

A Pragmatic Esplanade to Potential Investor

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Abstract: Supply and demand statistics determine the usage and value of investment. Crypto currency, the recent techno-inclusion into financial industry, provides the best means of exchange in the form of money card in order to carry large amount of transactions with easy and affordable cost. We find the possibilities of investment to determine the higher return which attracts potential investors prefer to include the crypto currency in the portfolio. A relationship between crypto currency and equity is measured by using canonical correlation with the help of cutting score and group centroids.

Keywords: Crypto currency, Gross Domestic Product, Investment, Potential investor.

I. INTRODUCTION

Crypto currencies use cryptographic protocols or extremely complex code systems that encrypt safe platform to sensitive data transfers based on mathematical and computer engineering principles which is not to break, duplicate or counterfeit the protected currencies. These protocols also make the identities of crypto currency users through decentralized control by governing codes which are developed and controlled by high complex protocol, but these decisions and actions are not authenticated by the central bank or regulatory authority of the country. These crypto currencies levered vast amount of units to perform the transactions in smooth and stable manner. Fiat currencies are legal crypto currencies transacted in common understanding in the name of U.S. dollar, British pound, European euro, and Japanese yen. It also may be consider as a digital currency, because of its protocol coding. These digital currencies directly stagnant price level changes in our economy.

Miners are facing practical difficulties in producing the cryptocurrency based on the necessity. There is no standard limit for producing the cryptocurrency. If production exceeds the requirement no alternative steps to cease it. Mass supply in the production of cryptocurrency ultimately lead to the irregular supply which affects the pricing level, it would be deflationary effect. Such pricing changes reflect with parallel changes in gold price also. The Fiat currencies are to be regulated by the respective Central Banks with finite supply of cryptocurrency.

Less data controlling measures never control the cryptocurrencies. If any unforeseen volatiles incur in cryptocurrencies, the central bank cannot take appropriate resolving measures to freeze it. cryptocurrencies do not get

reasonable trust from the central banks of different nations due to their drawbacks of illiquidity, volatility, grey and black market transactions. Economic reformers have advised that fabrication of less regulated cryptocurrency with our regular financial system would increase the Nations responsibility for further lubricating policies to synchronize the system.

New digital financial system recently proves that the reasonable growth of cryptocurrency in the April 2017 about 27 billion dollars. It describes that alternative odd coin is being expected by the users instead of traditional currencies. More than 300 research articles had been analyzed the significance of cryptocurrencies in the last 7 years. With that pipeline, the present study made an attempt to explore how cryptocurrencies provide reasonable return to the investor than equity investment. The study also supports the Corporates, academicians and policymakers to seek a better understanding the concept of cryptocurrency.

II. REVIEW OF LITERATURE

Rainer Bohme and Nicolas Christen (2011) [<https://www.acaweb.org>] in his research titled "Bitcoin: Economics, Technology, and Governance" with the importance of cryptocurrency based on the flexibility and privacy while comparing with other payments.

The study concluded that the privacy of Bitcoin would be increased only through the development of new identifiers for public transaction. Moreover cryptocurrency miners should increase the trust among users by competing designing Technology

Cryptocurrency is a subset of the digital currency (Lee 2015). It is usually doesn't have the characteristics of 'centralization issue' like other currencies. It has some specific characteristics through distributed ledger accounts. It minimizes the unnecessary cost of double spending and third party involvement in the markets. It has been found that the increased block chain Technology will lead to faster settlement to users through its better security system.

Young Bin and Kim Jun Gi (2016) [<http://journals.plos.org>.] in his research titled "Predicting Fluctuations in Cryptocurrency Transactions" with an objective of estimating volatility through comparative study between price and transaction frequency of cryptocurrencies. They had suggested that qualitative techniques to be developed based on Association analysis and the Filter-user comment.

ZhengyaoJiang(2016)[<https://arxiv.org/abs/1612.01277>] in his research titled "Cryptocurrency Portfolio Management with Deep Reinforcement Learning" with An aim to understand the allocation of surplus fund into various financial assets.

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Data collected from cryptocurrency exchanges which further supported to conclude with the reward function of the network and recent strategies of portfolio selection. Neutral network signifies more contribution to face the challenges against cryptocurrencies in the nation.

Michal Polasik (2016) [<http://www.tandfonline.com>] in his research titled “Price Fluctuations and the Use of Bitcoin: An Empirical Inquiry” with an objective of estimating volatility through comparative study between price and transaction frequency of cryptocurrencies.

