

# Crypto-Currencies - A Comparative Study on Volatility of Top 5 Crypto-Currencies

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**Abstract** - Cryptocurrencies are being used for both legal and illegal activities worldwide due to the volatility and ever-increasing use of virtual currency. Recent investments in cryptocurrencies have yielded enormous gains, but there has always been scepticism about their legitimacy and existence. A cryptocurrency is a form of digital or virtual money that is secured by encryption. Despite recent problems with cryptocurrencies, a lot of businesses have unveiled alternative cryptocurrencies as a result of Bitcoin's popularity and growth since its launch. The study compares the recent volatility and stability of top five crypto currencies—Bitcoin, Ethereum, Tether, USD Coin and Binance (BNB)—as well as their tendencies in order to better comprehend them. The present study aims to study the Top 5 crypto-currencies performance in recent times. And to analyze the volatility of different crypto currencies for future investments. And also to study the Top 10 countries with Bit Coin Market Capitalization. It is found that the Bitcoin leads among all other crypto currencies and Ethereum followed Bitcoin according to market capitalization. It is also found that there is volatility among the top 5 crypto currencies.

**keywords** - Crypto-currency, Bitcoin, Ethereum, Tether, USD Coin, Binance, Volatility,

## Introduction:

A cryptocurrency (or crypto currency) is a digital asset designed to work as a medium of exchange that uses cryptography to secure its transactions, to control the creation of additional units, and to verify the transfer of assets. This security feature makes cryptocurrencies challenging to counterfeit. A cryptocurrency's organic character, which distinguishes it from other forms of money and may be its most alluring quality, makes it potentially impervious to interference from or manipulation by governments. Digital currencies, alternative currencies, and virtual currencies are all subcategories of cryptocurrencies. As opposed to centralised electronic money and central banking systems, cryptocurrencies employ decentralised control. Each cryptocurrency is controlled decentralizedly by a blockchain, a public transaction database that serves as a distributed ledger. Because bitcoin transactions are anonymous, they can be used for a variety of criminal acts, including tax evasion and money laundering. Bitcoin, introduced in 2009 by a person or group using the pseudonym Satoshi Nakamoto, was the first cryptocurrency to win over the public's attention. Over 14.6 million bitcoins, with a market value of \$3.4 billion, were in use as of September 2015. Due to Bitcoin's popularity, several rival cryptocurrencies have emerged, including Ethereum, Tether, USD Coin, Binancia (BNB) etc.

## Types of Crypto-Currencies:

### Bitcoin

Bitcoin is a cryptocurrency and worldwide payment system. It is the first decentralized digital currency, as the system works without a central bank or single administrator. The network is peer-to-peer and transactions take place between users directly, without an intermediary. These transactions are verified by network nodes through the use of cryptography and recorded in a public distributed ledger called a blockchain. Bitcoin was invented by an unknown person or group of people under the name Satoshi Nakamoto and released as open-source software in 2009. Bitcoins are created as a reward for a process known as mining. They can be exchanged for other currencies, products, and services. In 2012 and 2016, Bitcoin underwent "halving," where the yearly bitcoin inflation was algorithmically reduced by 50 percent. This is part of bitcoin's deflationary monetary policy. In these two years, the bitcoin price increased significantly the year leading up to the halving. Research produced by the University of Cambridge estimates that in 2017, there were 2.9 to 5.8 million unique users using a cryptocurrency wallet, most of them using bitcoin.

### Ethereum

Ethereum is open access to digital money and data-friendly services for everyone – no matter your background or location. It's a community-built technology behind the cryptocurrency ether (ETH) and thousands of applications you can use today. Ethereum is a decentralized, open source block chain with smart contract functionality. Ether (ETH or  $\Xi$ ) is the native cryptocurrency of the platform. Among cryptocurrencies, Ether is second only to Bitcoin in market capitalization. Ethereum is also termed as Ether as this cryptocurrency is generated on Ethereum platform. It is public platform with open source, block chain based computing. It has a smart scripting facility. It works on the modified version of Nakamoto's cryptocurrency with transaction based payment system. Ethereum was first introduced in 2013 by Vitalik Buterin, who was a

computer programmer and researcher in cryptocurrency. Software Development related to Ethereum was funded by an online crowdsale between July and August 2014 and developing a system that went live on 30 July 2015. It initially had 11.9 million coins "premined" for the crowdsale. This circulation was almost 13% of the total circulating currency. The price of the Ethereum currency grew over 13,000% from 2014 to 2017.

