

A Comparative Study on Top Five Digital Currencies in India: *Cryptocurrencies*

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Abstract: *This paper aims to compare top 5 cryptocurrencies available in India based on the market capitalization rate. It also focuses on the pros and cons of each category of cryptocurrencies and preference for one particular Cryptocurrency over the other. The paper also focuses on various characteristic feature of the five cryptocurrencies has highlighted that each Cryptocurrency is technically different as well as significantly different in terms of speed transaction. The study also aims to highlight on the risk and return of cryptocurrencies.*

Keywords: Cryptocurrencies, Risk, Returns

1. Introduction

Cryptocurrencies is an electronic money created with technology controlling its creation and promoting transaction, while hiding the identity of its user. Crypto- is short for “cryptography”, and cryptography is computer technology used for security, hiding information, identities and more. Currency simply means money for transaction.

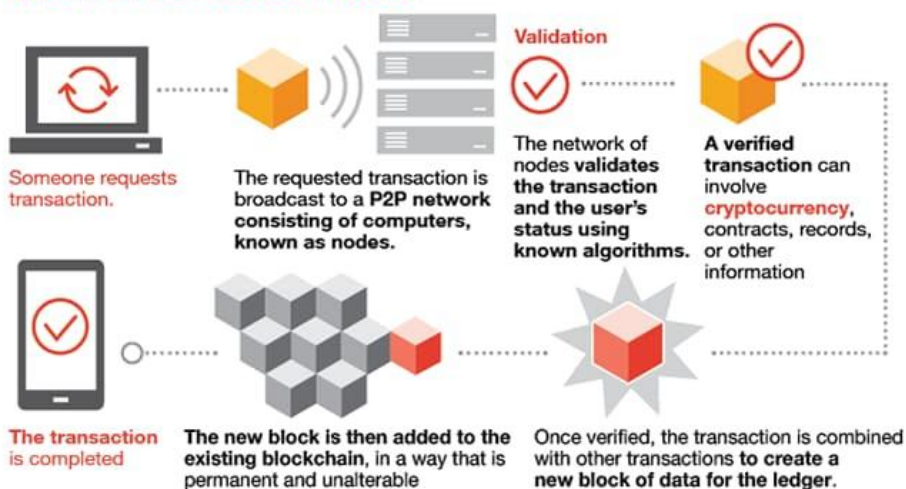
Cryptocurrencies are a digital cash designed to be quicker, cheaper and more reliable than government issued money. Intend of trusting a government to create your money and bank to store, send and receive it, users transact directly with each other and store their money each other. Because people send money directly without middleman, transaction usually very affordable and fast.

To prevent fraud and manipulation, every user of Cryptocurrency can simultaneously record and verify their

own transaction of everyone else. The digital transaction recording known as ledger and this ledger publicly available to everyone. With this public ledger transaction, become efficient, permanent, secure and transparent.

Cryptocurrencies transact with Block chain technology, block chain technology is that enables the existence of cryptocurrencies. Bitcoin is the name of the best-known Cryptocurrency the one for the block chain technology was invented. A block chain technology is a decentralized ledger of all transaction across a peer-to-peer network. Using this technology, participants can confirm transaction with a need for a central clearing authority. The block chain has its own pro’s and con’s when we discuss about pros of block chain technology are, Increased transparency, Accurate tracking, Permanent ledger and Cost reduction and we discuss about cons Complex technology, Regulatory implication, implementation challenges and Competing platforms.

How blockchain works



Source: <https://www.pwc.com/us/en/industries/financial-services/fintech/bitcoin-blockchain-cryptocurrency.html>

The top 5 cryptocurrencies is consider according to market capitalization in this study to compare their performance and

study their features namely Bitcoin, Ethereum, Ripple, Bitcoin cash and Bitcoin SV.

