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The Case for Regulating the Use of Cryptocurrency in India

A paper by

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Executive Summary

The draft Cryptocurrency and Regulation of Official Digital Currency Bill 2021, which is likely to be introduced in the Budget session of Parliament, will ban all private cryptocurrencies and introduce a framework to develop an official digital currency in India. The ban will prohibit people from using, buying or selling, cryptocurrency; bar companies to provide cryptocurrency-related services to consumers or investors which includes registering, trading, settling, clearing or other services; and any other use of cryptocurrencies.

From a public policy standpoint, there exists an engrossing debate on the legal status of cryptocurrency worldwide, with some countries regulating its use while others completely banning the new technology due to concerns about illicit activities and safety of investors. However, a sound regulatory framework, as adopted in many advanced jurisdictions can help resolve these issues. Regulation supports the growth of crypto exchanges, which can help protect the wealth of investors by improving liquidity in the market, and establish transparency and accountability to the State by ensuring compliance with Know Your Customer (KYC) norms and Anti-Money Laundering (AML) standards. In India's case, a complete ban on the use of digital currencies will impact approximately seven million investors that own cryptocurrencies worth over a billion dollars.[1] Therefore, a thorough assessment is imperative to understand the implications a future law may have on markets and society. This paper aims to present a case for regulating private cryptocurrencies in India on account of the following:

- Bans in India have often led to creation of a shadow market, with adverse implications for the domestic industry. The prohibition on the use of drones and the import of gold are two prominent examples. By extension, a ban on cryptocurrency may have similar consequences because it is technically impractical to stop its inflow due to its decentralised nature.

- A ban on cryptocurrency impinges on the right to freedom of trade and occupation under Article 19(1)(g) and the right to privacy under Article 21. It also fails to meet constitutional tests of reasonableness and proportionality under Article 14. Thus, the proposed prohibition on cryptocurrency is unconstitutional.

- Less developed countries like Nepal, Algeria and Bolivia have completely banned the use of cryptocurrencies. However, technologically sophisticated and financialised nations like the US, Japan, and Singapore have resorted to regulating cryptocurrencies through sound KYC, AML and countering the financing of terrorism (CFT) norms. India should adopt a similar approach if it hopes to stay in sync with these jurisdictions and advanced international practices.

- Tokenization is an integral part of a public blockchain's value proposition and incentivises people to maintain its integrity and develop it further. Tokenization also encourages innovation by facilitating operations of decentralised applications (Dapps). However, the proposed bill classifies any token as cryptocurrency. Therefore, a ban on cryptocurrency will also bring tokenization to a close.

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[1] Business Today, 2021. Cryptocurrency bill: Individuals, corporates to be fined for using digital money. Available at: https://www.businesstoday.in/current/economy-politics/cryptocurrency-bill-individuals-corporates-to-be-fined-for-using-digital-money/story/431004.html

- Cryptocurrency has contributed to the evolution of computer hardware in order to accommodate the computationally intense work of generating codes, which is now done at data centres. This creates an opportunity for India to develop into a global data centre hub, as envisioned by the Ministry of Electronics and Information Technology (MeitY).

- Fundraising activities conducted in traditional currency are less transparent and costly due to high transaction charges. Cryptocurrency is uniquely well positioned to resolve these issues.

- Cryptocurrency can promote international trade via measures like cross-border G2G, G2B or B2B cooperation in data exchange, detecting counterfeit currency and eliminating intellectual property theft, among others. Besides, it can ameliorate international payments by reducing time and cost through negligible transaction charges and simple clearing and settlement mechanisms.

- A regulated crypto industry can help generate additional income for the Government by licensing exchanges, imposing capital gains tax if it is treated as an asset. Alternatively, the government can charge a transaction fee if it categorises crypto as a medium of exchange.

- Crypto startups have the potential to grow exponentially and strengthen India's position as a hub of technology startups and drive innovation in the country. Besides, it can help digitally upskill the country's workforce.

- India is home to the second largest unbanked population in the world, which impedes access to credit. Cryptocurrency can enhance financial inclusion by enabling easy access to formal credit through microlending. Further, as internet is accessible to larger swathes of population, cryptocurrency can be a more efficient way to transfer funds without a bank account, especially remittances.

