

## A CRITICAL OVERVIEW OF POTENTIAL RISKS AND OPPORTUNITIES IN CRYPTOCURRENCY MARKET

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### ABSTRACT

**Introduction:** The financial industry is on the verge of cutting-edge technologies with the emergence of Cryptocurrencies and people are witnessing a constant rise of trend of investments in alternate mechanisms. Cryptocurrency exchanges may be rising drastically but its investment has its own share of challenges and risks. **Objective** – The paper is aimed to discuss the potential of blockchain technology and the way it is applied to the crypto market in India. We will explore major challenges that should be dealt by Cryptocurrencies to achieve wide adoption by the consumers, in terms of cybersecurity issues and trust. **Methodology** – In order to fulfil the above research objectives, this article will be based on secondary data obtained from various research journals, articles, blogs and other online sources. **Results** – Cryptocurrency market has seen tremendous growth over the years, especially in India where a lot of young individuals invested in this option. The prices of bitcoin and other Cryptocurrencies have exploded again and again and brought surprising benefits to the investors. However, the volatility of these digital currencies also comes with some risks as part of combo offer.

**Keywords:** Cryptocurrency market, Bitcoin, cybersecurity issues, blockchain technology, Cryptocurrency, financial industry

### 1. Introduction

Gen Z have instantly adopted Cryptocurrency in India, especially due to what happened over the recent years, such as Indian apps endorsing celebrity promotions, Elon Musk's interest in Dogecoin, and "Gamestop-Reddit Buzz". There are around 15 million investors in Cryptocurrency in India despite the concerns related to long-term viability of Cryptocurrency as an investment option or existing regulatory scene, according to the "Internet and Mobile Association of India (IAMAI)".

The interest in digital currencies has increased with the recent growth in the value of famous Cryptocurrencies like Ether, Bitcoin, and Dogecoin as a viable opportunity for investment. Facilities like "1-click transactions" thanks to Indian apps, convenience, and access to international confidentiality and trade are some of the aspects gaining attention of youth for trading in Cryptocurrencies. But there is always a risk involved in Cryptocurrency, such as sudden spikes in valuation and huge losses. For example, Bitcoin recorded its highest value in April 2021, while it had gone around 4-month low the next month, with over 50% decline in value. Within one week in May 2021, Ether also lost 57% of its value, which was lowest ever since January 2021 (Wilkes et al, 2021).

### 1.1 Background

There are several inspirational stories and benefits related to crypto-investment. Investors still need to look at both sides of the coin, i.e. the risks involved in digital assets. They should ask themselves – how Cryptocurrencies work and what affects their value? How are they different from traditional investment instruments?

Risk managers worldwide are looking at the risks of crypto-trading and the things that should be considered while looking for investment opportunities. For the time being, investors should be careful before conducting any transactions before investing any amount on Cryptocurrencies. They should also understand the loopholes in the crypto world and the root cause of changes in their values. In the end, this knowledge will be helpful for investors to evaluate their potential benefits and risks.

### 1.2 Literature Reviews

**Schipor (2019)** compared two important cryptocurrencies – Ethereum and Bitcoin, to determine the opportunities and risks in the Cryptocurrency market, along with key threats that should be addressed. In addition, the author also evaluated the consequences behind the growth of Cryptocurrencies for both international and national financial systems, bringing the idea of concept associated with

freedom, where a significant change is needed due to the lack of third-party authority and perceptions with premises to change old payment methods.

**Jaffer (2021)** analyzes the existing literature on the impact of COVID-19 on Cryptocurrency and hedging of Bitcoin due to this impact on international financial markets. The author compared the performance of Ethereum, Bitcoin, Tether, XRP and Bitcoin Cash to seven indices and commodities like USD, gold, S&P 500 Index, MSCI indices, SSE index, and economic instability in emerging and global markets to have better understanding on hedging potential during the crisis. It was found that Bitcoin must be a hedge during the financial crisis but its performance shows something else during COVID-19.

