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Article on

CRYPTOCURRENCY: FUTURE'S INVISIBLE MONEY

BY

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Abstract:

Amid all the chaos in the world, the pandemic is not the only thing that seems to have engulfed the crypto market. The world is currently raving about a massive speculative storm that may or may not become the future of the world economy. Cryptocurrencies emerged as a modern-day economic revolution, which quickly manifested itself as a strong competitor of national currencies. Who knew that what began in 2011 with some anonymous developers could become the source of wealth for hundreds of people across the globe over a decade the impact of this global popularity is such that more & more people want to get on this crypto wagon and get out after making quick but big bucks? Even those who have no idea about investing and its basic concepts are jumping in and pouring money like they too will become millionaires overnight. Moreover, cryptocurrencies are not backed by any government's faith; in fact, it is facing heavy backlash from RBI and government. So, how on earth have they managed to have value? For any currency to be respectfully addressed as a currency, recognized as a medium of exchange, and most importantly, have a value, it has to have certain features. In the past, currencies usually derived their value from being backed by a commodity or from the worth of material from which they were manufactured. But this is not the case with the currencies that we use today or we are planning to adopt as our future medium of exchange. Cryptocurrency is a new, experimental type of money that is neither a commodity nor fiat money. The cryptocurrency experiment may or may not succeed in the end, but it does provide a unique combination of technological and monetary properties that present distinct economic concerns than previous forms of money.

<u>WHAT IS CRYPTOCURRENCY?</u>

"I am prepared to evolve. The question is, are you?"

—Julia Roberts as Mother Nature

Evolution is inevitable. The inefficient and unfit mechanisms are being replaced by a sustainable ecosystem all the time, not only by nature but by us too. The barter system was replaced by gold coins which were further replaced by fiat currency. And today, we further have cryptocurrency, claiming itself to be efficient to replace the existing banking system. Cryptocurrency is something where even great minds like Bill Gates and Jeff Bezos cannot come to a consensus. Some say it will soon take over banks, while others are placing bets on their existence. Cryptocurrency is a way to pay for products and services online. Many corporations have issued their own devices, typically referred to as tokens, which can be specially swapped for products or services provided by the firm. Think of them as tokens or casino chips you would use. To get access to the products or services, you will need to convert actual money for bitcoin.

Cryptocurrencies use "Blockchain" technology. Blockchain is a decentralised system that is spread among multiple transaction management and recording machines. Safety is part of the attractiveness of this technology.

A cryptocurrency is a form of digital or virtual currency that is meant to be a medium of exchange that, unlike the banks, has no one in the middle (which is also known as being 'decentralized') to verify your transactions.[1] It just happens between the receiver and the sender of the fund, which in sophisticated terms, is known as a peer-to-peer system that enables anyone from anywhere to perform a transaction. The system and security of the cryptocurrency are based on blockchain technology and cryptography.

Nearly 4000 cryptocurrencies are floating across the world as of May 2021, with a total market-cap of $2.3 trillion! The popular 'Bitcoin' is the costliest of them all, with a rapidly volatile market-cap.

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[1]   Economic   Times,   https://economictimes.indiatimes.com/markets/forex/forex-news/are-your-crypto-investments-legal-heres-everything-you-need-to-know/articleshow/82259869.cms?from=mdr (last visited June. 5, 2021)

A cryptocurrency is based on blockchain technology which is a chain of blocks that contains time-stamped information of every transaction. It was formulated from the concept of time-stamping digital documents so that it's not possible to backdate them. Think of a block as one of the coaches of a train- it has three basic elements, the information, which will be transaction details in our case, hash of the previous block (unique identity of a previous block or transaction) and another hash, which will be the unique identity of this block or you can think of it as your fingerprint, since you are the one making this transaction.

Like the several coaches of trains are joined to their respective previous coaches by a magnet, in a similar fashion, every unique block (as they are time-stamped) is joined to its previous block which eventually creates a chain of blocks. Now, would you be able to replace a train's coach with a truck? Well, you won't be able to do so as the structure of a truck does not match the structure of a train's coach and eventually, the train won't move. Similarly, when you try to tamper the details of a particular block, the entire chain of blocks becomes invalid.