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Table 1: Ranking of the 5 Cryptocurrencies Based on Market Capitalization

S No	Crypto-currencies	Supply	Price	Market capitalization
1	Bitcoin	21 Million	\$10,078.22	\$183,282,155,039 Rs. 13,074,630,341,023.43
2	Ethereum	109 Million	\$225.22	\$24,692,528,559 Rs 1,761,241,934,092.32
3	Ripple	100 Billion	\$0.2783	\$12,162,683,824 Rs. 867,462,332,089.09
4	Tether	7.51 Billion	\$ 1.00	\$6,400,436,463 Rs. 482653713456.60
5	Bitcoin cash	21 Million	\$444.22	\$8,116,120,796 Rs.578,820,304,548.08

Source: www.coingecko.com US \$ 1= Rs. 71.32

2. Review of Literature

Mr. Peter D De Vries (2016)

In his publication of the research paper is on The concept of an Analysis of Cryptocurrency, Bitcoin and the future. A SWOT analysis of Bitcoin is presented, which illuminates some of the recent events and movements that could influence Cryptocurrency seems to have move past the early adaption phase that new technologies experience. Bitcoin has begun to carve itself a niche market, which could help advance cryptocurrencies further into becoming main stream, or be the main cause of it falling. Cryptocurrencies are still in their infancy, and it is difficult to see if they will ever find true main stream presence in world market.

Mr. Shailak Jain (2018)

The paper is on, The growth of Cryptocurrency in India. Its Challenges and potential Impact on Legislation. This paper investigates the user's exceptions of the future of Cryptocurrency. It also explores the user's confidence of dealing with Cryptocurrency in a time that using such virtual money is not fully controlled and regulated. Besides, the paper is aimed to measure the spread of Cryptocurrency use to have a clear picture from the practical view. The paper also analyses the way in which 21 different countries have respond in terms of regulations and legislations towards cryptocurrencies to develop a clear picture of its impact on various laws in India in order to regulate.

Dr. Arvind Kumarsigh (2018)

In his Research paper cryptocurrency in India- Its effects and future on economy with special reference to Bitcoin the main objective of his paper is to understand the future of cryptocurrency in India, to evaluate the perception of bitcoin as the future currency and to analyse the probability of legalization of Bitcoin in stages is predicted. In fact, India's Bitcoin industry has long tried to popularize Bitcoin with strategies that includes conducting security checks, requesting identification from users such as government verified address documents, PAN or Addhar Id's and sometimes even checking bank details.

Jaysinf Bhosale (2018)

In this research paper focuses on the Volatility of selected Cryptocurrencies: A comparison of Bitcoin, Ethereum and Litecoin with respect to their volatility and stability in recent times and also tries to understand their trends in recent times. With the advent of block chain and cryptocurrencies

being as new and revolutionary as it is, predicting the five year projected value of Bitcoin, Ethereum and Litecoin requires numerous factors to be considered. Through a combination of qualitative research conducted it can be concluded that Bitcoin can leverage its existing uses base and proven use case it likely to experience more growth in the five year time hrizon by analysis author suggest that litecoin can be preferred as new investment option.

Dr. Anil Kumar (2019)

In this research paper A study on opportunities and challenges of Cryptocurrency in India with special reference to Bitcoin. The aim of this paper it to know the working of Cryptocurrency to understand the pro's and con's and analysis the legal status, challenges and opportunities of Bitcoin in India. It his conclusion cryptocurrencies can bring more positive change to E-Business and E-Payment sector. However cryptocurrencies doesn't get the most of trust yet. Many concerns, challenges and issues are existing in many Cryptocurrency platform until Cryptocurrency is being well regulated and controlled users need to take extra precautions of using such virtual money.

3. Research Methodology

The present study is focus on the Descriptive research and also based on the secondary data collection form the coingeckon, crypto compare and money control reports and its websites. The Cryptocurrencies information selected through the availability of data for last five year to study the return of different cryptocurrencies according convenience of the researcher and it called as convenience sampling.

Objective of the study:

- 1) To study the features of top five cryptocurrencies selected on the bases of market capitalization.
- 2) To study the comparative analysis of top five cryptocurrencies for 6 Months.

