



An analysis of Cryptocurrency: Types and Challenges in Indian Scenario

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Abstract

Cryptocurrency has increasingly emerged as a significant component within India's evolving banking ecosystem. The broader wave of digitalization has transformed the sector, with technology serving as a central driver of systemic advancement. The integration of artificial intelligence (AI) and the rise of neo-banking institutions have further accelerated this progression, positioning India among the leading adopters of cutting-edge financial technologies. Moreover, advancements in trading efficiency, along with the application of reinforcement learning and machine learning techniques, have enhanced operational capabilities within the banking sector. However, these developments also underscore the growing need for robust ethical frameworks and comprehensive regulatory oversight. Block chain technology application and cloud computing is used to store data on the network. This technology is highly encrypted, providing more safety and security to the crypto dealers.

Keywords: *Artificial Intelligence, Neo Banking, Machine learning, Block Chain technology*

I. Introduction

A cryptocurrency, or crypto asset, is a form of digital currency designed to function as a medium of exchange. Ownership of individual units is recorded in a distributed ledger maintained as a computerized database, which employs strong cryptographic techniques to secure transaction records, regulate the creation of new units, and verify the transfer of ownership (Holmes–Andy Greenberg, 2011; Polansek, 2016). However, the decentralized and largely unregulated nature of cryptocurrency markets introduces a high degree of uncertainty, posing significant challenges not only to traditional financial institutions but also to the broader global financial system and established monetary policy frameworks. In India, trading and holding cryptocurrencies—classified as Virtual Digital Assets (VDAs)—is permitted, although they are not recognized as legal tender for transactional purposes. As of 2025, the regulatory framework

allows individuals to buy, sell, and hold cryptocurrencies as investment assets, while prohibiting their use for payments involving goods, services, or salaries.

Oversight of the crypto sector is distributed across multiple regulatory bodies. The Financial Intelligence Unit–India (FIU-IND) mandates that cryptocurrency exchanges register with it and comply with stringent anti-money laundering (AML) requirements, including customer identification (KYC) and the reporting of high-value or suspicious transactions. The Ministry of Finance is responsible for taxation policies and broader regulatory formulation, while the Reserve Bank of India (RBI) oversees monetary policy and continues to adopt a cautious stance toward private cryptocurrencies, alongside promoting its Central Bank Digital Currency (CBDC), the Digital Rupee. Additionally, the Securities and Exchange Board of India (SEBI) may assume a regulatory role in relation to crypto-linked securities in the future.

From a taxation perspective, income derived from VDAs is subject to a flat tax rate of 30 percent, along with a 4 percent cess, resulting in an effective tax rate of 34 percent on gains. Furthermore, a 1 percent Tax Deducted at Source (TDS) is levied on transactions exceeding prescribed thresholds. Notably, losses incurred from cryptocurrency investments cannot be offset against other income or gains. The government is trying to develop its own digital currency in the market

II. Literature Review

Sudden and wide acceptance of the digital currency was a result of the digitalization, replacing the fiat cash in the economy to propagate the essential features of Pseudo anonymity. "A Short Introduction to World of Cryptocurrencies" by Fabiana Schar and Aleksander Berentsen, bitcoin first came into existence with a white book that was published in 2008 (Berentsen & Schar, 2018). In 2009, cryptocurrency had shown its presence, and Bitcoin was the first digital currency launched in the market by Satoshi Nakamoto (Arnita Sur, 2022). Yermak, 2013, in his study examined deeply the technology of the block chain to provide high



security transaction to the players that too without intermediary. The tremors of digital transaction were already hitting the mass, the population of India having highest access to internet and telecom sector advanced themselves with the Cryptocurrencies. In Mumbai, a vintage hotel started receiving payment in Bitcoins. The big announcement by the finance minister in 2013, that the tax slab on cryptocurrency doesn't hit the market much, people still trade on cryptocurrency. The study by **Bhushan Ghawade**, suggests that India has the best number of crypto owners. quite 60% of states in India are emerging as Crypto adopters, with over quite 15 million retail investors. India stands second after United states, having the potential to out pass US in the coming years. The climate in India is suitable for larger crypto investment. The Government of India is planning to launch its own digital coin in the yearsto come.

Objectives of the study

- ❖ The main purpose of the study is to understand the cryptocurrency in the Indian Market
- ❖ To understand the existence of different instruments of cryptocurrency, effects on dynamics of market, investment strategies, and regulatory responses
- ❖ To study challenges pertaining to the different cryptocurrencies, such as technological innovation, regulatory issues, and adoption in the market, to find out the implications of each trend on future development of cryptocurrency

The currency is utilized to advance real estate and proving its presence in the agricultural sector also, is tremendous acceptance in the global arena. Turbulent changes are occurring in the cryptocurrency, especially after the Supreme court has decided to rule out the restriction in Crypto. The technology of cryptography is utilized, using many computers, enhancing security to the end users through block chain technology. Cryptocurrencies were a new phenomenon that allowed people to buy, sell, and invest and trade currencies that had no physical form, as everything is available online (**Syed Bilal Irfan, 2022**). Cryptography adds confidentiality, data integrity allowing more encryption to the transaction converting it into unreadable format by mathematical progressions. Modern Ciphers like Advanced Encryption Standards are recognised as virtually unbreakable, storing it in cloud encryption. It follows a decentralized pattern free from supervision and

regulation of local authorities. This is the reason many investors are inclining towards virtual investment.

