

Future of cryptocurrency in India

Gaurav KUMAR

Mizoram University, India
gauravchaudhary.gk@gmail.com

Bhartendu SINGH

Mizoram University, India
bsingh@mzu.edu.in

Suraj Kumar SAMAL

Central University of South Bihar, India
Surajodisha97@gmail.com

Pandav Kumar CHAUDHARY

IIT Patna, India
pandavzigzag@gmail.com

Abstract. *A digital currency based on blockchain technology that is secured by cryptography is called cryptocurrency. Cryptocurrency are emerging concept that has very limited literature in the Indian context therefore, this study attempts to assess the future of cryptocurrency in India by reviewing and analysing the existing various reports and articles. We found cryptocurrencies are very risky since it is not yet legalized nor are backed by the Indian government security. Despite that, the rapid grassroot adaptability of cryptocurrency, the tremendous growth in the number of users, and investment in cryptocurrency just give an insight of the bright future of cryptocurrency in India.*

Keywords: cryptocurrency, bitcoin, blockchain, cryptography, India.

JEL Classification: G1, G2, G4.

1. Introduction

Cryptocurrencies are digital tokens, similar to digital currency, that enables users to transmit payments directly to each other through an online system (Reserve Bank of Australia). In other words, A cryptocurrency is a sort of virtual asset based on a network that is distributed across an enormous number of computers (Tambe, 2023).

Figure 1



Source: Investopedia/Tara Anand.

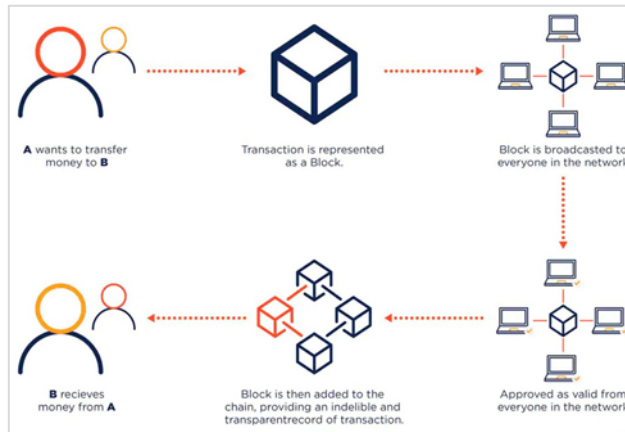
It is a decentralized form that enables cryptocurrency to operate outside the control of the central government or authority. Cryptocurrencies are only worth what people are willing to pay for them in the open market; they have no set legal or intrinsic value (Reserve Bank of Australia). This is contrary to our national currencies, which get part of their value from being legislated as legal tender. Presently many cryptocurrencies are in the market but the most famous ones are Bitcoin and Ether. The first cryptocurrency, known as Bitcoin was launched in 2009 by a mysterious computer programmer or a group of computer programmers under the pseudonym Satoshi Nakamoto, whose actual identity is still mysterious (Pinkerton, 2023). A 2008 white paper released by the mysterious creator of Bitcoin reveals that the blockchain system would be the backbone of the cryptocurrency market. A blockchain is a distributed, replicable record of transactions that is used to encrypt data and spread over a network of computer systems. Market activity for cryptocurrencies has considerably grown. The interest in these currencies seems to have been more speculative than connected to their use as an innovative and distinct payment mechanism (purchasing cryptocurrencies to make a profit). As a result, cryptocurrency prices are extremely volatile, much like stock market share prices. Selection of a cryptocurrency is very challenging since at present more than 9130 cryptocurrencies are trading in the crypto market and have a total market capitalization of \$1.05T (investing.com). Among these cryptocurrencies, Bitcoin has the highest weight and dominance 49.1% followed by Ethereum 18.2% (investing.com).

2. Objective of the study

- To explore the concept and adoptability of cryptocurrency in India.
- To study the regulatory stands of the Indian Government on cryptocurrency in India.
- To study the cryptocurrency's future from an Indian perspective.