History and Features of top five cryptocurrencies

1) Bitcoin

One of the biggest financial stories of the past year has been the incredible raise of bitcoin. The virtual currency was designed to revolutionize peer-to-peer transactions. Although bitcoin was the first established cryptocurrency, there has been previous attempts at creating online currencies with ledgers secured by encryption. Two example of these were B-money and Bit gold, which were formulated but never fully developed. In the year 2008, a paper called Bitcoin A Peer to Peer Electronic cash system was posted in internet on cryptography. In 2009, the Bitcoin software is made available to the public for the first time and mining the process through which new Bitcoins are created and transaction are recorded and verified on the block chain begins. First time value for the Bitcoin was as it had never been traded, only mined, it was impossible to assign a monetary value to the unit of emergency cryptocurrency. In 2010, someone decided to sell their for the first time swapping 10,000 of them for two pizzas.

2) Ethereum

Vitalik Buterin 2013 initially developed the concept. It came about as a result of his work and research into the Bitcoin community. He initially published the Ethereum white paper, describing the technical design of Ethereum and the Protocol. Ethereum co-founder Vitalik Buterin said, I thought (those in the Bitcoin Community) were not approaching the problem in the right way. To put it simply the goal of Ethereum is to use a block chain, which will replace the third parties, including those that store data, transfer mortgages and keep a track of complex financial instruments. Smart contracts are the primary feature of Ethereum and self-executing programs that facilitate the exchange of anything of value on the network, immutably stored on the block chain. They execute when specific conditions are met and are outside the influence of third parties or censorship and no downtime, as long as the Ethereum network is functioning. This general ambition of the project outlined in the white paper as well as technical expertise of its young founder attracted the attention of many in the cryptocurrency space. The platform's core innovation became known as the "Ethereum Virtual Machine" and is turning- complete software that runs on the Ethereum network, enabling anyone to run any program, regardless of the programming language, on the Ethereum block chain.

3) Ripple

Evidently, Ripple has developed to become one of the success stories in the crypto market, with several significant partnerships, developments and a large community behind it. Ripple was launched by Jed McCaleb, Christ-Larsen and Arthur Britto back in 2012, and in less than 6 years, the platform has grown and managed to establish itself as a major player in the rapidly growing crypto industry. Global companies in different industries, especially financial institutions, have adopted the Ripple protocol massively. Ripple is a Cryptocurrency that allows financial transactions of different currencies in the easiest way. In 2011 based on the idea of Ripple pay.com Jed McCaleb started working on new version of the Ripple system. The new network would not require mining to verify transactions. Mining is central feature of some of the largest Cryptocurrencies like Bitcoin. It is necessary to verify the validity of the transactions but take up time and electricity, as it requires computing power. In 2012 Christ-Larsen the founder of E-loan and prosper joined McCaleb and they approached Ryan Fugger together. Fugger allowed the other two to take over the process and in 2012, the team opened new corporation named open coin. Open coin would become the groundwork for Ripple. Open coin took it upon itself to create a payment network that allowed parties to transact between each other without wait time or additional fees.

4) Bitcoin Cash

It is the version on Bitcoin in which the original properties of digital money still exist. Bitcoin cash (BCH) is an upgraded version of the Bitcoin core. It was released on August 1st 2017. The main upgrade offered by Bitcoin cash is an increase of the block size limit to 8 MB. This effectively allows miners on the BCH Bitcoin cash chain to process more payment per second. This makes for faster, cheaper transactions and a much smoother user experience. Bitcoin

cash is third fork of Bitcoin, the original Bitcoin block and an upper block size limit of 8 MB.

Bitcoin cash is peer to peer electronic cash for the internet. It is fully decentralized, with no trusted third parties to operate. It is done by design because the primary motivation of Bitcoin cash existence depends solely on carrying out more transaction.

Bitcoin cash (BCH) is a lot like Bitcoin but has some very noticeable differences as follows:

- The block size is 8 MB.
- It won't have SegWit.
- It won't have the replace by fee feature.
- It won't have replay and wipeout protection.
- It offers a way to adjust the proof of work difficulty quicker than the normal 2016 block difficulty adjustment interval found in Bitcoin.

Bitcoin was introduced by an unknown man/woman/group going by the pseudonym, Satoshi Nakamoto in their, now legendary, research paper "Bitcoin: A Peer-to-Peer Electronic Cash System". What Bitcoin provided was a peer-to-peer decentralized, digital currency system. The entire system of Bitcoin functions due to the work done by a group of people called "miners".

So what do these miners do? The two biggest activities that they do are:

- Mining for blocks.
- Adding transactions to the blocks.

