markets such as stocks, bonds, commodities, or currencies after such rapid development.

Jiajing Wu et al. (2021) the study presents background information on crypto currency transaction network analysis and reviews existing research in three areas, namely network modelling, network profiling, and network-based detection, with the goal of providing a systematic guideline for researchers and engineers.

Qiang Ji, et al. (2019) regardless of the sign of returns, the results showed that Litecoin and Bitcoin are at the center of the connected network of returns. The study concludes that return shocks arising from these two cryptocurrencies have the most effect on other cryptocurrencies.

Elie Bouri, et al. (2017) report evidenced that the average return equicorrelation is highly time-varying using the dynamic equicorrelation (DECO) model. After experiencing significant volatility in 2016-2017, it increased from after 2017 to early 2019 and remained relatively high. Despite the sharp price correction in the cryptocurrency market in 2018, this finding points to increased market integration, implying that market integration is a continuing and persistent phenomenon. Further investigation revealed that trading volume and uncertainty measures were the primary determinants of integration.

Peter D. DeVries (2016) reported that Bitcoin, the first and the most popular cryptocurrency, is paving the way as a disruptive technology to long-standing and unchanged financial payment systems in place for decades. While cryptocurrencies are unlikely to replace traditional fiat currency, they have the potential to change the way Internet-connected global markets interact with one another by removing barriers associated with traditional national currencies and exchange rates.

As there are many studies on technical aspects, few studies have undertaken in financial markets in other countries of the world hence an attempt has initially been made to undertake "study on analysis of selected crypto currencies".

Objective Of The Study:

- To analyse selected cryptocurrencies using descriptive and inferential statistics.

Hypothesis Of The Study:

- H_0 : There is no significance difference among the means of selected crypto currencies.
- H_1 : There is a significance difference among the means of selected crypto currencies.

Research Methodology:

The study makes a comprehensive evaluation of six cryptocurrencies over period of seven years from Jan 2016 to Jan 2022. For this purpose, random sampling technique has been adopted to carry out the captioned study. The research is empirical and analytical in nature.

The required data are secondary and price of cryptocurrencies has been collected from yahoofinance.com The data is tabulated, analysed and interpreted to elicit meaningful results. For this present study, the outcome of the study depends on the selected period and tools used by the researchers which may differ from other analysis. Descriptive and inferential statistics are used for analysis of study.

Table No 1: Analysis Of Descriptive Statistics Of Selected Cryptocurrencies During 2016-2022

	Mean	SD	CV	Growth	Median	Mode	Min	Max	Range	Skew	Kurtosis
BTC	2.49	3.64	1.46	-0.37	2.49	1.76	-0.66	9.53	10.19	1.05	-0.54
ETH	19.00	41.34	2.18	-0.22	2.34	3.64	-0.90	103.22	104.13	1.35	-0.10
XRP	-0.26	0.13	-0.50	0.28	-0.22	0.10	-0.48	-0.14	0.34	-0.70	-1.24
DOGE	7.47	11.65	1.56	-2.62	1.53	2.96	-0.68	28.17	28.85	0.82	-1.21
XMR	7.81	11.96	1.53	-0.70	0.78	1.73	-0.84	26.06	26.90	0.59	-1.80
XLM	-0.73	2.43	-3.33	-2.16	-0.05	0.98	-5.53	1.00	6.53	-1.18	-0.38
DASH	7.49	17.15	2.29	-1.49	0.31	1.22	-0.90	42.40	43.30	1.34	-0.11

Sources: Author's Compilation

The average returns of Ethereum Crypto currency is the highest followed by 7.81% of XMR, 7.49% of DASH, 7.47% of Doge, 2.49% of BTC, -0.26% of XRP and -0.73% of XLM respectively. Most of them are inconsistent, as its value is more than 1. XRP is the only crypto currency having positive growth rate during the study period. More than 2/3 of selected cryptocurrencies are right skewed; hence, the mean of their returns are more than those of median and mode. The selected cryptocurrencies are platykurtic under the study period.