In addition, after successfully verifying a block of transactions, the network pays verifiers with a set quantity of coins. The process of "mining" is used to increase the number of Bitcoins available on a network, and the problem of changeability assures a pace of expansion which remains unaffected by computational progress. The marginal mining costs tend to balance the marginal profit, as one might predict. In the case of Bitcoin, the mining incentive is halved every 2,10,000 blocks validated, resulting in a first positive derivative supply route which decreases to zero constantly in time. Alternative cryptocurrencies have adopted a wide range of supply strategies, some of which are covered in the following sections.[2] A history of crypto-transactions on the network from the block it was made of defines it. The input of each transaction corresponds to the output of a previous transaction. Every computer on the network keeps track of this history in a constantly updated record known as the "blockchain" - a chain of trading blocks that is supplemented with newly verified blocks. Because of the reason that transaction data is public, the only way to retain anonymity is to keep the account owners' identities hidden. If various users have rival blockchains - for example, when two transactions have been received by distinct users in different orders, or the protocol specifies restrictions where only one is accepted, when someone tries to falsify a transaction. It is safe, particularly as the use of the protocol is increasing. Bitcoin and its offspring will have the longest, i.e., the

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[2] Christian Catalini, Blockchain Technologies & Cryptocurrencies: Implication for Digital Economy, Cyber Security and Government, 19, Georget. J. Int. Aff. 36, 6 (2018), http://www.jstor.org/stable/26567525

most powerful computer. In order to make a transaction counterfeit, an attacker must guarantee that their blockchain is longer than the actual transaction, which requires more computer power than the entire number of honest nodes.

We can rest here on some frequent misunderstandings concerning cryptocurrencies. First, copycat currencies (altcoins) cannot proliferate inflationary unless every protocol is a perfect substitute for every other protocol. Whether or whether they are technically interchangeable, network benefits are intended to prevent copycat protocols from displacing or competing with existing protocols until they provide evidence-based advantages. Holding numerous cryptocurrencies comes with the technical discomfort of functioning on several disjunct protocols, as well as the extra calculational annoyance of the currencies floating in value against one another.

Second, while the protocol may be specified freely in software, it cannot be modified after it has been established. Once a protocol is in use, maintaining its integrity is dependent on the creators' continuous faith. Upgrades must be persuaded by each user. The fact that most customers would adopt a new software version because of their confidence in the development team" does not ever make the Bitcoin-development team "the de facto central bank of Bitcoin," as Reuben Grinberg claims[3]. In truth, the bank of issue is a larger category (private, non-central banks have also produced money in the past), a safer assertion, yet incorrect. A banking capability of a new currency that is unlike (or has the same legal-tenant status in the event of a central banking) the old currency and so collects seigniorage is its power. The developer team of Bitcoin does not have this authority. In view of open-source cryptocurrency track records, trust might be justified in the developers as a result of their continued trustworthiness: a malicious update will be easily identified and ignored.

BLOCKCHAIN TECHNOLOGY AND CRYPTOCURRENCY

The current surge in interest in blockchain technology and cryptocurrencies has been linked to a basic misunderstanding of the potential and difficulties presented by this new wave of technological revolution. As with earlier big technology shifts, there is a great deal of

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[3] Grinberg, Ruben, Bitcoin: An innovative Alternative of Digital Currency, 4, Hastings Law J. 160, 20 (2011), http://ssrn.com/abstract=1817857

ambiguity regarding how effective implementations of the underlying principles will appear once the initial period of scientific and entrepreneurial exploration is over. Furthermore, because such uncertainty is inherently unquantifiable, early adopters, entrepreneurs, and investors have divergent and even incompatible ideas about the future in comparison to the rest of society. The technology generates a considerable amount of criticism, concern, and, if it reaches a significant size, opposition by challenging core assumptions underpinning how domain experts and incumbents read and respond to the environment, as well as by attacking established business models and institutions. Conflicting motivations exacerbate the divide between enthusiasts and sceptics, with enthusiasts exaggerating the technology's short-term impact and sceptics underestimating its long-term consequences. While sceptics tend to overlook the extent to which the technology will improve as a result of recent investments in research and development by start-ups and academic labs, believers overlook how much market demand, pre-existing frictions, and incumbent institutions' responses will shape the technology's evolution.[4]