AnneKandler,(2017)[<http://royalsocietypublishing.org>] in their research titled “Evolutionary dynamics of the cryptocurrency market” with an aim to analyze the behavior of 1469 cryptocurrency transacted between April 2013 and May 2017. They found that the physical presence of cryptocurrency depends on the market capitalization. Along with several statistical properties, market share (NAV), turnover of the companies is considered as fixed variables by influencing the price of cryptocurrency

GarrickHileman(2017)[https://papers.ssrn.com/sol3/paper.s.cfm?abstract_id=30402] conducted his research on “Global Blockchain Benchmarking Study” with Secondary data from Central banks. It suggests the alternatives to generate more revenue through cryptocurrency with support of distributed ledger technology to face upcoming challenges of cryptocurrency and to compete with other virtual currencies.

DavidLeeKuoChuen(2017) [<https://papers.ssrn.com>] “Cryptocurrency: A New Investment Opportunity” with an aim of understanding, to help the readers to get more explore from risk (beta) and expected return (ROI) determinants of investment. This study conducted with the help of CRIX index, Initial Crypto token offer (ICO) and initial token sales index.

UsmanChohan(2017) [<https://papers.ssrn.com>] in his research titled “The Crypto currency Tumblers: Risks, Legality and Oversight” with objectives of the provenance, possession, and movement of crypto currencies and data collected from crypto market publications .and it deals with dichotomy, between crypto anarchism and oversight, of the risk and legality of the bitcoin.

III. SIGNIFICANCE OF THE STUDY

Traders have to pay taxes for trading with crypto currencies. Richard D.Titus has opined that there are no specific benefits to the investors. The entire money what they have invested in the market could be withdrawn to pay taxes only. It could be inferred that one of the famous bit coin i.e., Ether which will always help the investors to keep it as a reserve to pay their taxes trading with crypto currencies. Markets were still under pressure from comprehensive regulations and it leads to crypto currency as an uncertainty. These can be endorsed by Jay Clayton, Chairman of Securities and Exchange Commission and Commodities and J. Christopher Giancarlo, Chairman Futures Trading Commission.

Speculative dealing of investors towards bit coin made a platform to sell the crypto currencies in the open market which directly affects the crypto currencies to decline in its price at each juncture of the transaction. Investors speculate

that the buyers turned right around and sold the Bit coin received on the open market, depressing the price at each juncture. One of the creditor Mt. Gox has expressed that 70% bit coin transacted globally are stolen in the year 2014 which leads the cyptocurrency organizations to become a bankruptcy during the period. Steady increases over a long period of time and a sudden crash always happens in crypto currencies. A slow decline is more indicative of healthy correction rather than an absolute crash.

A. Objective of the study

Revamp investment opportunities to potential investors in extending crypto currency.

B. Hypothesis

H0: ROI of crypto currency is better than equity

C. Methodology

The present study is focusing on the stock return behavior and Quarterly changes of four selected companies JPM, Apple, Google, Tesla and Crypto currencies Bitcoin, Dash, Litecoin, Monero. The study is based on secondary data collected from New York Stock Exchange and Coinmarkecap.com data base. The research method used for the study is described. Review of conceptual issues, formulation of hypothesis and its testing are presented. The required data for the present study based on quarterly for a period of 1st April 2016 to 1st July 2018 for 4 companies and four crypto currencies based on respective indices data were collected, NAV collected on Quarterly basis.

IV. TOOLS FOR ANALYSIS

Regression has been used to study the extent to which the independent variables influence the dependent variable. It ascertains the relationship between ROI of crypto currency with equity.

The canonical correlation is applied for discriminate function. This is interpreted as a percentage of variation in the dependent variable explained by all the discriminating variables. Once the discriminant function is arrived at, then efficiency of the function as to how accurately it classifies into the respective groups is assessed. For this purpose a classification matrix is developed using ‘actual’ and ‘predicated’ group membership of the companies. From this, overall classification accuracy is calculated which in turn shows the efficiency of the discriminating ratios in the discriminating functions to classify the companies into their respective groups. The discriminant functions are applied in this study in order to identify the key ratios (Market indices and GDP) which have classified the companies and crypto currencies.

V. RESULTS AND DISCUSSION

Table. 1 Canonical Discriminant Function Coefficients

Variable	Function
jpm	-.12070
apple	-.00778
google	-.03102
tesla	.00006

Source: Computed Table 1 describes that out of four variables included in the model, only one has been finally selected and the remaining variables have been dropped from the study

Table. 2 Canonical Discriminant Function

Canonical correlation	Wilk'slamda	F value	Df	Sig
0.99200	0.01033	8.80457	5	**
0.59298	0.64838	0.90385		

Source: Computed ** significant at 5% level

The following information provides the multivariate aspect of the model given under the heading 'Canonical discriminant function' is a significant at 1% level. Wilks Lambda and F test values given in Table 2 indicate that the model is significant at 5% level and displays a correlation of 0.99200 with NYSE and 0.59298 with the GDP.