Table No 2: Correlation Matrix Of Selected Cryptocurrencies During 2016-2022

Correlation Matrix							
	BTC	ETH	XRP	DOGE	XMR	XLM	DASH
BTC	1	0.962	0.377	0.919	0.555	0.582	0.957
ETH	-	1	0.362	0.893	0.516	0.389	0.997
XRP	-	-	1	0.137	0.638	-0.103	0.398
DOGE	-	-	-	1	0.317	0.525	0.858
XMR	-	-	-	-	1	0.452	0.559
XLM	-	-	-	-	-	1	0.385
DASH	-	-	-	-	-	-	1

Sources: Author's Compilation

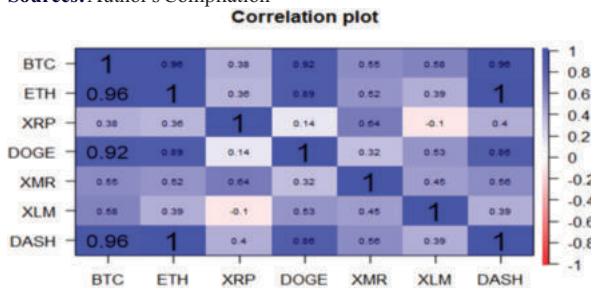


Figure No 1: Graphical Representation of Selected Crypto currencies

BTC, ETH, DOGE and DASH crypto currencies have strong positive relations. XMR, XRP and XLM have weak positive relationships with all the selected crypto currencies throughout the study period. XRP has weak negative relationship with only XLM crypto currency.

Table No2: Paired Comparison T Test Of Selected Crypto currencies

Paired Comparison test			
Crypto currencies	P Adj	Crypto currencies	P Adj
ETH-BTC	0.697	DOGE-XRP	0.989
XRP-BTC	0.999	XMR-XRP	0.986
DOGE-BTC	0.999	XLM-XRP	1.000
XMR-BTC	0.998	DASH-XRP	0.989
XLM-BTC	0.999	XMR-DOGE	1.000
DASH-BTC	0.998	XLM-DOGE	0.99
XRP-ETH	0.532	DASH-DOGE	1.000
DOGE-ETH	0.924	XLM-XMR	0.982
XMR-ETH	0.933	DASH-XMR	1.000

Selected cryptocurrencies for the Study:

- Bitcoin (BTC-USD)
- Ethereum (ETH-USD)
- XRP-USD
- Dogecoin USD (DOGE-USD)
- Monero USD (XMR-USD)
- Stellar USD (XLM-USD)
- Dash USD

Data Analysis And Interpretation:

The results of the specified objective are furnished and presented in the tables provided in this section.

XLM-ETH	0.504	DASH-XLM	0.985
DASH-ETH	0.924		

Sources: Author's Compilation

There is no significant difference with each one among other selected cryptocurrencies at 5% level of significance; hence, the null hypothesis is accepted.

Table No 4: One Way ANOVA Of Selected Crypto Currencies

	Df	Sum Sq	Mean Sq	F value	Pr(>F)
ind	6	1639	273.2	0.831	0.554
Residuals	35	11506	328.7		

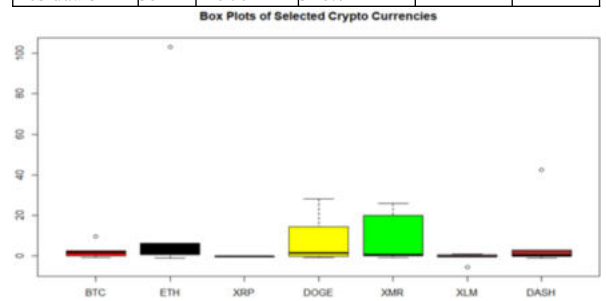


Figure No 1: Graphical Representation Of Box Plots Of Selected Crypto Currencies

As P-value of F statistic is evident that the null hypothesis is accepted and hence, there is no significance difference among the means of selected crypto currencies

CONCLUSION:

The study concludes that the average returns of Ethereum Crypto currency is the highest followed by 7.81% of XMR, 7.49% of DASH, 7.47% of Doge, 2.49% of BTC, -0.26% of XRP and -0.73% of XLM respectively. XRP is the only crypto currency having positive growth rate throughout the study period. Most of them are inconsistent, as its value is more than 1 during the study period. BTC, ETH, DOGE and DASH crypto currencies have strong positive relations. There is no significant difference with each one among other selected cryptocurrencies at 5% level of significance; hence, the null hypothesis is accepted.

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