The objective of blockchain is information exchange. Any information provided is open to anyone in a public blockchain or is confined to a small group of private blockchain users. However, once the information is placed into the block, any node working in the system can access it. In a public or shared blockchain, this might lead to the disclosure of crucial competitive information. If that happens, then the exchange of pricing, discounts and list of customs, production cost, turnover, sales and other market-sensitive information among rival enterprises may result in coordination. This might result in violation of anti-competitive agreements under section 3 of the Competition Act, 2002[5].

Implications for the Digital Economy

The fact that there are many ways to apply blockchain technology, each with its own set of trade-offs in terms of efficiency, reliance on current intermediaries, and governance, has contributed to the confusion. At its most basic level, blockchain technology enables a network of economic agents (e.g., individuals, businesses, and gadgets) to establish consensus on the real status of certain jointly stored and shared data at regular intervals. Exchanges of cryptocurrency (as in Bitcoin) and other forms of digital assets may be represented by such

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[4] Christian Catalini, Blockchain Technologies & Cryptocurrencies: Implication for Digital Economy, Cyber Security and Government, 19, Georget. J. Int. Aff. 36, 6 (2018), http://www.jstor.org/stable/26567525
[5] Competition Act, 2002 § 3.

shared data, making the technology accessible to a variety of industrial and public-sector sectors. Blockchain technology in terms of the economy is connected to decrease costs in two areas: transaction verification costs and digital platform building and management expenses. This reduction in cost results from a clever blend of cryptography and game theory, along with heavy reliance in economic incentives for ensuring the co-ordination and processing of transactions by a decentralised network of economic agents without excessive market control and supervision of business entities.

Blockchain technology, at its heart, provides a unique means to coordinate economic activity on a global scale and establish "Internet-level consensus" because of its capacity to promote the establishment of consensus on the real status of transactions and data without depending on traditional intermediaries. This is both an opportunity and a challenge, because the economic incentives contained in a blockchain protocol may have a huge positive or negative influence on society and markets, depending on what they are intended to incentivize.[6] The same privacy-enhancing features of technology that may give customers more control over their digital lives and limit the effect of data breaches may also be used to support criminal activities like money laundering, terrorism, and tax evasion. Similarly, while technology can promote global commerce and boost financial market openness and competitiveness, it may also enable regulatory arbitrage and make it more difficult to enforce economic penalties on people and governments. Blockchain technology unbundles part of traditional businesses, reduces barriers to new kinds of intermediaries, and allows new types of digital markets to be created, replacing confidence in an intermediary with confidence in the software protocol incentives, the code and governance. Such a change as intermediation has consequences for the structure of the market since it makes a market possible without giving a disproportionate market power to a single company (or a small group of entities). Increased competition may weaken incumbents' income models and disrupt established institutions by limiting the function that a single organization—including the government—plays in the economy.

Implications for Cybersecurity

Blockchain technology drastically affects the economics of cybersecurity and data privacy by lowering the amount of confidence that transacting parties must place in intermediaries and the quantity of information that must be given for a transaction to take place. The technology

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[6] William J. Luther, Bitcoin and The Future of Digital Payments, 20, Indep. Rev. 397, 7 (2016), http://www.jstor.org/stable/24562161

enables safe transactions and data exchange without creating a single point of failure or a big repository of personal and sensitive data, much as it lets digital marketplaces function without allocating market power to a single platform operator. This architecture is more akin to the Internet's original design, which was intended to increase survivability in the event of an assault. Many internet services are now fairly centralized as a result of economies of scale and network effects.[7] Denial-of-service attacks on Internet domain services provider Dyn, which disrupted access to major news websites and Internet services by affecting web traffic routing, and the large-scale Amazon cloud outage caused by an engineer's typo in 2017, which cost Standard & Poor's 500 index firms at least $1 billion, are recent examples of the risks introduced by centralization. Efforts to use blockchain technology to decentralize domain name resolution (e.g., Block stack), computing (e.g., Ethereum), and file storage (e.g., File Coin) if successful would increase competition in the market for these services while also improving their resilience to hacks, outages, and bugs.