5) Tether

Tether is Blockchain based Cryptocurrency, whose cryptocurrencies in circulation are backed by an equivalent amount of traditional fiat currencies, like the Dollar, the Euro or the Japanese yen, which are held in a designated bank account. Tether, as it is known today, was launched in November 2014, after it was rebranded from the original project Real coin. The project was initially founded by Bitcoin foundation director Brock Pierce, alongside software engineer Craig Sellars, and Entrepreneur Reeve Collins. The Real coin startup laid the foundation for Tether's operation before the name change came about.

The premise of Cryptocurrency was simple to provide a utility token that represented certain fiat currencies at 1:1 ratio, with the benefits of cross border payment facilitated by Blockchain technology.

The Cryptocurrency was built and operated using Omnilyer platform, a software layer built on the Bitcoin protocol. Thus every time new Tether tokens were issued, these could be tracked on the blockchain, allowing the wider crypto currency community to keep tabs on how many new Tether were released.

Tether, a crypto currency that has long been a point of contention in the community, has seemingly been unpegged from the US Dollar. The stable coin, by virtue of that very description, was linked to the US Dollar at a 1:1 ratio. Simply put, every Tether token that was minted has to be backed by a US Dollar. Tether belongs to a new breed of

cryptocurrencies called stable coins that aims to keep Cryptocurrency valuation stable as opposed to the wide swigs observed I the prices of other popular cryptocurriecnes like Bitcoin and Ethereum. That would allow it to be used as a medium of exchange and a mode of storage of value. According to Crypto compare data cited by The wall street Journal 80% of all bitcoin trading is done in Tether and the stable coin is a major source of liquidity for the crypto currency market.

A Comparative Analysis of Cryptocurrencies

The cryptocurrency family is becoming enriched with passing days with innovations being added continuously but Bitcoin, Ethereum and Ripple have yet managed to attract attention of all. These three cryptos can be considered the

market leaders, with Bitcoin the most established, Ethereum the major challenge to its supremacy, and Ripple having made a big splash in a short period of time (Grinberg, 2011). On the other hand Bitcoin Cash was introduced in August 7 2017, it was readily accepted as the Fourth largest cryptocurrency in terms of market capitalization possessing all the benefits of bitcoins accompanied by speedier transactions and lower transaction cost. Bitcoin SV was innovated with a sole different purpose on mind. Each cryptocurrency, being different from one another, has one feature in common, that is, their fluctuating prices. Below is a glimpse of the fluctuation in prices of the cryptocurrencies (Coinmarketcap.com market overview 2020) in tabular format (Table 2-6) over a period of 6 months starting from November 2019 till March 2020.

Table 2: Price Fluctuation of Bitcoin during November 2019 to March 2020.

Cryptocurrency/Month	Oct	Nov	Dec	Jan	Feb	Mar
Bitcoin	702932.1	591727.5	554906.6	728834.1	668096.2	490736.7

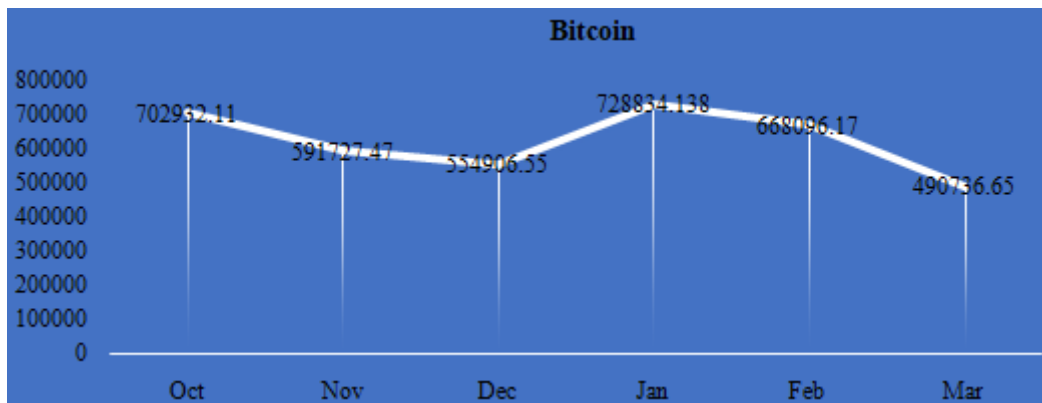


Figure 1: Price Fluctuation in BITCOIN

Table 3: Changing price of Ethereum during October 2019 to March 2020

Cryptocurrency/Month	Oct	Nov	Dec	Jan	Feb	Mar
Ethereum	14035.08	11822.48	10075.09	14157.7	17451.69	10136.4