**Wang et al (2020)** determine the effect of “economic policy uncertainty (EPU)” on BTC markets that are traded in local currencies. They took the example of Bitcoin against USD and GBP and built the composite indices “BTC/USD” and “BTC/GBP” weighted on value. It is observed that the returns are significantly higher around the days observing highest EPU as compared to the days having lowest EPU. In addition, the EPU raises the trading volume and volatility of BTC in the US after the days of EPU spike, while there is no such trend in the UK. In addition, a spillover effect has been observed for the US EPU over the Bitcoin market in the UK. They also tested dynamic correlation in Bitcoin and economic policy uncertainty with the “Dynamic Conditional Correlation (DCC)-GARCH model”. It is found that economic policy uncertainty in the US on “BTC/USD” is higher than the effect of the same in the UK on “BTC/GBP”.

**Cheng & Yen (2019)** investigate the prediction of Cryptocurrency returns through an EPU index. It is observed that China’s EPU index can predict the monthly return of Bitcoin while that of other Asian countries and the US has no such power. In addition, The EPU index of China cannot predict other major Cryptocurrencies. The returns of Bitcoin have been affected among several Cryptocurrencies due to the ban on crypto-trading in China.

Cryptocurrencies have significantly gained a lot of attention in both research fields and in

practice. A lot of studies have been done on the behaviour of existing crypto-traders. There is no such attention on new users and risks they face. In order to understand the way Cryptocurrency system interfaces impede, support or even avoid adoption among new users to find out better solutions, **Fröhlich et al (2021)** conducted a survey to explore challenges faced by first-time crypto-users. They have found that even widely-used mobile wallets cannot meet the needs of novice users and keep them from engaging with technology. They found various challenges related to UI issues and finance.

**Zhang et al (2021)** investigate potential of earning higher profits by holding crypto assets, despite having increased downside risk. There is a positive “cross-sectional relation” between future returns and downside risk in crypto market as found in both “cryptocurrency-level cross-sectional regressions” and “portfolio-level analyses”. They determined the upside risk premium, source of “downside risk premium”, and inter-temporal association between future returns and downside risk.

**Colon et al (2021)** explored the effect of economic and political uncertainty on the cryptocurrency market. They focused on emerging 25 cryptocurrencies and found a strong hedge of the Cryptocurrency market against geo-political risks. But it could be a safe haven and weak hedge over uncertainty in economic policy.

### 1.3 Research Gap

The Supreme Court in India lifted the ban on crypto-trading in March 2020 that had been implemented earlier by the “Reserve Bank of India (RBI)”. Millions of Indians are now buying virtual currencies, especially through online apps. But the central government and RBI still don’t support Cryptocurrency due to various risks, such as money laundering and financial instability. This article is aimed to explore potential risks and challenges associated with Cryptocurrency, along with opportunities to show the right research direction to increase awareness among Indians.

### 1.4 Research Question

- What are the potential risks associated with crypto-trading?

- What are the opportunities in investments on Cryptocurrencies?

### 1.6 Research Objectives

- To discuss the potential and major challenges of Cryptocurrencies in Indian market

## 2. Research Methodology

Considering the increasing popularity of Cryptocurrencies, blockchain is gaining immense attention from researchers and investors. There has been a significant growth of users of bitcoin wallet, i.e. 65 million by January 2021 (Raynor de Best, 2021). This study is based on secondary data collected from previous studies to extend the discussion on potential risks and opportunities in cryptocurrency for Indian investors.

## 3. Analysis of Study

On the familiar Bitcoin network in a bitcoin transaction, the transaction is submitted by the payer to the network using a “private key” or private ID of the payer. The record of the transaction defines the number of bitcoins to send the public id of the payer, the public ID of the payee, and other details. The Bitcoin network validates and transmits the transaction across the network with several operators of “nodes”. A “miner” of the bitcoin aggregates various transactions in a “block” and conducts calculations to achieve the right to publish the block to the ledger distributed by Bitcoin, which is merely a collection of all earlier transactions.