Anyone can publish permanent and immutable decentralised applications on Ethereum, allowing users to communicate with them. Without the use of conventional financial intermediaries like brokerages, exchanges, or banks, decentralised finance (DeFi) applications offer a wide range of financial services, such as enabling cryptocurrency owners to borrow money against their holdings or lend them out for interest.

Users of Ethereum can also create and exchange NFTs, which are unique tokens that indicate ownership of a related asset or privilege and are accepted by a variety of institutions. On top of the Ethereum blockchain, numerous other cryptocurrencies use the ERC-20 token standard, and they have made use of the Ethereum platform for ICOs. A series of upgrades called Ethereum 2.0 includes a transition to proof of stake and aims to increase transaction throughput by using sharding.

### **Tether**

Tether (often called by its symbol USDT) is a stablecoin cryptocurrency that is hosted on the Ethereum and Bitcoin blockchains, among others. Its tokens are issued by the Hong Kong Company Tether Limited, which in turn is controlled by the owners of Bitfinex. Tether is called a stablecoin because it was originally designed to always be worth US\$1.00, maintaining \$1.00 in reserves for each tether issued.

While, according to its 2021 settlement with the New York Attorney General Letitia James, "Tether represents to users that any holder of tethers can redeem them from Tether the company at the rate of one tether for one U.S. dollar", Tether Limited as of 2017 stated that owners of tethers have no contractual right, other legal claims, or guarantee that tethers will or can be redeemed or exchanged for dollars. On 30 April 2019, Tether Limited's lawyer claimed that each tether was backed by \$0.74 in cash and cash equivalents. In May 2021, Tether published a report showing that only 2.9% of Tether was backed by cash, with over 49.6% backed by commercial papers.

### **USD Coin (USDC)**

An open source, smart contract-based stablecoin. A mode of value exchange that is price stable is necessary for true financial interoperability. Stability in crypto is provided through Centre's technology for fiat-backed stablecoins. The first implementation is called USD Coin (USDC), which can be used with Ethereum ERC-20, Algorand ASA, Avalanche ERC-20, Flow FT, Hedera SDK, Solana SPL, Stellar asset, and TRON TRC-20. It opens up possibilities for payments, lending, investing, trading, and trade finance, and the ecosystem will expand as more fiat currency tokens are added.

A digital stablecoin linked to the US dollar is called USD Coin (USDC). A group called Centre, which was established by Circle and consists of representatives from the cryptocurrency exchange Coinbase and the Bitcoin mining business Bitmain, an investment in Circle, manages USD Coin.

USDC is issued by a private entity and should not be confused with a central bank digital currency (CBDC). Circle claims that each USDC is backed by a dollar held in reserve, or by other "approved investments", though these are not detailed. The wording on the Circle website changed from the previous "backed by US dollars" to "backed by fully reserved assets" by June 2021. The tokenization of the US Dollar into USD Coin happens in a three-step process: A user sends US dollars to the coin issuer's bank account. The issuer uses a USD Coin smart contract to create the equivalent amount of USD Coin. The newly minted USD Coins are sent to the user and the substituted US dollars are held in a reserve. The redemption of USD Coins for US Dollars follows the process listed above but in reverse.

### **Binance BNB**

In terms of daily trading volume of cryptocurrencies, Binance is the largest cryptocurrency exchange in the world. It was established in 2017 and has Cayman Islands registration. Changpeng Zhao, a developer who had previously produced high frequency trading software, launched Binance. Initially established in China, Binance later relocated its headquarters there as a result of the country's escalating regulation of cryptocurrencies.

The United States Department of Justice and Internal Revenue Service both opened investigations into Binance in 2021 over claims that it had engaged in money laundering and tax evasion. In June 2021, Binance must cease all regulated operations in the UK, according to a directive from the Financial Conduct Authority of the UK. In 2021, Binance shared client data, including names and addresses, with the Russian government.

BNB is the cryptocurrency coin that powers the BNB Chain ecosystem. As one of the world's most popular utility tokens, not only can you trade BNB like any other cryptocurrency, you can also use BNB in a wide range of applications and use cases. Use BNB to pay for goods and services, settle transaction fees on Binance Smart Chain, and participate in exclusive token sales and more.