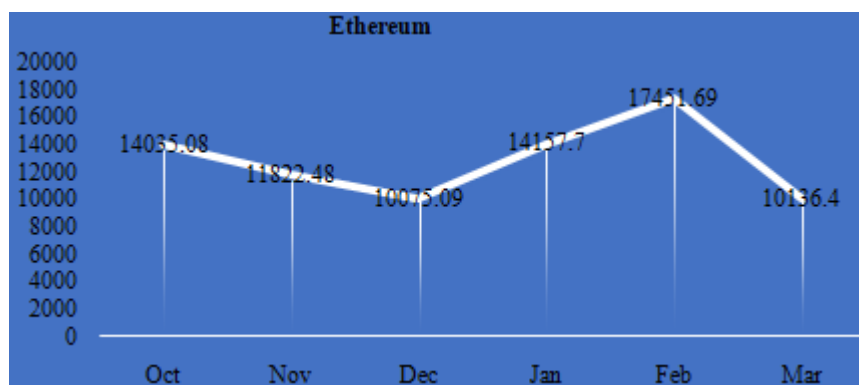


Figure 2: Price Fluctuation in ETHEREUM

Table 4: Variation in the price of Ripple during October 2019 to March 2020

Cryptocurrency/ Month	Oct	Nov	Dec	Jan	Feb	Mar
Ripple	22.6	17.55	14.79	18.54	18.16	13.02

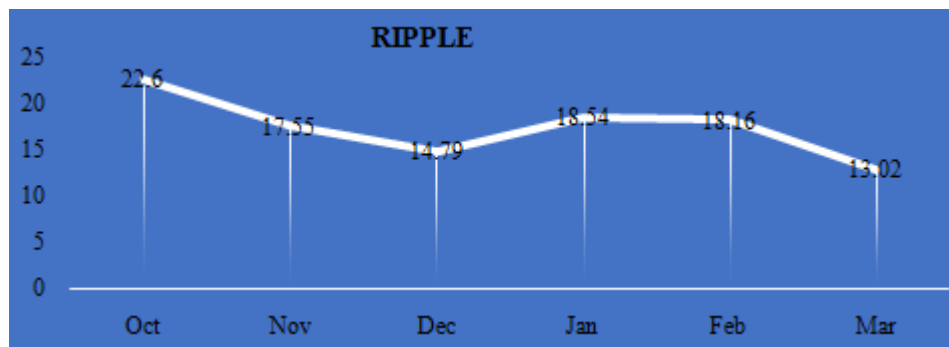


Figure 3: Price Fluctuation in RIPPLE

Table 5: Fluctuating in the price of Tether during Oct 2019 to Mar 2020

Cryptocurrency/Month	Oct	Nov	Dec	Jan	Feb	Mar
Tether	76.64	76.56	76.48	76.64	76.64	76.64