Because a single repository of data, certificates, or identity identifiers cannot be compromised, the cost of an attacker influencing a large number of people or accessing vast volumes of data increase with decentralised blockchain protocols. To steal bitcoins, thieves would have to breach the systems and digital wallets of each holder. Ironically, even though Bitcoin allows users to have complete custody and control over their assets, they frequently rely on third-party digital wallet services and exchanges for convenience, reintroducing a single point of failure into the system: when all MIT undergraduates were given access to Bitcoin in 2014, 71% chose a bank-like digital wallet hosted by an intermediary.

While the Bitcoin protocol has shown to be relatively resistant to cyber-attacks over the years, multiple exchange hacks have resulted in the theft of a significant number of bitcoins. This illustrates a significant trade-off between the demand for increased functionality and ease when accessing digital assets and the necessity for decentralized custody. Although decentralized exchanges (e.g., Ox, Ether Delta, Omega One) and hardware wallets (e.g., Ledger, Trezor) may help bridge some of this gap, users will continue to prefer centralized services until decentralized ones can equal them in terms of speed, simplicity of use, and other features. In the long run, security economies of scale may render decentralized approaches to custody less efficient in marketplaces where the cost of depending on an intermediate is low enough. Cases,

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[7] Zachary K. Goldman, Ellie Maruyama, Elizabeth Rosenberg, Edorado Saravalle, Julia Solomon-Strauss, Terrorist use of Virtual Currencies, 17, CNAS. 25, 4 (2017), http://jstor.com/stable/resrep064237

when the technology must function on the presumption that the cyber environment or institutions have already been compromised or can be hacked by both internal and external players, will be an important exception. To function in a disputed cyber environment with little mistrust among transaction parties, Bitcoin relies on economic incentives. This is in contrast to systems that rely on identification and credentials to govern access to resources and data, or that offer security by defending a perimeter. Blockchain protocols, which are built on carefully constructed economic incentives, can continue to operate even when traditional, offline institutions are weakened since they can coordinate economic activity around a given goal without the use of intermediaries.

RBI STANCE ON CRYPTO TRADING

As cryptocurrencies became popular in India for the first time in 2016-17, technologically sound individual investors rushed on board. However, some investors took advantage of it and used it to fuel illegal operations. Since cryptocurrencies were still in their infancy at the time, RBI had yet to figure out how to regulate them. To combat the surge in illegal activities, RBI implemented policies that it deemed to be the most effective during the time.

In the year 2018, A public declaration by the Ministry of Finance says:

"The Government does not consider Cryptocurrencies "as Legal Tender or Coin" and will take all measures to eliminate the use of these Crypto Assets in Financing "Illegitimate Activities" or a Part of the Payment System. The Government will explore the use of Blockchain technology proactively for assuring in the Digital Economy."[8]

After this, the RBI also issued a circular which suggested all the institutions governed by them to stop offering any kind of services related to crypto trading. The government was never anti-technology; its goal was to prevent the misuse of cryptocurrencies and blockchain technologies. The Finance Ministry's statement made no mention of the prohibition on purchasing, trading, or keeping cryptocurrency. They stated that they are taking steps to prevent cryptocurrency from being used to finance illicit activities, which is a significant step toward a healthy crypto environment. Furthermore, they stated that it is not a component of the payment system. They

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[8] Reserve Bank of India, Prohibition on Dealing in Virtual Currencies (V. C's), RBI/2017-18/154 (issued on April 6, 2018)

never declared that cryptography cannot be used to buy or sell products, but never said that it cannot be retained as an asset.