### **Research Methodology**

The data was collected from the secondary sources. The sources includes newspapers, journals, publications and websites. News from different newspapers as well the publications of the RBI, World Bank.

**Type of research:** Descriptive Research

**Period Considered:** Data collection the data was collected from 1 April 2021 to 31 March 2022. The Top 5 Crypto Currencies were selected based on their Market Capitalization reported on Coingecko and Coindesk Website. The research study was on top 5 crypto-currencies that is bitcoin, Ethereum, Tether, USD Coin, Binance (BNB) Coin.

**Data Representation:** Table and Graphs

**Objectives**

1. To study the Top 5 crypto-currencies performance in recent times.
2. To analyze the volatility of different crypto currencies for future investments.
3. To study the Top 10 countries with Bit Coin Market Capitalization.

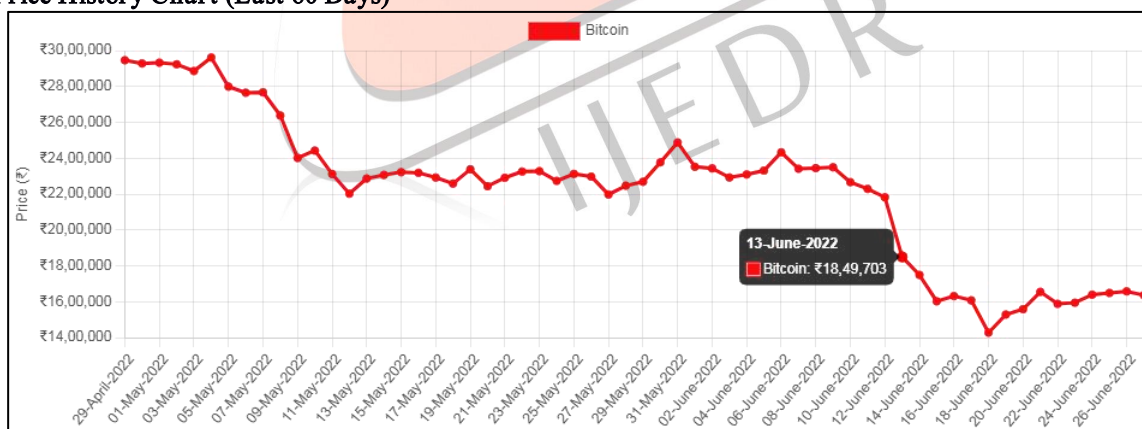
**Data Analysis and Findings:**

**Table no 1: BitCoin Price**

BITCOIN HISTORICAL PRICE			
	MARCH	APRIL	MAY
Opening Price	₹ 33,04,436	₹ 35,30,623	₹ 29,32,564
Closing Price	₹ 34,81,830	₹ 29,28,317	₹ 24,87,513
Highest Price	₹ 36,67,634	₹ 35,99,803	₹ 30,38,424
Lowest Price	₹ 3,01,301	₹ 29,14,297	₹ 20,01,888
Market Cap	₹ 66.0T	₹ 55.7T	₹ 47.5T
% Change	5.37%	-17.06%	-15.18%
<b>Over all performance</b>	<b>Rising</b>	<b>Falling</b>	<b>Falling</b>

From the table no, it is found that there is an increase in the opening price from the month of March to May 2022. The closing balance was decreasing from March to May 2022. The highest price in the month of March was 36,67,634, in the month of April was 35,99,803, in the month of May was 30,38,424. The lowest price of Bitcoin in the month of March was ₹ 3, 01,301, in the month of April was ₹ 29, 14,297, in the month of May ₹ 20, 01,888. The Market capitalization for the month of March was ₹ 66.0T, in the month of April was ₹ 55.7T, in the month of May was ₹ 47.5T. The Percentage change for the month of March was 5.37%, for the month of April was -17.06%, for the month of May was -15.18%. The overall performance of the Bitcoin Price was rising in the month of March and from the month of April and May the performance was falling when compared to the price in the month of March 2022.