3. Working mechanism of cryptocurrency

Figure 2



(shanKariasacademy, 2021)

Source: www.iasparliament.com

The functioning of cryptocurrency is based on blockchain technology which is merely a digital ledger of transactions. Whenever anyone initiates the transactions then copies of these transactions are simultaneously distributed across many computers in the network chain. Therefore, cryptocurrency is called a decentralized form of transaction having no control of a single person or authority as opposed to the traditional currency which is either controlled by monetary authority, government, or banking system.

Distributed copy of each transaction across the network of computers are verified for authenticity, this process is called crypto mining and the person who verifies the legitimacy of the transactions are called a miner. After verification of transactions funds are reflected in the receiver's wallet, and the process of transactions comes to an end.

4. Present status of cryptocurrency in India

Around the world, different jurisdictions have different cryptocurrency laws (Bansal, n.d.). In India, there are no national regulations governing the use of cryptocurrencies as a form of payment (Bansal, n.d.). When dealing with cryptocurrencies, there are no established norms or rules for resolving conflicts. Trading in cryptocurrencies is thus done at the risk of investors. Cryptocurrency's legitimacy and legality in India have been extensively discussed but it is still in dilemma. Cryptocurrencies have not been acknowledged by the government or the Reserve Bank of India (RBI), the country's central bank. The Reserve Bank of India (RBI) announced in a circular dated April 6, 2018, that residents will not be permitted to transact in cryptocurrencies due to the substantial risks they represent to

market integrity, consumer protection, money laundering, and many others (Sinha, 2018). But in 2020, the Supreme Court of India declared invalid the above circular in the case of Internet and Mobile Association of India v. Reserve Bank of India (Judgement of the Supreme Court of India, 2020). By authorizing their transactions, the Supreme Court appeared to have favoured virtual currencies. It was the observation of the Supreme Court of India, that the RBI should regulate cryptocurrency. The Supreme Court said that RBI had the authority to prohibit cryptocurrencies because it is an apex monetary authority whose goal is to safeguard public funds. However, the Supreme Court added that the RBI could have sought alternative ways by making appropriate norms that may benefit the users of cryptocurrencies, instead of completely banning it. After the decision of the Supreme Court of India, the Government of India planned to introduce "The Cryptocurrency and Regulation of Official Digital Currency Bill, 2021" (the "Bill") to the Lok Sabha. The Bill aims to "create a facilitative framework for the creation of the official digital currency to be issued by the Reserve Bank of India," (The Lok Sabha Bulletin, 2021). Additionally, the Bill aims to outlaw all personal cryptocurrencies in India; however, to support the cryptocurrency's underlying technology and applications, it does permit some exclusions. Although, the bill hasn't been introduced in any chamber of Parliament due to several complexities. To make cryptocurrency less risky and safeguard the interest of our investors, India is making an effort to govern the cryptocurrency market. To bring in more transparency in the reporting of financial statements, the Ministry of Corporate Affairs (MCA) amended Schedule III to the Companies Act, 2013, with effect as of April 1, 2021, which mandates companies to disclose their investments in cryptocurrencies, state any profit or loss involved in the transaction, and, also disclose any deposits or advances taken from any person for trading or investing in cryptocurrency/virtual currency (Ministry of Corporate Affairs, 2021).

5. An overview of India's first crypto index

IC15 is India's first crypto index launched by the global cryptocurrency super app "CryptoWire." IC15 is listed on Bitbns, a cryptocurrency exchange. IC15 is a rule-based benchmark index by market capitalization that tracks and measures the performance of 15 liquid most traded cryptocurrencies that are listed on crypto exchange globally. This index captures above 80 % of market movement. The base date for IC15 is fixed as 1st April 2018 and the base value is set at 10000. A governance committee consisting of academicians, domain experts, and industry practitioners will administer and rebalance this index quarterly by incorporating the top 15 cryptos based on market capitalization. Any cryptocurrency that met the two criteria (a) should have been among the top 50 in the last month as per market capitalization. (b) it must be traded at least 90 % of the trading days. Only thereafter, such crypto coin can be considered for inclusion in this index. The constituent crypto coins of IC15 have been shown in the following table.