- Lastly, cryptocurrency like Bitcoin is found to be a superior investment option than legacy market indices like NIFTY 50 and SENSEX. It offers a higher return for each unit of risk undertaken by investors. Investor education programmes, in addition to hedging instruments/tools like derivatives and stop-limit, can make cryptocurrency a safe investment alternative, improving liquidity and depth of the market.

Introduction

A cryptocurrency is a method of creating virtual "tokens"[2] and providing for their secure ownership and transaction using a cryptographic problem,[3] which is designed to be easy to verify but difficult to compute.[4] The difficulty of this problem is adjusted routinely, depending on the total computing power of the network. This method allows transactions to be verified as unique and reliable. The network also rewards users with a certain number of coins after verifying a block of transactions. This process is known as "mining."[5] The total supply of certain cryptocurrencies is limited and pre-defined. For instance, in the case of Bitcoin, a maximum of 21 million tokens can be generated.

The advantage of cryptocurrencies is that they enable a reliable transfer of value over the internet by preventing double-spending[6] – a problem where the same digital token or cryptocurrency is spent twice. The consensus mechanism[7], which necessitate miners to validate each transaction, ensure the system's integrity by precluding double-spending of tokens. Cryptocurrencies and trading platforms are thus emerging as potential tech majors of the future. For instance, a decentralized social network is already being built on the Ethereum network, Amazon and Facebook plan to launch their own digital currencies, and MasterCard also plans to introduce cryptocurrency to its network.

The increasing growth of cryptocurrencies has brought the spotlight on their regulation. A primary challenge in the regulation of cryptocurrencies is determining what exactly they are. While cryptocurrencies possess some attributes of cash, currency, property and securities, it is difficult to neatly categorise them into any one of these categories. Due to this complexity, there exists no global consensus about their definition or treatment.[8] Most countries are still evaluating their regulatory responses to the rise of digital currencies.

The countries that permit the use of cryptocurrencies either categorise it as an asset, or as a medium of exchange. For example, the Canada Revenue Agency (CRA) has characterised cryptocurrency as a digital asset, that works as a medium of exchange for goods and services between parties who agree to use it.[9] The USA's Internal Revenue Service (IRS) defines virtual currencies as "commodities."[10] Japan's Payment Services Act, 2009 defines cryptocurrency as property value that can be used to purchase or lease goods, or that is mutually exchangeable for such value.[11]

However, countries such as Estonia recognise cryptocurrencies as a value represented in the digital form, which is digitally transferable, preservable or tradable and which natural

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[2] A token is a digital representation of any transferrable asset in the blockchain ecosystem.
[3] Cryptographic problem is any form of data or information encrypted using a hashing algorithm.
[4] Harwick, C. (2018) Cryptocurrency and the Problem of Intermediation. Accessible at: https://www.jstor.org/stable/44000162
[5] Ibidem
[6] Reddy, J. (2019). The Case For Regulating Crypto Assets. Available at: http://ijlt.in/wp-content/uploads/2020/11/IJLT-152-125-169.pdf
[7] It ensures that any changes made to the blockchain are agreed upon by all the nodes. This helps deter double spending of cryptocurrencies.
[8] Groden, C.; Saravalle, E. and Solomon-Strauss, J (2018). Unchartered Waters, A Primer on Virtual Currency Regulation Around The World. Available at: https://www.jstor.org/stable/resrep20458
[9] Canada Revenue Agency (2019). Guide for Cryptocurrency Users and Tax Professionals. Available at: https://www.canada.ca/en/revenue-agency/programs/about-canada-revenue-agency-cra/compliance/digital-currency/cryptocurrency-guide.html
[10] Supra note 4 at 18.
[11] Article 2(5), Payment Services Act, 2009.

persons or legal persons accept as a payment instrument that is not legal tender.[12] Latvia also follows a similar approach, recognising cryptocurrency as a contractual means of payment that can be used in transactions of exchange.[13]

These divergent approaches reveal the complexity involved in regulating cryptocurrency. The Indian government has listed the Cryptocurrency and Regulation of Official Digital Currency Bill, 2021 in Parliament, which aims to ban trade in all 'private' cryptocurrencies and prohibit intermediaries like crypto exchanges to operate.[14] Crypto exchanges facilitate trade in digital currencies and allow investors to buy, sell and hold them. They play a valuable role by providing liquidity to the market and ensure transparency in operations. In this paper, we discuss the need for India to regulate the use of cryptocurrencies in order to capitalise on the potential of this technology, and encourage innovative solutions to resolve some of the long-standing issues that the country faces.