**Bitcoin Price History Chart (Last 60 Days)**



*Figure 1: BitCoin Price (Last 60 days)*

**Table no 2: Ethereum Price**

ETHEREUM HISTORICAL PRICE			
	MARCH	APRIL	MAY
Opening Price	₹ 2,22,202	₹ 2,63,682	₹ 2,14,375
Closing Price	₹ 2,49,618	₹ 2,13,151	₹ 1,52,172
Highest Price	₹ 2,63,436	₹ 2,71,811	₹ 2,25,475
Lowest Price	₹ 20,275	₹ 2,12,307	₹ 1,33,025

Market Cap	₹ 29.9T	₹ 25.7T	₹ 18.5T
% Change	12.34%	-19.16%	-29.02%
<b>Over all performance</b>	<b>Rising</b>	<b>Falling</b>	<b>Falling</b>

From the table no, it is found that there is an increase in the opening price from the month of March to April 2022 and in the month of March 2022 the opening price was reduced. The closing balance was decreasing from March to May 2022. The highest price in the month of March was ₹2, 63,436, in the month of April was ₹2, 71,811, in the month of May was ₹2, 25,475. The lowest price in the month of March was ₹ 20,275, in the month of April was ₹ 2, 12,307, in the month of May ₹ 1, 33,025. The Market capitalization for the month of March was ₹ 29.9T, in the month of April was ₹ 25.7T, in the month of May was ₹ 18.5T. The Percentage change for the month of March was 12.34%, for the month of April was -19.16%, for the month of May was -29.02%. The overall performance of the Ethereum Price was rising in the month of March and from the month of April and May the performance was falling when compared to the price in the month of March 2022.

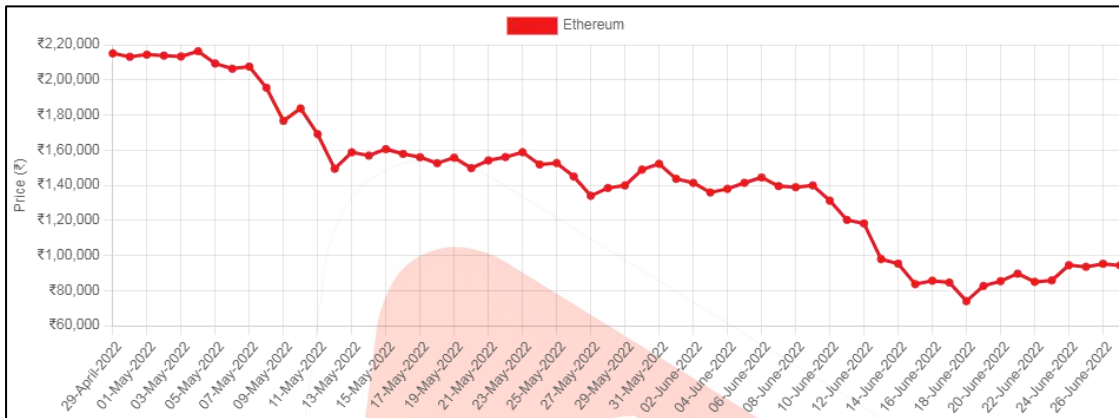


Figure 2: BitCoin Price (Last 60 days)

Table no 3: Tether Price

TETHER HISTORICAL PRICE			
	MARCH	APRIL	MAY
Opening Price	₹ 75.80	₹ 75.95	₹ 76.53
Closing Price	₹ 75.97	₹ 76.53	₹ 77.54
Highest Price	₹ 77.17	₹ 77.68	₹ 77.94
Lowest Price	₹ 6.9	₹ 75.2	₹ 73.3
Market Cap	₹ 6.2T	₹ 6.4T	₹ 5.6T
% Change	0.23%	0.75%	1.33%
<b>Over all performance</b>	<b>Rising</b>	<b>Rising</b>	<b>Rising</b>

From the table no, it is found that there is an increase in the opening price from the month of March to May 2022. The closing balance was also increasing from March 2022 to May 2022. The highest price in the month March was ₹77.17 in the month of April was ₹77.68, in the month of May was ₹77.94. The lowest price of Tether in the month of March was ₹ 6.9 in the month of April was ₹ 75.2, in the month of May ₹ 73.3. The Market capitalization for the month of March was ₹ 6.2T, in the month of April was ₹ 6.4T, in the month of May was ₹ 5.6T. The Percentage change for the month of March was 0.23%, for the month of April was 0.75%, for the month of May was 1.33%. The overall performance of the Tether Price was rising from the month of March 2022 to May 2022.