Table 1. *Constituent coins and current market capitalization of IC15 index*

S/N	Name of cryptocurrencies	Symbol	Price in (USD)	Current Market capitalization in (USD)
1	Bitcoin	BTC	26,100.00	518.35B
2	Ethereum	ETH	1,575.98	191.65B
3	Binance Coin	BNB	208.80	32.44B
4	Ripple	XRP	0.49	27.11B
5	Dogecoin	DOGE	0.06	8.69B
6	Cardano	ADA	0.24	8.63B
7	Solana	SOL	19.43	8.10B
8	Polkadot	DOT	4.03	4.94B
9	Litecoin	LTC	64.25	4.77B
10	Shiba Inu	SHIB	0.00	4.34B
11	Bitcoin Cash	BCH	206.80	4.08B
12	Chainlink	LINK	7.24	3.99B
13	Avalanche	AVAX	8.84	3.17B
14	Uniswap	UNI	4.24	2.46B
15	Terra	LUNA	0.42	159.48M

Note: the current market capitalization has been compiled from Investing.com as of 24th September 2023.

Table 2. *Top 15 cryptocurrencies based on market capitalization in the world as of 24th September 2023*

S/N	Name of cryptocurrencies	Symbol	Price in (USD)	Current Market capitalization in (USD)
1	Bitcoin	BTC	26,100.00	518.35B
2	Ethereum	ETH	1,575.98	191.65B
3	Tether USDt	USDT	1.00	83.21B
4	Binance Coin	BNB	208.80	32.44B
5	Ripple	XRP	0.49	27.11B
6	USD Coin	USDC	1.00	25.77B
7	Dogecoin	DOGE	0.06	8.69B
8	Cardano	ADA	0.24	8.63B
9	Solana	SOL	19.43	8.10B
10	Toncoin	TON	2.21	7.79B
11	Dai	DAI	0.99	5.35B
12	Polkadot	DOT	4.03	4.94B
13	Bitcoin Cash	BCH	206.80	4.08B
14	Polygon	MATIC	0.51	4.84B
15	Litecoin	LTC	64.25	4.77B

Note: the list of top 15 coins and their current market capitalization has been compiled from Investing.com as on 24th sept. 2023.

6. An overview of cryptocurrency exchange

Cryptocurrency exchanges are electronic trading platforms that enable users to buy and sell cryptocurrencies like Bitcoin, Ethereum, Tether, Binance Ripple, etc. As a result of the widespread use of cryptocurrencies on a global scale, there has been a sharp rise in the number of exchanges that enable investors and dealers to trade and acquire cryptocurrencies on their platforms. A total of 226 cryptocurrency exchanges are tracked by Coinmarketcap, the most popular website for tracking cryptocurrency prices

(coinmarketcap.com). Based on traffic, liquidity, trading volumes, and confidence in the legitimacy of trading volumes reported, Coinmarketcap ranks and scores exchanges. Since there are many cryptocurrency exchanges and cryptocurrencies which make the selection of the right exchange and coins very complex. It also increases the risk of fraud activities, since yet cryptocurrency markets are mostly unregulated. The table below shows the globally top 15 spot cryptocurrency exchanges as per coinmarketcap.

Table 3. List of top 15 spot cryptocurrency exchange

S/L	Exchanges
1	Binance
2	Coinbase Exchange
3	Kraken
4	Bybit
5	Bitstamp
6	OKX
7	KuCoin
8	Bitfinex
9	HTX
10	Bitget
11	Gemini
12	bitFlyer
13	Bithumb
14	LBank
15	Coincheck

Source: this ranking has been assigned by coinmarketcap website (<https://coinmarketcap.com/rankings/exchanges/>)