The market for the cryptocurrency is advancing globally. The United Arab Emirates is the largest investor of the crypto with 30.4%, followed by Vietnam 21.2% and United States with 15.6%, Iran with 13.5% and Philippines with 13.4% shows the approach of the investors towards Crypto. The largest market in the world for crypto exists in the United States, estimated to have a \$2 trillion, but there is a wide market for cryptocurrency in India. It remains a fact the educational literacy among the Indians and legal, regulatory framework could have pushed India to become, one of the prominent players of the crypto market, still the adoption of the technology is highly felt in the Indian scenario.

Instruments in Crypto market

The digital paradigm to address the changing innovational track of the traditional trading was set back with the digital coins and currencies, inculcating a new culture of crypto. There are different types of cryptocurrencies available in the market. Different types of cryptocurrencies are available in the market depending upon the investor's choice, they can invest in the right amount to get maximum benefit.

Bitcoin

It is popularly known as 'digital gold' and it acts as a yardstick for all other currencies. It is one of the most traded cryptocurrencies in India from the year 2008. Like other digital currencies it also possesses market volatility, it also uses proof of work (PoW) mechanism and acts as a store of value, requiring high end computing. Satoshi Nakamoto holds 90% of the Bitcoin with 9,68,000 BTC spread in different wallets. He started this with the genesis chain, which enabled track of the previous transaction, with time stamp. It works by sharing the transactions to every user of bitcoin across the globe anonymously. Users need to send the bitcoin to other user on their bitcoin address excluding their personal information, ensuring that the transactions are valid and recorded in the ledger (**Neha Soni, 2020**).

Altcoin

They came as an alternative to Bitcoin, to overcome the difficulties of speed experienced in Bitcoin trading. They have different consensus mechanism or utility. It is labelled as Ethereum, Solana and Tether. They act not only as a store of value but also provide utility to the trade, especially



in storing values. It is usually addressed as tokens rather than coins; all these are the modified versions of the Bitcoin. Here of PoW is replaced with Proof of stake (PoS).

Ethereum

It is the second player in the market, after Bitcoin. Vitalik Buterin launched it in the year 2013, and now it holds the 2nd largest market cap. Ethereum works purely with smart contracts, which acts different from the bitcoin, making it available to anyone with an internet connection. The total value of Ethereum is at **\$51.944billion** locked in Defi. A new extension has been added to Ethereum to add layer (L2). It is used by the farmers to purchase crops; to launch new payment cards and it is utilized by the users for purchasing different assets, linked to smart contracts.

Ripple and Litecoin

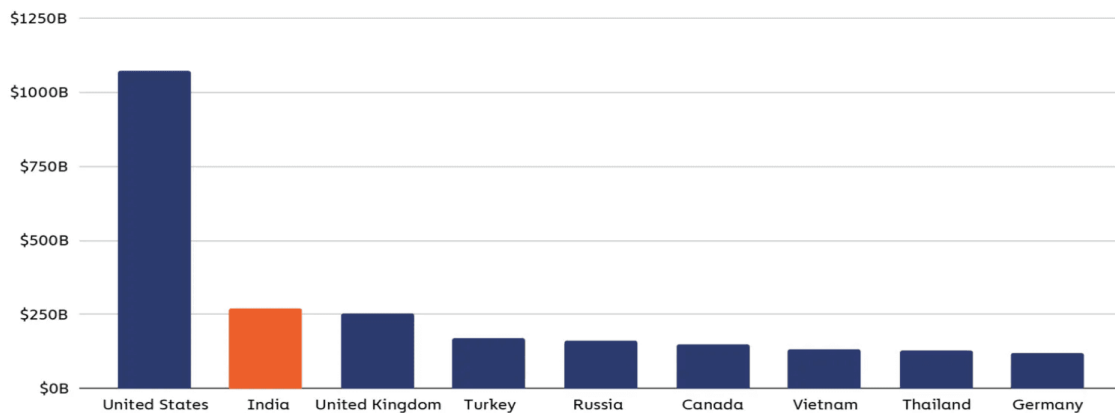
Ripple give more priority to the speed on cross border payments by adopting unique

protocols. It is enterprise graded protocol focusing on larger financial transactions. It depends on XRP mechanism. The Litecoin focus on peer-to-peer transaction, being more economical, it is widely used for day o day transaction proving much faster transaction. Transactions conducted in LTC have a general nature and user can directly swap or exchange in currency, without any need to convert to the fiat currency. The exchange rate stands at $1 \text{ XRP} \approx 0.0248-0.025 \text{ LTC}$. With more privacy enhancements like Mimblewimble.