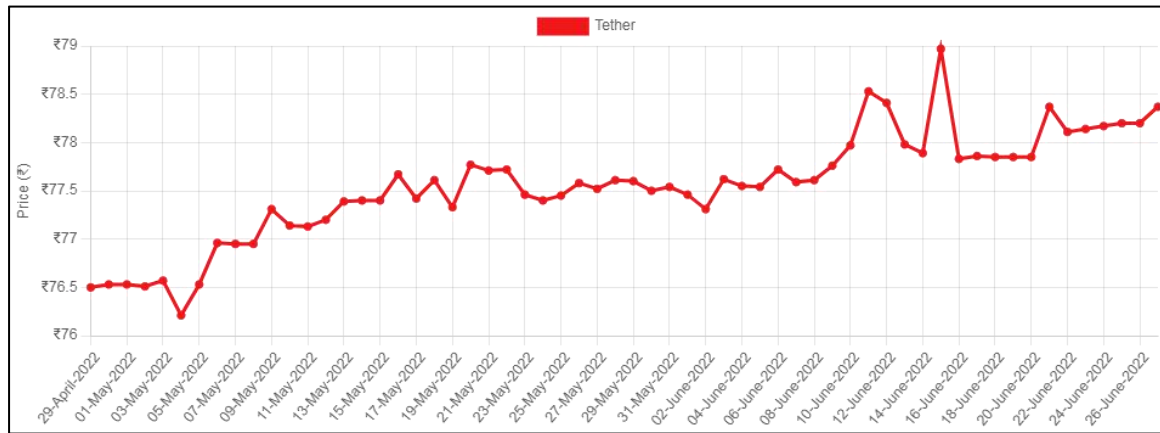


Figure 3: Tether Price (Last 60 days)

Table no 4: USD Coin Price

USD COIN HISTORICAL PRICE			
	MARCH	APRIL	MAY
Opening Price	₹ 75.76	₹ 75.93	₹ 76.52
Closing Price	₹ 75.94	₹ 76.52	₹ 77.60
Highest Price	₹ 77.17	₹ 77.34	₹ 78.12
Lowest Price	₹ 75.2	₹ 75.2	₹ 75.9
Market Cap	-	-	₹ 1.7T
% Change	0.24%	0.77%	1.41%
<b>Over all performance</b>	<b>Rising</b>	<b>Rising</b>	<b>Rising</b>

From the table no, it is found that there is an increase in the opening price from the month of March to May 2022. There was a very less increase in the opening price of the USD Coin. The closing balance was increasing from the month of March to May 2022. The highest price in the month was ₹ 77.17, in the month of April was ₹ 77.34, in the month of May was ₹ 78.12. The lowest price of USD Coin in the month of March was ₹75.2, in the month of April was ₹ 75.2, in the month of May ₹ 75.9. The Percentage change for the month of March was 0.24%, for the month of April was 0.77%, for the month of May was 1.41%. The overall performance of the USD Coin Price was rising from the month of March 2022 to May 2022.

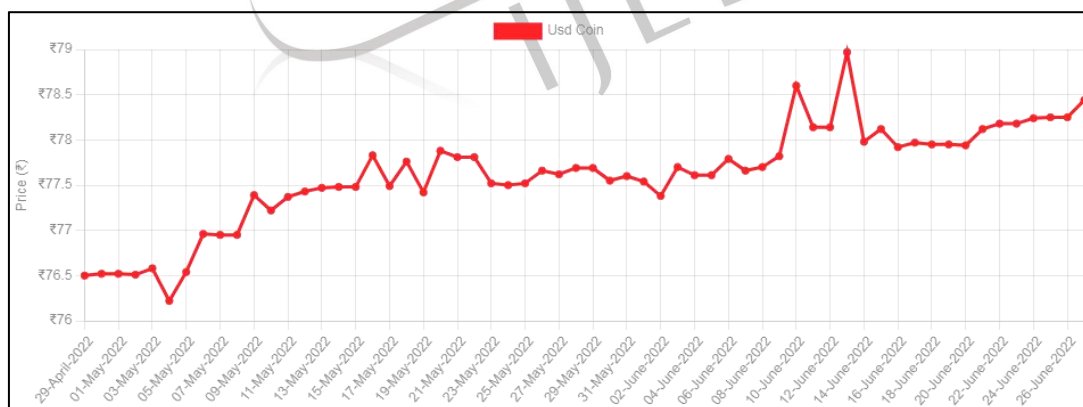


Figure 4: USD Coin Price (Last 60 days)