There are so many service providers that can be availed by participants to operate in a native account-based setup. Some of the service providers also offer their “wallets” for storing private keys and some wallets are used to verify the identity of a participant and some provide trading interfaces without having to know the information of valid transactions. Most of the service providers are simply exchanges to enable clients to transform one digital currency for national currency or for another digital currency.

### Q1 - What are the potential risks associated with crypto-trading?

There are different risks faced by various stakeholders of digital currencies in the trading

cycle, such as non-financial firms, financial institutions, and investors most of the time. Investment risk is known to be the biggest threat from the perception of investors. It means risk of value loss of digital currency is borne by a digital currency investor. There is no specific value of Cryptocurrencies and it could suddenly decline to zero.

Some companies and firms have a positive possibility to several Cryptocurrencies by replacing national money substantially in transactions. Cryptocurrencies are basically costlier to do transactions than a lot of national currencies, making it a huge barrier to replace national currency (considering the costs of transaction paid by both parties). At the same time, there is a low incentive for a lot of users. If Cryptocurrency transaction costs don't fall dearly, Cryptocurrency eventually claims to replace national currency and lose its credibility with weaker sources of value, especially in countries with properly-functioning financial systems and monetary systems like India.

An individual or firm with Cryptocurrencies in portfolio apparently will lose the value if it falls significantly. It is a normal risk related to investment but its novelty makes it more challenging to analyse this risk as compared to that in traditional assets. It is also not easy to estimate expected returns. Hence, it is difficult to analyse the tradeoff between risk and returns. It is also not possible to analyse risk and returns by looking at previous performance of Cryptocurrencies.

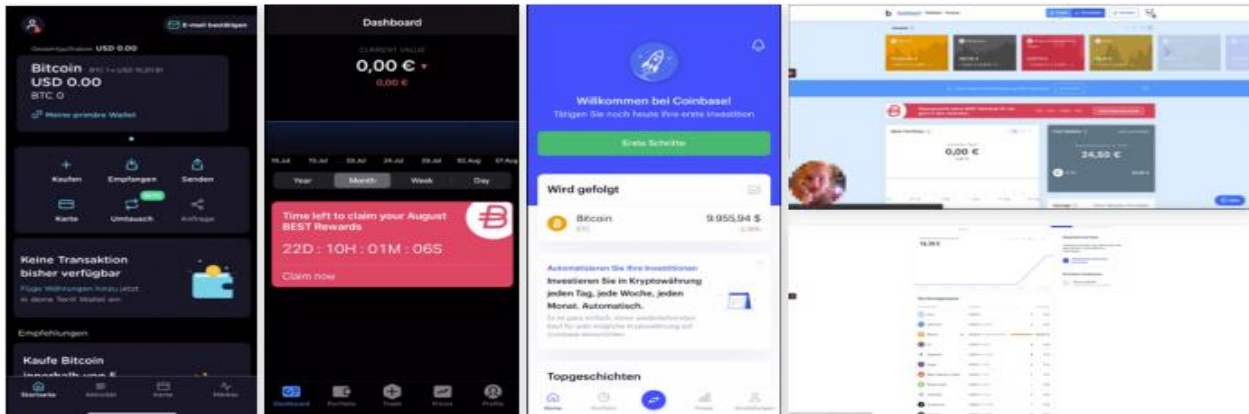
In addition, ownership of Cryptocurrencies is not admissible in the court of law. In case an investor loses Cryptocurrency due to theft or any reason, he wouldn't have any legal recourse. In addition, if transactions are done on different terms than agreed, there would be no legal recourse either. Its tax status is also subject to change country by country. It is not clear whether Cryptocurrency is a commodity or currency due to improper law in India. Reporting requirements are still not clear, despite the fact that Cryptocurrency investment is the matter of “capital gains tax” in India. In addition, optimising investments is also complicated because of poor-quality information related to Cryptocurrencies.