Stablecoins

They are more like traditional assets that try to reduce the volatility of the cryptocurrencies. These are currencies that can maintain a stable value by pegging to fiat currencies, commodities and instruments, providing more consistency in transactions. There are different classes on this like fiat-collateralized, commodity-backed, crypto-collateralized, and algorithmic. Users should take due care as there exists a third-party auditor.

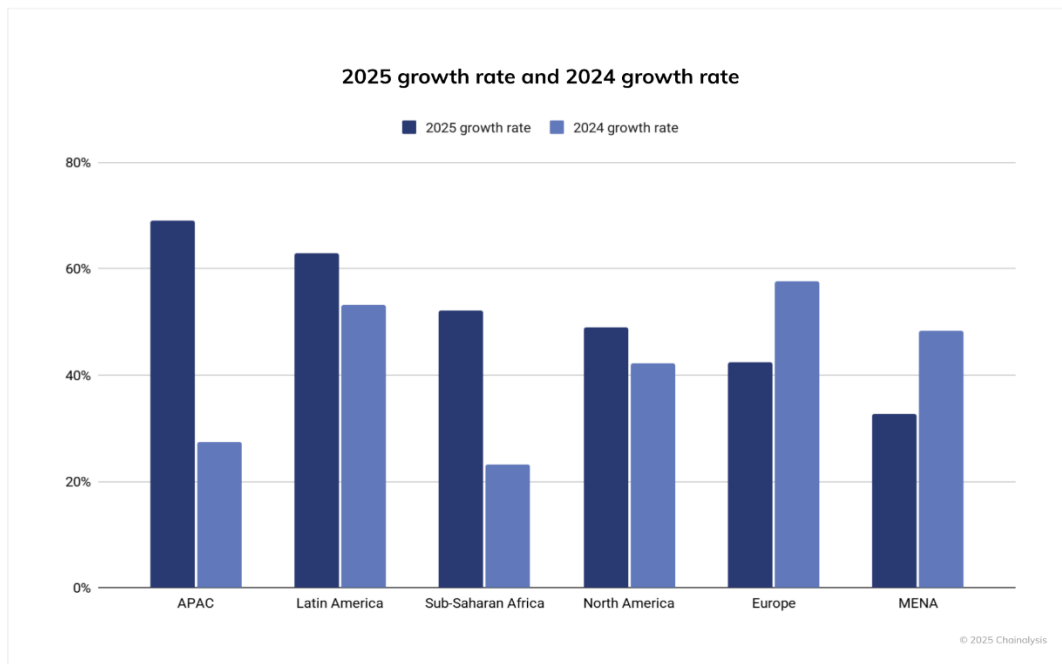
Top countries by cryptocurrency value received, Jul 2022 - Jun 2023



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Source: Market analysis

India has the best number of crypto owners. quite 60% of states in India are emerging as Crypto adopters, with over quite 15 million retail investors



Source: Altcoinbuzz

Challenges faced by the Cryptocurrency in India

Cryptocurrency is gaining popularity in India as a digital currency; it is also getting attention due to the unacceptance of such currency by the Government of India itself is hindering the process of development. Apart from it, the heavy tax levied on crypto which accounts to around 30% is a huge amount as an investor. Worldwide the currency is gaining momentum with majority of its stake being in its owner itself. Even it is claimed that the war between the Iran and America have kept cryptocurrency as a medium for the purchase of equipment's due to the safety ensured by the crypto. Although there are safety measures, but still it is a virtual medium possibility hacking cannot be avoided at any costs.

Unlimited supply of cryptocurrency can have a direct impact on both the fiat money, by disturbing the flow of cash between the demand and supply. This can also lead to increase in inflation, collapsing the whole economic payment system. Monetary system can be influenced by the customers, inducing more amount of virtual money than the real money can be dangerous.

World of Warcraft (Wow) provide platform for the investors to play social games and buy gold in return. It is active in China and developing countries (Shailik Jani, 2018). Cyber security is still a question in India, possibility of hacking and threats on the internet will need a more laws on security on the investment, which now is lacking in

India. Regulatory compliance and climate are still darker making it illegal to trade in crypto in India, instead asking the public to use e-rupee. Impersonation schemes, Ponzi schemes, phishing and scams, frauds are regular in the market, urging the investors to be vigilant in the market. International investment in crypto can even worsen the cross-border transaction, leading to capital flight and weakening the domestic transactions.

III. Conclusion

It is evident from studies suggesting that although cryptocurrency has several backlashes, it is continuing larger in market capitalization. This signifies that the coming years, will be hit by more of the flow of digital currencies. The digital currency can be classified into coins and tokens, tokens are used not only for the payment of goods and services, but it also acts on ERC20, which relies on Ethereum Blockchain (Mukhopadhyay, 2018). Coins are used for the payment of goods and services and to store value on blockchain based on Ethereum and Bitcoin (Wan Nur Izzah Wan Muhamad Fokri, 2021). The trust on cryptocurrency was not established, people relied more on credit cards than the virtual currency. The world is moving in such a direction where fiat money is being replaced by the digital money, as happening in case of gpay, phone pay, PayPal etc. There is wide establishment of cryptocurrency across the globe in a short span of time.



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