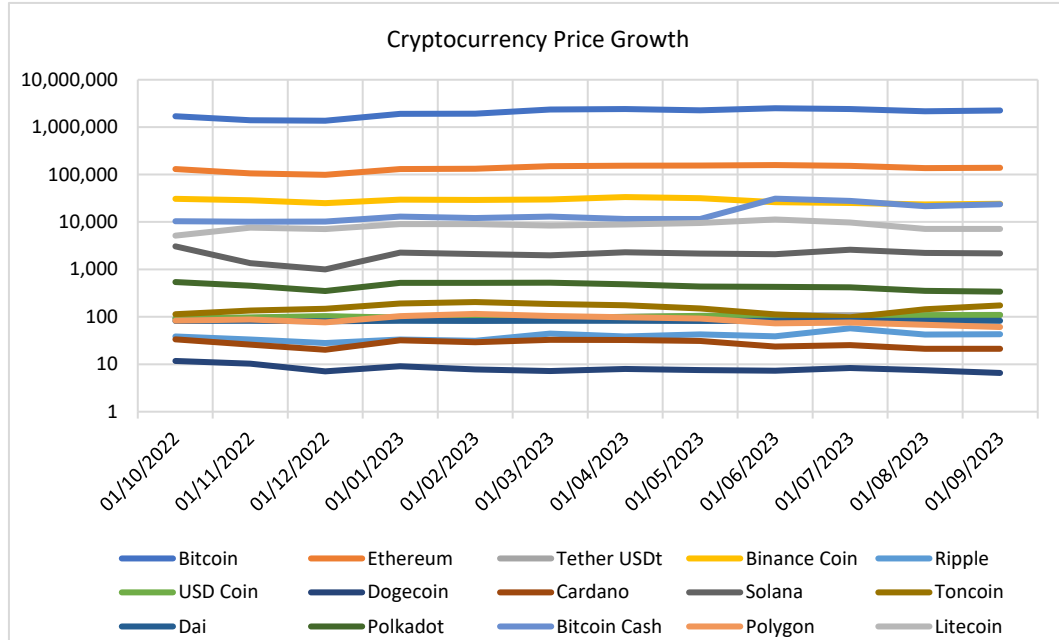
As per an article published in Forbes India, India's top ten cryptocurrency exchanges are CoinDCX, CoinSwitch, WazirX, ZebPay, BITMarkets, Kraken India, Bitbns, UnoCoin, BuyUCoin, Gittous[15].

7. Transactions, returns and growth of cryptocurrency

There are two ways of doing transactions in cryptocurrency (a) Peer-to-peer (P2P) and (b) through cryptocurrency exchange. The act of trading cryptocurrencies directly between users, without the involvement of a cryptocurrency exchange or broker is known as peer-to-peer (P2P) trading. Cryptocurrency exchanges are blockchain-based trading platforms that facilitate the exchange of cryptocurrencies for fiat money and other assets. The figure 3 shows growth and figure 4 shows the returns on crypto investment from 1st October 2022 to 1st September 2023.

For plotting price growth and return on Cryptocurrency investment on the line chart, the required data has been collected from investing.com and Yahoo Finance. Historical data for Polkadot, Toncoin, and Dai were not available in INR, therefore it has been collected in USD form and thereafter converted to INR at that prevailing rate on that day, for return calculation.

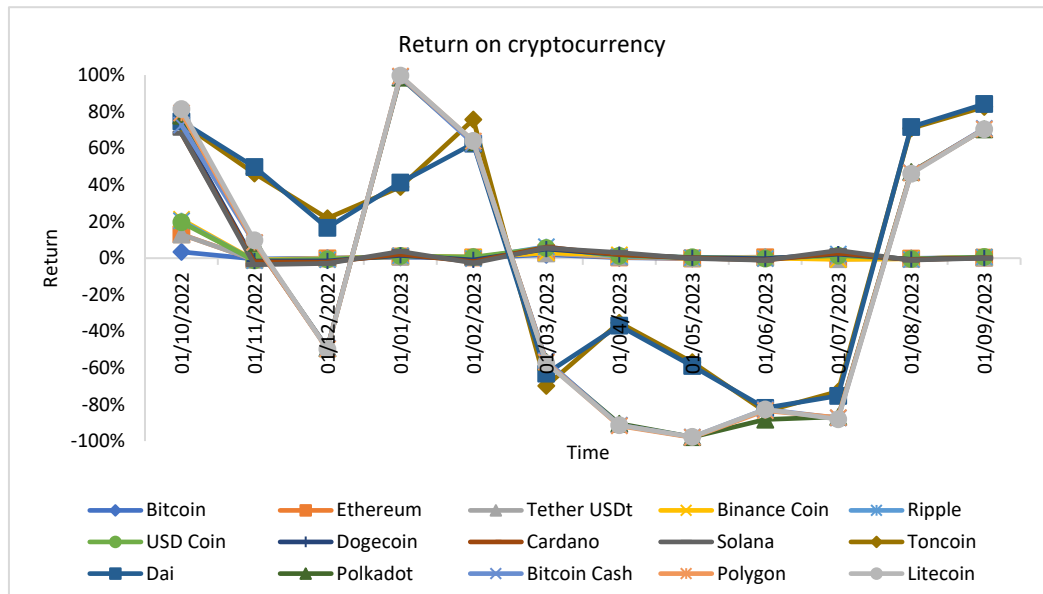
Figure 3. Top 15 cryptocurrency's price growth in INR over the past year