Cryptocurrencies are not easy to deal with, even when important management has been taken out of concern. Fröhlich et al (2021) have tested some of the wallets in a study on novice

Cryptocurrency users and found major challenges they faced while using these crypto wallets (Figure 1).

**Figure 1** – Screenshot of some crypto wallets tested in a study “TenX Mobile, BitPanda Mobile, Coinbase Mobile, Bitpanda Web, and Coinbase Web” (Left to Right)



Source – Fröhlich et al (2021)

Fröhlich et al (2021) found some of the major causes why a lot of mental effort is needed to deal with cryptocurrency -

#### **Users psychologically convert it into “Fiat”**

– Users normally perceive money in the currency of their home country. While spending or buying bitcoin, they constantly get back to using their own currency. Wallets understand this behaviour somehow. For example, the wallets show account balance in fiat currency primarily. When it comes to sending bitcoin, interfaces are more challenging to manage. A lot of users couldn't enter the amount of bitcoin to buy as asked by the merchant, but they entered it in Euros. It can be problematic when the interface interprets the entered amount as bitcoin and users cannot notice. For example, if a user mistakenly sends 15 BTC to someone, it could be an expensive blunder.

**Confusing Exchange Rates** – Since Cryptocurrencies are volatile and decentralised by nature, merchants and wallets constantly use varied exchange rates. It has led to under- or over-payment as users entered the amounts as requested in fiat currency, instead of bitcoin and also turned it into bitcoin with a toggle. The amount of bitcoin sometimes cannot match the requested amount by the merchant due to conflicts in the exchange rate of wallets.

**Complex, Opaque, and Unexpected Fees** – Network fees are an indispensable part of the

overall process of Cryptocurrencies as miners need to be paid for validating transactions. Fees have been recognized as a source of myth to the users in earlier study (Mai et al, 2020). The findings by Fröhlich et al (2021) added another dimension. Along with complexity of network fees, users also have to bear platform fees in the wallets. There are five types of fees users have to consider –

- **Deposit fees** – charged by the wallet for depositing funds.
- **Withdrawal fees** – charged by the wallet for withdrawing funds.
- **Exchange fees** – Charged by the wallet for exchanging currencies.
- **Network fees** – Added to the transaction for miners.
- **Merchant fees** – Added to the purchase price of a product by the merchant.

Lack of transparency related to fees is highly criticised by the users. Majority of users don't understand the fees they are paying and whom they are paying.

#### **Manual and Complex Payment Process**

– Users are shown the purchase amount and address of bitcoin to send it after finishing the checkout. There are no further instructions that are shown for the new users. In addition, users should also understand the concepts related to Cryptocurrency to understand the language which is used by wallets.

**Tedious payment process increases the risk of errors** – Due to missing shortcuts and lack of proper guidance, users are prone to make mistakes due to manual payment processes. They need to switch between apps manually, find the right options to send bitcoins, and copy amounts and addresses across them. It increases the workload, risk of errors, and frustration among the users. There is also a challenge to find the option to send money in the wallet apps. It is tedious to copy value across the apps manually.

#### **Q2 - What are the opportunities in investments on Cryptocurrencies?**

Cryptocurrency market has seen tremendous growth over the past couple of years and has been drawing a lot of young Indians to leverage the benefits of this novel investment option. Crypto prices have exploded over and over again, especially in the case of Bitcoin and brought unexpected benefits to the investors. Losses also should not be overlooked due to the volatility of digital assets. Even though crypto exchanges are on the upsurge, there are certain challenges and risks in this market. The key here is to maintain caution to enjoy the following opportunities in Cryptocurrency market –

**A solid investment option in the long run** – If an investor is looking for investment in the long term, he or she can rely on Cryptocurrencies like Ethereum and Bitcoin. These were introduced with the same objectives for providing benefits to investors in the long term.

**No international restrictions** – Cryptocurrencies are global currencies and they are used without any international boundaries. Their value remains the same across the world.

**Direct control over the funds** – Due to the decentralised nature of Cryptocurrencies, there is no issue of government involvement or any corporate entity. Investors own their own money in this type of investment.