A sound regulatory framework can foster innovation and develop the digital currency market, while restraining illegal activities. We discuss why regulating cryptocurrencies should be the way forward in India.

Section I: Ban on Cryptocurrency

Bans have often led to unintended consequences

India has a history of banning goods/services that exemplify innovation in new markets. Such bans often lead to unintended consequences, which include large revenue losses to the government that impact the livelihoods of people, and have had severe implications for industries, forcing them to enter illegal markets.[15,16]

A recent example of such a ban was on the use of drones in India in 2014.[17]It effectively clipped the wings of a nascent domestic industry, while people continued to use them in defiance of the ban.[18] Moreover, access to drones was not significantly obstructed since they were sold as toys on online and offline markets. The regulation did whittle down domestic drone innovation to a few academic projects and police applications. Meanwhile, Chinese companies such as Da-Jiang Innovations (DJI) manufactured recreational drones during 2014-2018 at scale and now command 70 percent of the global market. They have also diversified into end-to-end drone management services such as photo and video editing

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[12] Section 3(9), Money Laundering And Terrorist Financing Prevention Act. Available at: https://www.riigiteataja.ee/en/eli/517112017003/consolide

[13] PricewaterhouseCoopers (2018), Global Cryptocurrency Boom: Latvian Tax Treatment. Available at: https://www.mindlink.lv/en/topical/cryptocurrency_1_en/

[14] Bloomberg Quint (2021). New Bill to Ban All CryptoCurrencies Except Official Digital Currency by RBI. Available at: https://www.bloombergquint.com/economy-finance/new-bill-to-ban-all-cryptocurrencies-except-official-digital-currency-by-rbi

[15] Business World (2014). Prohibition Has Never Worked. Available at: http://www.businessworld.in/article/Prohibition-Has-Never-Worked/08-11-2014-75763/

[16] The Hindu BusinessLine (2018). Moralistic bans can really hurt the economy. available at: https://www.thehindubusinessline.com/opinion/moralistic-bans-can-really-hurt-the-economy/article21963075.ece1

[17] India Today (2014). Civilian drones banned in India: Report. Available at: https://www.indiatoday.in/technology/news/story/civilian-drones-banned-in-india-report-222975-2014-10-13

[18] The Hindu (2014). Drones fly in Mumbai despite DGCA ban. Available at: https://www.thehindu.com/news/national/drones-fly-in-mumbai-despite-dgca-ban/article6720004.ece

software.[19] In 2018, India realised that a blanket ban was ineffective and resulted in a missed opportunity for the domestic industry. Hence, it introduced a regulatory framework to govern the use of drones in the country. Similarly, in the pre-liberalised era, India tried to ban the import of gold. However, after several years of trying to clamp down on smuggling, the government had to withdraw the ban.[20]

A prohibition on cryptocurrency may have similar repercussions for the digital currency industry. Due to the decentralised nature of the technology and the ease of transferring cryptocurrency using the public key, it is technically impractical to stop the inflow of cryptocurrency from abroad. Every cryptocurrency user has a public key and a private key. Since the former is accessible to everyone, people can receive cryptocurrencies from anyone on the web.[21]

Additionally, the underlying blockchain of a cryptocurrency is replicated on millions of computers worldwide, with mining and nodes distributed across geographies.[22] Therefore, any attempt to prohibit the use of digital currencies would only hinder the growth of the domestic industry and push investors/traders into illicit markets. Besides, a sound regulatory framework can help reduce crypto related frauds.[23] Suitable guidelines for exchanges, for instance mandatory Know Your Customer (KYC) process, can help protect against losses.