By 2020 Indian authorities have been driven to rethink the successes made by crypto regulated nations like the United States, Singapore and others. As a consequence, the RBI's circular from 2018 was revoked by the Supreme Court of India, allowing banks including HDFC Bank, Yes Bank, ICICI Bank, and the State Bank of India to Continue their Bitcoin exchange transactions.

India has already jumped on the cryptocurrency bandwagon a few months in. We were returning to the market at a period when every day the stock market sank and cryptocurrencies rose one by one.

It did not take long to set itself up as a credible financial choice for cryptocurrencies. The Government announced the creation of a new crypto law because of the rising use of cryptocurrencies.

People predicted that the measure would be anti-cryptocurrency even before it was introduced. However, Finance Minister Nirmala Sitharaman clarified the situation, saying:
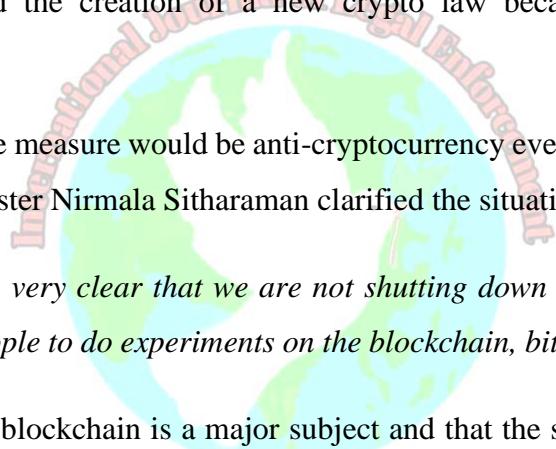
"From our side, we are very clear that we are not shutting down all options. We will allow certain windows for people to do experiments on the blockchain, bitcoins, or cryptocurrency."

She acknowledged that blockchain is a major subject and that the success of fintech depends on those projects. She also claimed the competitive advantage of India.

"A lot of fintech companies have made a lot of progress on it. We have got several presentations. Much work at the state level is happening, and we want to take it in a big way in IFSC or Gift City in Gandhinagar,[9]" she added.

The Indian government is considering introducing a new bill titled *"Cryptocurrency and Regulation of Official Digital Currency Bill, 2021"* (the "New Bill"), This, although identical in spirit to earlier versions, seeks to prohibit private cryptocurrencies within India with specific exclusions to encourage underlying cryptocurrency technology and trade and to offer a framework for the establishment of new cryptocurrencies. The new Act understands the grey

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[9] India Today, https://www.indiatoday.in/business/story/not-shutting-all-options-on-cryptocurrency-says-finance-minister-nirmala-sitharaman-at-india-today-conclave-1779328-2021-03-15 (last visited June 6, 2021)

area of cryptocurrency rules and wants all private coins to be declared prohibited. It is unclear, however, if all forms of cryptocurrencies are covered by the private cryptocurrency.

The Reserve Bank of India has warned the public in a wide range of ways about the possible abuse of private cryptocurrencies. However, if the new bill imposes a complete ban on private cryptocurrencies, it would force investors to invest and trade in unregulated markets. In addition, the purpose of virtual currency laws is to make it simpler for us in a safer technological environment to handle and maintain virtual currency/cryptocurrency. The risk element connected with cryptocurrency investments and ownership will remain the same even with the advent of a government-owned cryptocurrency which is managed by the RBI.

Furthermore, according to the most recent modifications to Schedule III of the Companies Act, 2013[10], In the next financial year, the Government of India obliged corporations to register their stakes in cryptocurrencies. This means that companies must report the value of their holdings and the details of any deposits or advances received for trading or investment in crypto-currency/virtual currency in respect of crypto-currency or virtual currency transactions or of the losses. This decision was welcomed with open arms by people working in the crypto market as all the Indian companies are assumed to be able to hold Bitcoin on their balance sheets.

THE LEGALITY OF CRYPTO TRADING IN INDIA

The cryptocurrency business has flourished in India and the excitement of regular investors is pouring fuel to the fire. The number of crypto investments is predicted to rise by 10 million in India.