Table no 5: Binance (BNB) Coin Price

BINANCE COIN -BNB HISTORICAL PRICE			
	MARCH	APRIL	MAY

Opening Price	₹ 30,553	₹ 33,796	₹ 29,598
Closing Price	₹ 32,450	₹ 29,928	₹ 25,062
Highest Price	₹ 34,235	₹ 34,620	₹ 31,414
Lowest Price	₹ 27,684	₹ 29,341	₹ 16,940
Market Cap	₹ 5.4T	₹ 4.9T	₹ 4.1T
% Change	6.21%	-11.44%	-15.32%
<b>Over all performance</b>	<b>Rising</b>	<b>Falling</b>	<b>Falling</b>

From the table no, it is found that there is an increase in the opening price from the month of March to April 2022 and there is a decrease in the month of May 2022. The closing balance was decreasing from March to May 2022. The highest price in the month was ₹ 34,235, in the month of April was ₹34,620, in the month of May was ₹31,414. The lowest price of Binance (BNB) Coin in the month of March was ₹ 27,684, in the month of April was ₹29,341 in the month of May ₹ 16,940. The Market capitalization for the month of March was ₹ 5.4T, in the month of April was ₹ 4.9T, in the month of May was ₹ 4.1T. The Percentage change for the month of March was 6.21%, for the month of April was -11.44%, for the month of May was -15.32%. The overall performance of the Binance (BNB) Coin Price was rising in the month of March and from the month of April and May the performance was falling when compared to the price in the month of March 2022.

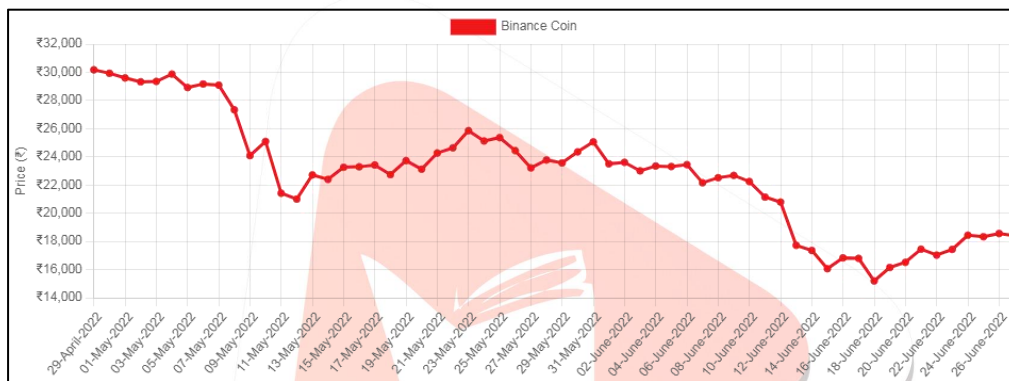


Figure 5: Binance (BNB) Coin Price (Last 60 days)