Note: the above graph is plotted on a logarithmic scale and the price growth is expressed in Indian rupees (INR).

Source: author's creation by using MS Excel.

Figure 4. Returns on top 15 cryptocurrency investments over the past year



Note: the above graph is plotted on a 100% stacked line with markers chart.

Source: author's creation by using MS Excel.

8. The future of cryptocurrency in India

Even if there is doubt over the future of cryptocurrencies in India, investments in unregulated digital assets, particularly Bitcoin, have demonstrated a remarkable growing tendency since 2020. In just one year—between July 2020 and June 2021 the usage of cryptocurrencies has increased by 880 percent, with Bitcoin being the most widely used coin, followed by Ripple and Ethereum (Team, 2022). Cryptocurrency is gaining popularity among investors, as they are using it as a preferred investment option. But as cryptocurrencies gain popularity, environmentalists are alarmed since their "mining" uses an astonishing amount of energy and produces a significant carbon impact. The Chainalysis' 2021 Global Crypto Adoption Index shows that the Indian cryptocurrency market is expanding rapidly, With a considerable rise in usage over the previous year (Team, 2021). According to this report, India ranked as the second-largest cryptocurrency market in the world behind the United States (Team, 2021). According to Chainalysis' 2021 Global Crypto Adoption Index Five countries - Vietnam, India, Pakistan, Ukraine, and Kenya - have ranked the highest in adopting cryptocurrency. The Chainalysis Global Crypto Adoption Index for 2021, 2022, and 2023 is consecutively shown below in table 4.

Table 4. Top 5 ranked countries in adopting cryptocurrency as per Chainalysis Global Crypto Adoption Index

Ranking for 2021					
S/N.	1	2	3	4	5
Country	Vietnam	India	Pakistan	Ukraine	KENYA
Total Index score	1	0.37	0.36	0.29	0.28
Overall Index ranking	1	2	3	4	5
Ranking for 2022					
Country	Vietnam	Philippines	Ukraine	India	United States
Overall Index ranking	1	2	3	4	5
Ranking for 2023					
Country	India	Nigeria	Vietnam	United States	Ukraine
Overall Index ranking	1	2	3	4	5

Note: the above table is just an abstract of the report published by the Chainalysis. For a complete report refer to the source: <https://www.chainalysis.com/blog/2021-global-crypto-adoption-index/>; <https://www.chainalysis.com/blog/2022-global-crypto-adoption-index/> ; <https://www.chainalysis.com/blog/2023-global-crypto-adoption-index/>

This index ranked 146 countries for grassroot adoptability of cryptocurrency in 2022 on five parameters: (a) Centralized service value received (b) Retail centralized service value received (c) Peer to peer exchange trade volume (d) DeFi value received (e) Retail DeFi value received. The acceptance of cryptocurrencies at the grassroots level goes beyond simple transaction volumes. Instead of that it highlights where the most people are putting the biggest share of their money into cryptocurrency. In other words, It shows the extent to which general people in a country are enthusiastically adopting cryptocurrency. It addresses the broad adoption and use of cryptocurrency in everyday life. The grassroot adoptability of cryptocurrency in India is mostly driven by our young population. It seems like cryptocurrency is truly a young population asset class. According to a 2022 analysis

by domestic cryptocurrency exchange CoinSwitch, the majority of investors in the country are between the ages of 18 and 25 (45 percent) and 26 and 35 (34 percent), with only 8% of retail investors over 45 years old, cryptocurrency is genuinely a young person's asset class (CoinSwitch, 2022). Table 5 shows Indian investors holding patterns of cryptos investment in 2022.