Ban on cryptocurrency is unconstitutional

Various fundamental rights apply to the use of cryptocurrencies in India, such as the right to carry out trade and business under Article 19(1)(g). Individuals whose professions entail mining, buying and selling as well as bartering cryptocurrencies are arguably covered under the ambit of these rights.[24] In *IAMAI v RBI*,[25] the Supreme Court of India ruled that (i) individuals who buy and sell virtual currencies as an occupation, and (ii) cryptocurrency exchanges, can invoke Article 19(1)(g).[26] The Court extended the protection under Article 19(1)(g) only to those buying and selling cryptocurrencies as a "trade or business" (i.e., where a profit motive definitely exists), and not to those doing so as a "hobby" (i.e., where profit motive may or may not exist).[27]

However, a ban could also go against the fundamental rights of those who do not deal in cryptocurrencies as a hobby. In *KS Puttuswamy v Union of India*[28], the Supreme Court

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[19] The Economic Times (2019). Drones in India: weighed down by regulation, sector struggles to find wings. Available at: https://economictimes.indiatimes.com/small-biz/startups/newsbuzz/drones-in-india-weighed-down-by-regulation-sector-struggles-to-find-wings/articleshow/72912821.cms?from=mdr

[20] Shah, A. (2021). Crypto currencies and conventional currencies will both evolve. Available at: http://www.mayin.org/ajayshah/MEDIA/2021/crypto.html

[21] Live Mint (2021). What are private and public keys in Bitcoin. Available at: https://www.livemint.com/money/personal-finance/what-are-private-and-public-keys-in-bitcoin-11610452126516.html

[22] Bitnodes (2021). Global Bitcoin Nodes Distribution. Available at: https://bitnodes.io/

[23] The Hindu BusinessLine (2018). To prevent fraud, cyber experts want bitcoins to be regulated. Available at: https://www.thehindubusinessline.com/money-and-banking/to-prevent-fraud-cyber-experts-want-bitcoins-to-be-regulated/article9711777.ece

[24] Reddy, J. (2019). The Case For Regulating Crypto Assets. Available at: http://ijlt.in/wp-content/uploads/2020/11/IJLT-152-125-169.pdf

[25] (2020) SCCOnLine SC 275.

[26] Ibidem.

[27] Ibidem.

[28] (2017) 10 SCC 1.

noted that the right to privacy under Article 21 also protects an individual's autonomy over fundamental personal choices.[29] Thus, an individual's choice to ascribe value to cryptocurrencies, by buying and selling or engaging in other transactions is protected under the ambit of Article 21.[30]

Any restrictions on fundamental rights must meet the test of proportionality and reasonableness. This means that a measure that limits fundamental rights must meet three criteria: (i) it must be made for a proper purpose, (ii) the measure must be rationally connected to the fulfilment of the purpose, (iii) there are no less invasive measures that are equally effective, (iv) it must be done through means that are suitable and necessary for the purpose, and (iii) it must be balanced with the harm caused by limiting the right.[31] In particular, in *Chintaman Rao v State of Madhya Pradesh* [32], the Supreme Court held that a measure that invades the right under Article 19(1)(g) must strike a balance between the freedom guaranteed by it, and the social control permitted by Article 19(6). If it does not do so, it fails to meet the reasonableness test. [33]

In *IAMAI v RBI*, the Supreme Court noted that RBI's measure, which would almost wipe out virtual currency exchanges, must be subjected to the test of proportionality.[34] This reasoning could be extended to argue that a ban on cryptocurrency, that will have virtually the same effect, must also be subjected to this test.

One of the main reasons cited to support the ban on cryptocurrencies is that it cannot replace fiat currency, since it does not have any of its benefits. However, several systems of value transfer, such as precious metals (eg: gold, platinum) or loyalty points also work alongside fiat currency. In such a context, an outright ban, without studying the impact of cryptocurrencies on financial stability or monetary policy, goes against the proportionality test.[35]

International best practices

A study of international trends in cryptocurrency regulation indicates that technologically sophisticated and financialized countries such as the United States, Japan, Singapore, and Australia have allowed trade in cryptocurrencies to proliferate by adapting existing regulations and creating some new ones. The approach taken by advanced jurisdictions to legalize cryptocurrencies is discussed below:

  a. *Japan:* The country has a progressive regulatory regime on cryptocurrency. Cryptocurrency is categorized as 'legal property', and the National Tax Agency (NTA) considers gains made from cryptocurrency trade to be 'miscellaneous income', and taxes them at rates of 15-55 percent.[36] All cryptocurrency exchanges must be registered with the Financial Services Authority (FSA), which subjects them to strict

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[29] Ibidem.