A. Classification of variables

After arriving at discriminant function, is arrived at, then the market efficiency of the function as to, how it accurately predicts the companies into the respective groups has to be assessed. For this classification of matrix, is to be developed using actual and predicted volatility of the companies. Before a classification of matrix can be considered several things must be decided first the group centroids (means), second cutting score and third a prior probabilities of each group.

Table. 3 Canonical Discriminant Function at Group Mean

Variables	Function
GDP	.16539
NYSE	-.29532

Source: Computed

Using discriminant function given in the Table 3, discriminate score for each company has been calculated by the substituting the variables from the analysis of data. Then mean score for 'GDP' (Z_0) and New York stock exchange(NYSE) index (Z_2) are calculated, which are called group centroids.

Table. 4 Prior Probabilities for Groups

Group	Prior	No of Observation
GDP	94.27171	92.77025
NYSE	5.7289	2.01419
	100.00061	-----

Source: Computed

Based on the group mean, selected variables of GDP and NYSE exhibited in Table 4 which further support to identify the prior one for influencing the NAV of selected crypto currencies with identified companies.

Table. 5 Classification Results

Company group	Predicted group
Pillais (JPM)	0.87712
Hottelings (APPLE)	7.13797
Wicks (GOOGLE)	0.12288
Roys (TESLA)	0.87712

42 % of original group cases correctly classified in Table 5 by looking at the classified results, all other variables are highly significant with the selected independent variables like GDP and market index except the group of Hottelings which showed 7.13797 is far away from the determinants.

B. Test of Independence and volatility in quarterly Returns

Auto-correlation analysis is used by checking the P value. The asterisk ** denote statistical significance at 5%. The auto-correlation results for the quarterly returns (NAV) of the four companies and the two variables are presented in the Table 6. Here the first order coefficients are partially large and the rest with partially low. The autocorrelation first order coefficients (lag 1) the largest Coefficient are 0.991 and 0.858 for JPM and Apple companies respectively and the smallest coefficients are 0.339 and 0.267 for Google and Tesla.



Table. 6 Correlations

		jpm	apple	google	tesla	btc	dash	ltc	xrm
jpm	Pearson Correlation	1	.925	.914	.625	.762	.661	.736	.754
	Sig. (2-tailed)		.000	.000	.053	.010	.037	.015	.012
apple	Pearson Correlation	.925	1	.982	.763	.766	.650	.727	.745
	Sig. (2-tailed)	.000		.000	.010	.010	.042	.017	.013
google	Pearson Correlation	.914	.982	1	.739	.818	.696	.781	.794
	Sig. (2-tailed)	.000	.000		.015	.004	.025	.008	.006
tesla	Pearson Correlation	.625	.763	.739	1	.448	.439	.408	.402
	Sig. (2-tailed)	.053	.010	.015		.194	.204	.242	.250
btc	Pearson Correlation	.762	.766	.818	.448	1	.962	.994	.997
	Sig. (2-tailed)	.010	.010	.004	.194		.000	.000	.000
dash	Pearson Correlation	.661	.650	.696	.439	.962	1	.965	.963
	Sig. (2-tailed)	.037	.042	.025	.204	.000		.000	.000
ltc	Pearson Correlation	.736	.727	.781	.408	.994	.965	1	.997
	Sig. (2-tailed)	.015	.017	.008	.242	.000	.000		.000
xrm	Pearson Correlation	.754	.745	.794	.402	.997	.963	.997	1
	Sig. (2-tailed)	.012	.013	.006	.250	.000	.000	.000	

a. Listwise N=10

With respect to selected variable of GDP, company Tesla’s NAV is comparatively less significant with other companies. But with regard of cryptocurrency, ‘Bitcoin’ had very less significant when compared with other cryptocurrencies. Three variables in companies are statistically significant except ‘Tesla’ which had less significant relationship (0.448, 0.439, 0.408, and 0.402), with respect of selected cryptocurrencies. Bitcoin had a same significant but comparatively less with other currencies.