Table No 6: USD CURRENCY FLUCTUATION FOR BITCOIN

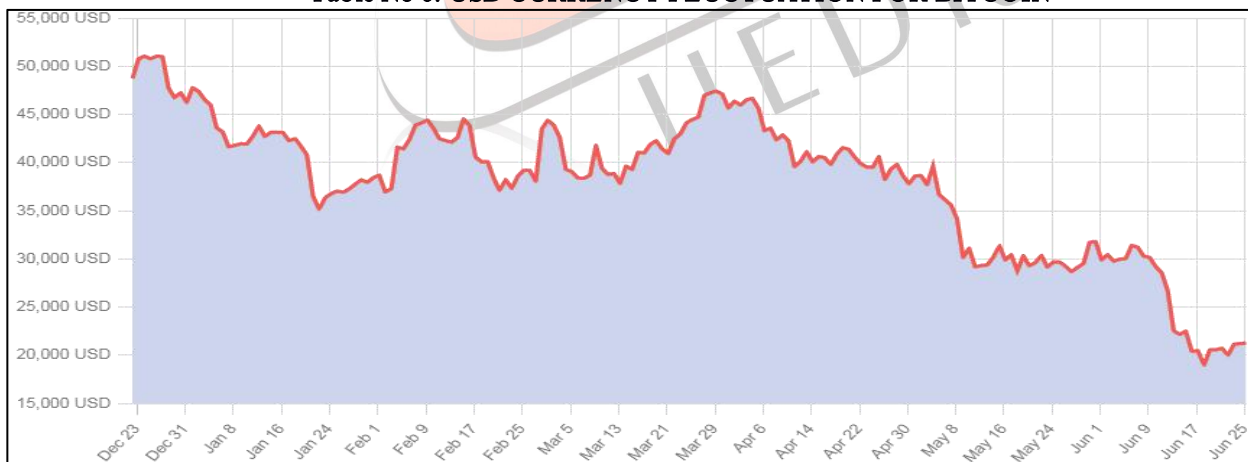


Figure 6: Currency fluctuations of Bit Coin

Table no 7: ETHEREUM CURRENCY FLUCTUATION

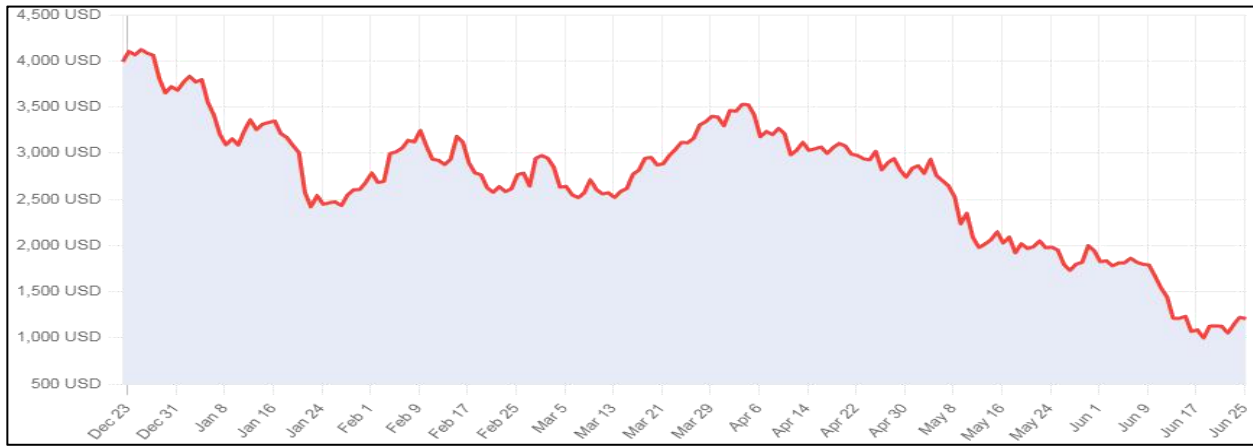


Figure 7: Currency fluctuations of Ethereum

Table No 8: Crypto Currencies according to Price, Supply and Market Capitalisation.

S.No	Crypto - Currencies	Price	Available Supply	Market Cap
1	Bitcoin	\$21,495.44	19.1 Million / 21 Million	\$410,080,498,500
2	Ethereum	\$1,252.58	121 Million / ∞	\$151,910,579,513
3	Tether	\$1.00	66.9 Billion / 66.9 Billion	\$67,102,703,432
4	USD Coin	\$1.00	55.9 Billion / 55.9 Billion	\$56,041,604,016
5	BNB	\$240.51	163 Million / 163 Million	\$39,267,649,613



Figure 8: Crypto Price Comparison

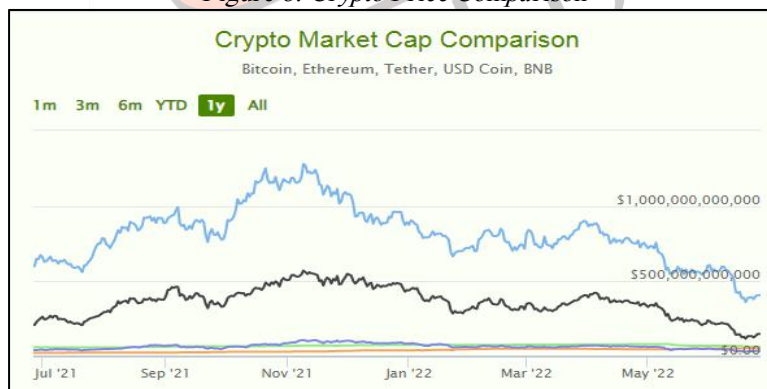


Figure 9: Crypto Market Capitalization Comparison

Table No 9: Crypto Currencies of Top 10 Countries according to Market Capitalization