**Round-the-clock availability** – There is no restriction related to timing for investing in Cryptocurrencies like stock markets.

Cryptocurrency is a very promising market which is constantly growing with a lot of opportunities for investors. However, investors should be careful and be willing to deal with

any outcome before dealing with Cryptocurrencies.

#### **4. Results**

Cryptocurrencies like bitcoin were designed on the concept which has no entity to be in charge of an ecosystem. The consensus should be agreed among the miners due to rapidly changing functions of Bitcoin instead of a policy made by a financial authority. This way, Cryptocurrencies are almost impossible to control as compared to other financial products and traditional currencies. However, regulation from countries may increase over time across the world. There are so many regulatory bodies like CTFC, SEC, etc. looking forward to changing the rules in favour of this new asset category. With the rise in volume and scope of regulation, the prices are expected to fluctuate in return. Hence, there could be a great impact of this new regulation on the value of asset class (RSM US).

It is observed that modern Cryptocurrency applications cannot meet the needs of new users. A lot of challenges don't arise from the limitations of blockchain. Interfaces designed considering experts as target users are known to increase the risk of errors and entry barriers for new users. The topic of Cryptocurrency is itself complex to explore. Even moderate users mostly have inappropriate or incomplete information.

Well-designed onboard experiences and adaptive user interface design is very important to improve learning experiences for the users and guide them for more correct and complete understanding. In future research, there is also a need to find out which information is important for users to know to have a functional model of Cryptocurrencies (Norman, 1983). Researchers need to look for strategies and consider users while designing new strategies to find out the right ways. It is also important to convey the platform fees loud and clear to the users. Interfaces should be designed properly with human-computer interaction (HCI) in mind. There is also a need to explain the complex fee structure well.

Wallets should have consistent and simple fee structure and minimise the breakdown of various fees. This process will avoid frustration and shocks and improve long-term investments

from the users. These decisions are also important for the companies to consider in their business model before developing crypto wallets. It is because poor experience and high fees will do nothing but increase competition for developers and make the process confusing for new investors in the long run.

There is also a lack of guidance in merchant interfaces apart from the used language and checkout process that was misunderstood easily by new users. There is also a need to provide proper guidance in simple terms during the checkout process to avoid misunderstanding among the users. Though shortcuts like hyperlinks, QR codes, etc. between wallets and merchants promise smooth user experience, there is a lack of interoperability and adoption. It is important for the merchants and wallets to establish standards to transfer the address and value of transactions properly to reduce both risk and cost of “fat finger” mistakes.

It is important to address various open questions through HCI research. Though manual work can be reduced by shortcuts, there is also a risk of cyber security attacks (Krombholz et al, 2014). Researchers should also find out how to implement the methods of comparing transaction information in cryptocurrencies (Tan et al, 2017). In addition, there is also a need to find out how to present transaction status. There are no common grounds between existing Cryptocurrency systems and it results in conflicting and

ambiguous approaches. It is important to find out how to best display the transaction states and convey the vital information without having information of existing technology.

These suggestions may help in iterative changes of the existing checkout process. But future researchers should also look for ways to make the payment process in Cryptocurrencies smoother. A lot of issues of bitcoin like high volatility, slow transactions, alphanumeric and long addresses, and high addresses are not easy to manage and not ideal for real-time transactions.

## 5. Conclusion

Cryptocurrency is a novel asset class that enables users to transfer “coin” to another user with both digital ledger and encryption, or blockchain. Currently, over 1100 cryptocurrencies are provided and Bitcoin is well-regarded. All such currencies are not similar and most of them are designed with a particular purpose in mind. For instance, Ethereum enables smart contracts and Bitcoin is usually compared with gold. Investors are positive towards Cryptocurrency investors because they grow significantly in most cases. The Cryptocurrency ecosystem is evolving like any disruptive and new technology. Interested investors should not be drawn by volatility and growth only. They should know how these asset-classes work, their use, regulations, and market condition before investing.

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