[30] Clause 2(1)(a), Banning of Cryptocurrency and Regulation of Official Digital Currency Bill, 2019.

[31] KS Puttuswamy v Union of India, (2017) 10 SCC 1. *See also* Chandra, A. (2020). Proportionality in India: A Bridge To Nowhere? Available at: https://ohrh.law.ox.ac.uk/wordpress/wp-content/uploads/2020/05/U-of-OxHRH-J-Proportionality-in-India.pdf

[32] AIR 1951 SC 118.

[33] Ibidem. para 6.

[34] Supra note 19, page 143, para 6.142.

[35] Reddy, J. (2019). The Case For Regulating Crypto Assets. Available at: http://ijlt.in/wp-content/uploads/2020/11/IJLT-152-125-169.pdf

[36] Jarvloo, L. (2020). Cryptocurrency Regulations Around the World. Available at: https://complyadvantage.com/blog/cryptocurrency-regulations-around-world/

cybersecurity, anti-money laundering (AML), and countering the financing of terrorism (CFT) regulations.[37]

b. _USA:_ The United States has accepted the ubiquity of cryptocurrencies as an inevitability, and there has been a significant level of engagement from the Commodity Futures Trading Commission (CFTC), the Federal Trade Commission (FTC), Financial Crimes Enforcement Network (FinCEN), and the Securities and Exchange Commission (SEC).

In a 2019 joint statement issued by the SEC, CFTC, and FinCEN, cryptocurrency exchanges were defined as money service businesses (MSB). Thus, these are subjected to AML, KYC, and CFT obligations under the Bank Secrecy Act (BSA).[38] Recently, the mayor of Miami expressed his intention to promote Bitcoins in the city by offering municipal workers the option of receiving all or a part of their pay in Bitcoin, and allowing residents to pay city fees and property taxes in the currency.[39]

c. _Singapore:_ The country is known to provide a hospitable environment to cryptocurrency, with the Monetary Authority of Singapore (MAS) even teaming up with blockchain company Rubin to devise a proof-of-concept project that uses blockchain technology to conduct inter-bank payments.[40] The Payment Services Act (PSA) of 2020 regulates traditional and cryptocurrency payments and exchanges in a single piece of legislation. The MAS also released a separate notice that compels DPT service providers to set up robust AML and CFT detection tools, and granularly dictates requirements.[41]

Conversely, less developed countries have shown a general proclivity for skepticism of this technology, with Algeria, Bolivia, Morocco, and Nepal completely banning all cryptocurrency activity. Bangladesh, Iran, and others have taken an intermediate route of prohibiting financial institutions within their borders from facilitating cryptocurrency transactions.[42]

Table 1: Cross-country comparison of human and financial development against the legality of cryptocurrencies

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[37] Global Legal Insights (2021). Blockchain & Cryptocurrency Regulation 2021 | Japan. Available at: https://www.globallegalinsights.com/practice-areas/blockchain-laws-and-regulations/japan
[38] The National Law Review (2019). CFTC, FinCEN, and SEC Warn of Crypto AML Enforcement. Available at: https://www.natlawreview.com/article/cftc-fincen-and-sec-warn-crypto-aml-enforcement
[39] Live Mint (2021). Miami pushes Bitcoin with proposal to pay workers in crypto. Available at: https://www.livemint.com/market/cryptocurrency/miami-pushes-bitcoin-with-proposal-to-pay-workers-in-crypto-11613107484957.html
[40] Pollock, D. (2018). Singapore's Government Blockchain Experiment Is a Road to Regulatory Understanding. Available at: https://cointelegraph.com/news/singapores-government-blockchain-experiment-is-a-road-to-regulatory-understanding
[41] Venkatesh, K., & Rastogi, A. (2021). Cryptocurrency Regulation In Singapore: Challenges And Opportunities Ahead. Available at: https://www.mondaq.com/fin-tech/1025630/cryptocurrency-regulation-in-singapore-challenges-and-opportunities-ahead-
[42] The Law Library of Congress (2018). Regulation of Cryptocurrency Around the World. Available at: https://www.loc.gov/law/help/cryptocurrency/cryptocurrency-world-survey.pdf