VI. FINDINGS AND CONCLUSION

Using descriptive statistical measures, it is found that stock index returns are not uniformly distributed in study period. The mean returns of three companies are greater than the NYSE index for quarterly period with respective GDP. Throughout the study period, the stock return of the study companies in quarterly basis show evidence of better performance for all selected cryptocurrencies except the Bitcoin.

For testing the independence of the stock return, auto-correlation was used. The auto-correlation results of the quarterly basis for the study period of all the four companies with four selected cryptocurrencies to the respective external factors (GDP and NewYork stock exchanges) showed dependence. Thus, it is informed that GDP influences the ROI of cryptocurrencies. This endorsed that cryptocurrencies ROI better than equity during study period.

Tesla is a company which had less significant variable from both selected independent variables which resulting that the general performance of Tesla is somewhere influenced by other internal factors. This had not been considering for this study. The study also found that the highest positive return during Jan 2018 for both variables of equity and cryptocurrency. It is to be consonance with the report from WESP (world economic situation and prospects) 2018, the world economy has strengthened because of shock subsidy and capital spending directly revamps the global

productivity, in turn, corporates played significant role to the boost of their returns. Political independence, new business platforms and tax-free privileges’ definitely support the cryptocurrency in next decade.

REFERENCES

- Richard E. Smith (1997). *Internet Cryptography*. US Boston: Addison - Wesley Pub Co ISBN: 0201924803.
- William R. Cheswick, Steven M. Bellovin, and Aviel D. Rubin (2003). *Firewalls and Internet Security: Repelling the Wily Hacker*. US Boston: Addison-Wesley Pub Co; ISBN: 0201633574.
- Bruce Schneier(1996). *Applied Cryptography, Second Edition: Protocols, Algorithms, and Source Code in C (cloth)*. United States: John Wiley & Sons. ISBN: 0471128457
- S.P.Gupta (Eds) (2010). *Statistical Methods*. New Delhi: Sultan Chand & Sons. ISBN 978-81-8054-739-3
- Alfred J. Menezes, Paul C. van Oorschot and Scott A. Vanstone (Eds), (2001). *Handbook of Applied Cryptography*. United States: CRC Press. ISBN: 0849385237.
- Rainer Bhome and Nicolas Christen (2015). Bitcoin: Economics, Technology and Governance. *Journal of Economic Perspectives Volume 29, Number 2* spring 2015Pages 213–238.
- Kim YB, Kim JG, Kim W, Im JH, Kim TH, Kang SJ, et al. (2016). Predicting Fluctuations in Cryptocurrency Transactions Based on User Comments and Replies. *PLoS ONE 11(8)*: e0161197. doi.org/10.1371/journal.pone.0161197
- Polasik, Michal and Piotrowska, Anna and Wisniewski, Tomasz Piotr, et al. Price Fluctuations and the Use of Bitcoin: An Empirical Inquiry (October 30, 2014). *International Journal of Electronic Commerce 20(1)*, pp. 9-49, 2015.
- ElBahrawy A, Alessandretti L, Kandler A, Pastor-Satorras R, Baronchelli A (2017). Evolutionary dynamics of the cryptocurrency market. *R. Soc. open sci.* 4: 170623. doi.org/10.1098/rsos.170623
- Hileman, Garrick and Rauchs, Michel, (2017) Global Blockchain Benchmarking Study (September 22, 2017). SSRN. doi.org/10.2139/ssrn.3040224
- KuoChuen, David Lee and Guo, Li and Wang, Yu,(2017). Cryptocurrency: A New Investment Opportunity? SSRN. doi.org/10.2139/ssrn.2994097



12. Zhengyao Jiang and Jinjun Liang (2017). Cryptocurrency Portfolio management with Deep Reinforcement Learning. *ResearchGate Conference Paper* September 2017 DOI: 10.1109/IntelliSys.2017.8324237
13. Chohan, Usman (2017). The Cryptocurrency Tumblers: Risks, Legality and Oversight. Discussion Paper Series: Notes on the 21st Century. SSRN. doi.org/10.2139/ssrn.3080361
14. Ravi kumar (2018). Stand up India programme – an address to financial problems of micro and small scale manufacturing and production units. *International Journal of Mechanical and Production Engineering Research and Development* ISSN (P): 2249-6890; ISSN (E): 2249-8001 Vol. 8, Issue 1, Feb 2018, 1271-1278
15. Lee, J. (2009, April 30). *Aristotle and the Definition of Money*. The Market Oracle. Retrieved from <http://www.marketoracle.co.uk/Article10370.html>
16. <https://coin.dance/volume/localbitcoins>
17. <https://coinmap.org>
18. <https://bitnodes.21.co>