COUNTRIES WITH BITCOIN MARKET CAPITALIZATION			
S.No	Country	Market Cap	Circulating Supply
1	China	1,787,717,457 BTC	252,700,000,000,000 CNY
2	United States	1,028,408,069 BTC	21,728,000,000,000 USD
3	Euro Area	785,644,589 BTC	15,716,542,000,000 EUR
4	Japan	544,991,111 BTC	1,550,181,000,000,000 JPY

5	United Kingdom	206,685,830 BTC	3,556,292,000,000 GBP
6	Germany	186,306,720 BTC	3,727,000,000,000 EUR
7	South Korea	183,566,410 BTC	4,977,732,000,000,000 KRW
8	France	168,407,628 BTC	3,368,935,000,000 EUR
9	India	125,585,107 BTC	208,194,000,000,000 INR
10	Canada	119,373,507 BTC	3,251,289,000,000 CAD

**COUNTRIES WITH BITCOIN MARKET CAPITALIZATION**

From the table it is very clear that India is one of the top ten Bitcoin currency holders, currently it stands at 9th position with China at the top. Though there is no regulations for cryptocurrency in India, it is not yet being termed as legal tender in India still its gaining popularity among investors and among 140 countries in which Bitcoin is being traded India stands at 9th position. Bitcoin is being traded at as high as 60million BTC in China to as low as 34 BTC in Tajikistan and 3BTC in Sao Tome and Principe, Its is expected that by 2030 the number of crypto-owners in India will increase at high rate and India will become one of top three most intersted countries in cryptocurrency.

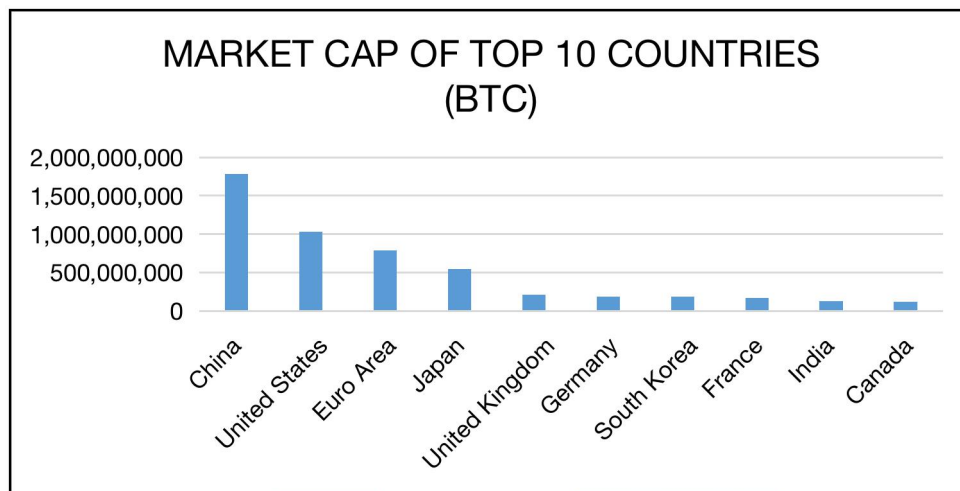


Figure 10: Market Capitaliation of Top 10 Countries (BTC)

**Conclusion:**

A discussion concerning the future of Bitcoin and other crypto currencies has been generated by the emergence of Bitcoin. Despite its current problems, Bitcoin's popularity since its 2009 inception has prompted the development of other digital currencies. A crypto currency would need to meet a lot of different requirements if it wanted to join the conventional financial system. The acceptance, legality, regulation, and viability are still up for debate, making it extremely dangerous to invest in cryptocurrencies. Additionally, because of the extreme volatility, it is advised against investing your hard-earned money in cryptocurrencies. Trading is advised once the value of digital currencies stabilises and they are accepted as legal tender. It can be said that Bitcoin can exploit its current user base and demonstrated use case, and that it will probably grow more over the next five years. Ethereum's significant association with speculative activity, news, and buzz results in a far higher variance despite having a lower expected value. Due to Ethereum's wide variety of potential outcomes, both positive and negative, it should be a part of your investment portfolio. The price of the top 5 crypto currencies leads with Bitcoin, followed by Ethereum, then Tether, followed by USD Coin and Binance (BNB). These top 5 crypto currencies are selected based on their market capitalization. From the top 10 countries china stands first among all the other countries. Among all top 10 countries India stands at 9<sup>th</sup> stage.

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