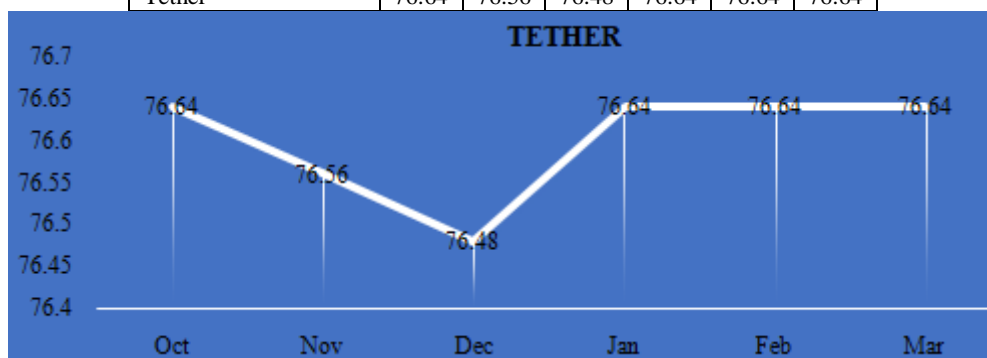


Figure 4: Price Fluctuation in TETHER

Table 6: Price Fluctuation of Bitcoin Cash during November 2019 to March 2020

Cryptocurrency/Month	Oct	Nov	Dec	Jan	Feb	Mar
Bitcoin Cash	22161.22	17152.03	15963.34	30133.31	24177.62	16896.82

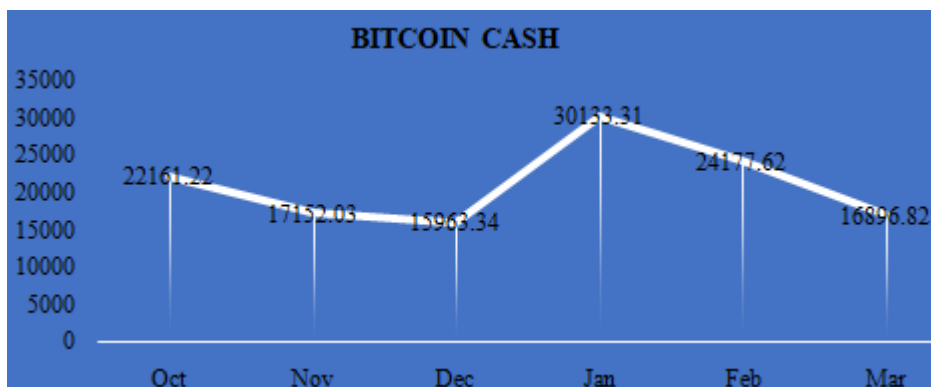


Figure 5: Price Fluctuation in BITCOIN CASH

Table 7: Comparative Price of the 5 Cryptocurrencies and the Fluctuation in it During October 2019 to March 2020

Month / Crypto currency	Oct	Nov	Dec	Jan	Feb	Mar
Bitcoin	702932.1	591727.5	554906.6	728834.1	668096.2	490736.7
Ethereum	14035.08	11822.48	10075.09	14157.7	17451.69	10136.4
Ripple	22.6	17.55	14.79	18.54	18.16	13.02
Tether	76.64	76.56	76.48	76.64	76.64	76.64
Bitcoin Cash	22161.22	17152.03	15963.34	30133.31	24177.62	16896.82