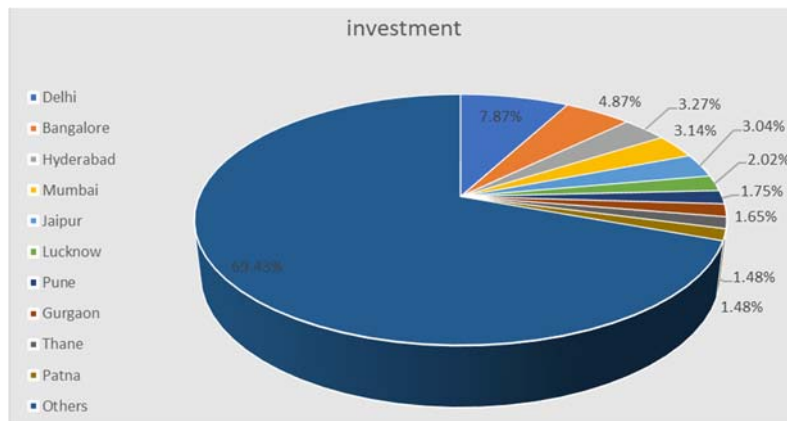
Table 5. *Top-held cryptos of Indian investors*

S/N	Name of coin	Code	Percentage holdings
1	Bitcoin	BTC	12.12
2	Dogecoin	DOGE	11.54
3	Ethereum	ETH	9.43
4	Shiba Inu	SHIB	6.92
5	Polygon	MATIC	4.13
6	Cardano	ADA	3.47
7	Ripple	XRP	2.57
8	Internet Computer	ICP	1.87
9	Solana	SOL	1.80
10	Other 90+ coins		46.15

Source: CoinSwitch India's Portfolio 2022.

According to table 5. It can be said that Everyone likes legends. Bitcoin is the legend of the crypto market and the foremost held coin by Indian investors

Figure 5. *Top 10 cities for cryptocurrency investment.*



Source: CoinSwitch yearend report 2022.

According to Fig. 5, Patna was rated 10th and Delhi 1st in India for cryptocurrency investment in 2022.

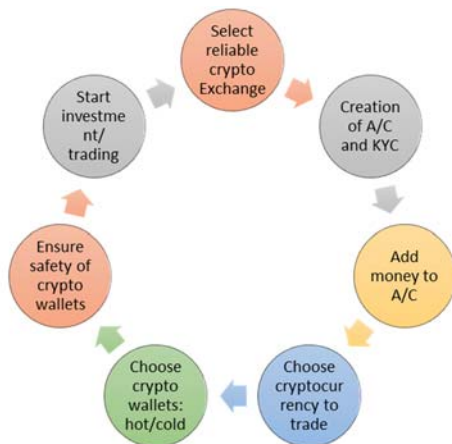
Further, as per market insight published by Statista (n.d.) forecasting of Indian crypto market insights by 2027, revenue is predicted to grow by 9.83% per year (CAGR 2023–2027), reaching a total estimated value of US\$324.00m. According to Grand View Research (2022) the cryptocurrency market reached around USD 800 billion in 2022 worldwide. From 2023 to 2030, this market is projected to increase at a 12.5% CAGR. As

of 26th September 2023, the global market cap of crypto was valued at around \$1.05 trillion. As of 31st Aug 2023, with a 47% market share and the highest value of any cryptocurrency, Bitcoin dominates the market (CoinGecko.com). It is evident from table 4 that the Asia Pacific dominated the grassroots adoptability of the cryptocurrency. In 2022, Asia Pacific accounted for a sizable portion—more than 30%—of worldwide revenue from the cryptocurrency market.

9. Investment/trading in cryptocurrencies

Figure 6 states the process of investment or trading in cryptocurrency that will be useful for beginners

Figure 6. Steps for investing in cryptocurrency



Source: authors.

10. Conclusions

Cryptocurrency investment is subject to market risk since it is neither a legal tender nor backed by any government assurance. However, the cryptos are not banned in India, but the government is planning to regulate this market. Still, there is no regulatory framework and recourse for any loss from cryptocurrency-involved transactions. Even knowing these facts, the speed of adoptability and growth of the cryptocurrency market in India just gives a birds' eye view of the bright future of cryptocurrency in emerging markets including India.

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