While many Indians enthusiastically support cryptocurrencies, one piece of disinformation is preventing many more from doing so. People mistake the fact that cryptocurrencies are unregulated for the fact that they are unlawful.

Cryptocurrencies are not unlawful, and anybody may purchase, sell, or exchange them. It is currently uncontrolled; we do not have a regulatory framework in place to oversee its operation. The Indian government, on the other hand, is looking to regulate cryptocurrency. Meanwhile,

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[10] Companies Act, 2013, s 3.

some of the crypto exchange platforms helped the state and investors by self-regulating and mandating full KYC control for all its investors.

Case law

In the case of _Internet and Mobile Association of India Vs. Reserve Bank of India_[11], the verdict was given in favour of the crypto-industry. The 180-page ruling, which refers to more than 50 judgments from across the world, has not only confirmed the legality of cryptocurrencies in India but is also likely to create a precedent (as a reference) for many other nations, particularly developing nations.

The court ruled that,

1. Reserve Bank of India is the country's central bank, and the Banking Regulation Act, 1949[12], RBI Act, 1934[13], and the Payment and Settlement Systems Act, 2007[14], collectively acknowledge and confer very wide discretion upon RBI, namely to use the country's currency and credit system to its benefit.
2. According to the court, the Reserve Bank of India failed to prove that trading in cryptocurrencies or providing services related to crypto trading caused any hindrance or damage to the banks or agencies.
3. It also stated that no flaws in the operation of cryptocurrency exchanges had been identified and that cryptocurrency trading was not prohibited.
4. The financial system was also found to be a lifeline for virtual currency exchanges, according to the court.[15]

This has triggered the spark among the individuals who wanted to trade in cryptocurrencies as well for the businesses that went out of operation because of the RBI's reluctance to initiate dealing in cryptocurrency.

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[11] Internet and Mobile Association of India Vs. Reserve Bank of India, (2020) 10 SCC 274
[12] Banking Regulation Act, 1949 § 35A (1).
[13] Reserve Bank of India Act, 1934 § 45(J)A, 45(L).
[14] Payments and Settlements Systems Act, 2007 § 10(2), 18.
[15] Bloomberg Quint, https://www.bloombergquint.com/opinion/decoding-the-supreme-courts-cryptocurrency-judgment (last visited June. 5, 2021)

CONCLUSION

Well, there could be some major advantages of crypto as the future of money. A cryptocurrency's value cannot be manipulated like fiat currency. In the future, our transactions at shops and malls are likely to be handled by systems, as cryptocurrency will remove many of the intermediaries like banks who take their cut for the transactions. Over time, it remains to be seen how established financial institutions would pivot themselves.

There is no doubt that digital currency is the future. Some governments are also trying to work on their own digital money, including India. There have even been reports of RBI planning to introduce a digital rupee soon, and that has better odds of outlasting cryptocurrencies. It seems difficult, as of now, that Bitcoin or any cryptocurrency can entirely replace the whole banking system.

However, co-existence can be the most practical solution. Here, the seller accepts cryptocurrency from the buyer and on a real-time basis converts it into fiat currency. This is what companies (who've adopted cryptocurrencies as a payment method) are doing. So, the adoption of cryptocurrency with proper hedging techniques can be an ideal and viable option.

In India, a number of start-ups have emerged such as Unocoin in 2013 and Zebpay in 2014. (Tracxn, 2019). But Bitcoin price volatility and fraud incidents have highlighted regulatory issues, says RBI. Both the Government and RBI have declared that they have not authorised or established a rule for any firm dealing with cryptocurrency[16]. Moreover, having many cryptocurrencies in the market will not lead to a single medium of exchange that can be used as a unified mode of payment thus RBI should work on single common crypto for the entire nation. The steps taken by the Government of India and the follow-on work at RBI will be eagerly awaited. If done well, it may turn out to be a big transformational driver for spurring growth at a massive scale that India needs.

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16

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