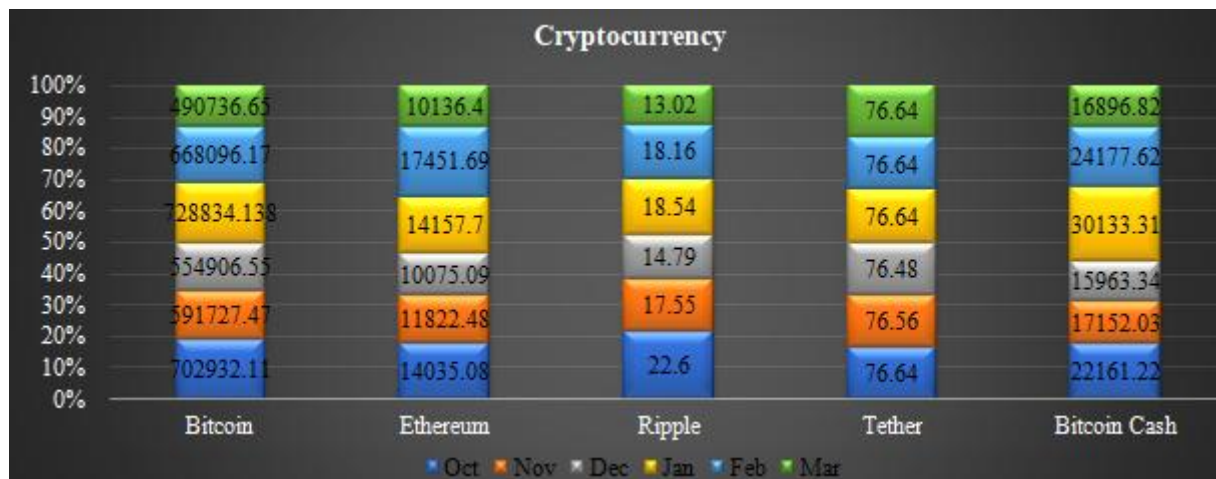


Figure 6: Comparative 6-Month Price Analysis

The graphs as shown above reflect changes in price over 6 months of individual cryptocurrencies (Figure 1 to Figure 5) as well as of all cryptocurrencies taken together (Figure 6). It is pretty evidence that all Cryptocurrencies have gone downwards in the month of December 2019 due to pre christmas market cryptocurrencies came down, there is no major regulatory or market development that have clearly impact on market sentiments. But in the immediate high rise

in the price of all selected cryptocurrencies in the month of January 2020 due to the good market conditions, but in month of February and March not only Cryptocurrencies market but also stock market affected by the deadly Coronavirus that effect whole world actually it was started in the month of December 2019 but it was pandemic in February month 2020, it may take so long period to recovery.

Table 8: Comparative Charatristics Features: Bitcoin VS Ethereum VS Ripple VS Tether VS Bitcoin Cash

Base Concepts	Bitcoin	Ethereum	Ripple	Tether	Bitcoin Cash
Origin and Originator	2009, Satoshi Nakamoto	2013, Vitalik Buterin	2012, Ripple	2014, Brock Pierce	2017, Bitcoin Community
Symbols & Ticker	BTC	ETH	XRP	USDT	BCH
Transaction Speed	The transaction speed of Bitcoin is 10 Minutes per transaction	The transaction speed of Ethereum is 5Minutes per transaction	The transaction speed of Ripple is 4 second approx. per transaction	The transaction speed of Tether is 6 Minutes per transaction	The transaction speed of Bitcoin cash is 10 Minutes per transaction
Scalability	Bitcoin is able to generate a maximum of 7 transactions per second	Ethereum is capable of delivering double as that of Bitcoin, an approximate of 15 transactions per second.	Ripple is the winner in terms of scalability and leaves behind both bitcoin and ethereum with itself leading at as high as 1500 transactions per second.	Tether is able to generate a maximum 6 transaction 60 minute	Bitcoin cash is able to generate a Maximum 116 transaction per second which is more than Ethereum
Circulating Supply	>17 million	>102 million	> 40 Billion	> 7.8 Billion	> 17 million
Block time	10 Minute	15 Second	Near Instant	Near Instant	10 Minute
Maximum Supply	21 Million	No Upper Limit	100 Billion (pre-mined)	7.51 Billion	21 Million

4. Conclusion

The Quote by Isreli Cryptographer Adi Shamir, “The Cryptocurrency community hasn’t decided whether they want to be anarchist rebels or to replace the establish” For this quote, believes, show the number of investors is still growing, which is a concern. Not only the Bitcoin individually by the entire fraternity of Cryptocurrency seems to be coming to an end. The rally of Bitcoin and Ethereum significantly since the beginning of 2017 and reaching an all time high market capitalization during the mid of 2017, price started crashing which can actually be reasoned out by chain’s decision to ban initial coin offerings by some cryptocurrencies. But Bitcoin Cash and Ripple two

cryptocurrencies rally to high in the Feb 2020 and June 2019 respectively after that go on downsizing in month of March 2020 due to the world pandemic Covid-19 that not only affect Bitcoin cash and Ripple but also Tether coin and all the Cryptocurrencies and even all stock market are fall and also the economy of the several countries got affected. The major problem which all Cryptocurrencies face is lack of information about the trading parties, thereby exposing investors to unforeseen risks including breaches of anti-money laundering and financing of terrorism laws. In our country, which still in its phase of development, majority of individuals are yet to secure minimum Literacy level, on analysing the characteristics features of the cryptocurrencies, comparing the same based on various criteria. It may be

concluded that the reasons for not investing in cryptocurrency outweigh the reasons justifying investment in it keeping in the mind and safety and security of investor and prioritizing their vulnerability towards Cryptocurrency transactions.

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