Country	Human Development Index	Financial Development Index	Legality of Crypto
United States	0.93	0.90	Regulated
Japan	0.92	0.89	Regulated
Australia	0.94	0.88	Regulated
Singapore	0.94	0.75	Regulated
Iran	0.78	0.44	Prohibited for Financial Institutions
Morocco	0.69	0.36	Banned
Bolivia	0.72	0.31	Banned
Bangladesh	0.63	0.23	Prohibited for Financial Institutions
Nepal	0.60	0.21	Banned
Algeria	0.75	0.15	Banned

Source: UNDP (2020)[43]; IMF (2020)[44]

Amongst countries that have legalized and regulated cryptocurrency, the most common approach has been to categorize them as either financial assets or foreign currency, and tax them accordingly. Undesirable side effects such as terrorism financing and money laundering have been mitigated by registration with and accountability to federal authorities.[45] Developed nations, when compared to their developing counterparts, have been more progressive and have resorted to regulate cryptocurrencies (Table 1). India should adopt a similar approach if it hopes to stay in consort with highly financialized jurisdictions and cutting-edge international practices. Besides, regulation would support the growth of crypto exchanges, which can help establish transparency and accountability to the State by ensuring compliance with KYC norms and AML standards.

[43] UNDP (2020). Latest Human Development Index Ranking. Available at: http://hdr.undp.org/en/content/latest-human-development-index-ranking
[44] IMF (2020). Financial Development Index Database. Available at: https://data.imf.org/?sk=f8032e80-b36c-43b1-ac26-493c5b1cd33b
[45] The Law Library of Congress (2018). Regulation of Cryptocurrency Around the World. Available at: https://www.loc.gov/law/help/cryptocurrency/cryptocurrency-world-survey.pdf

Section II: Innovation

Unlocking digital innovations using tokenization

Tokenization of assets on a blockchain is the process of issuing a blockchain token to digitally represent any physical or real tradable assets, enabling fractional ownership of that particular asset (Figure 1).

Figure 1: Tokenization of Assets
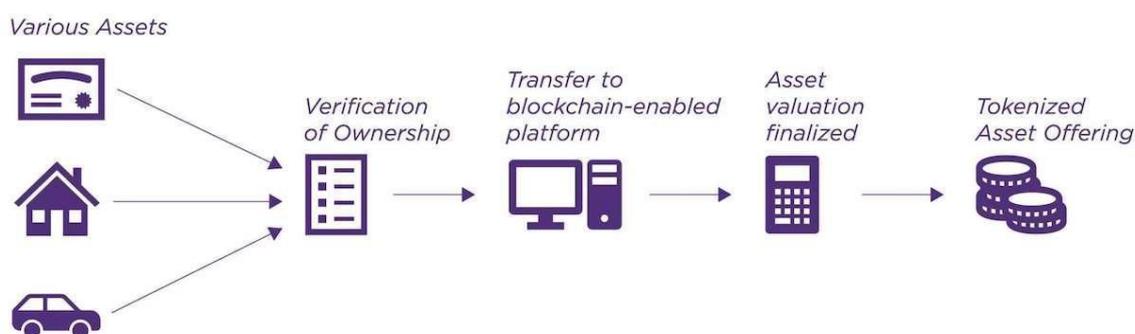
Tokens offer the ability to digitally represent anything of value and allow for a secure way to use them for multiple purposes as illustrated in Table 2. For instance, tokenization can allow investors to sell their investments on a secondary market.[46] Tokens are an efficient way to manage information/assets because the underlying blockchain makes it possible to have a unique representation of value for that asset. Cryptocurrency is essentially a form of tokenization, wherein each coin is a unique digital file of some value.

Table 2: Differentiated functions and utilities of various tokens

	Payment Token	Asset Token	Utility Token	Security Token
Function	Means of payment for goods and services external to the platform running the token	Access to buy/sell/invest in the digital asset or illiquid markets like real estate, gold, fine art	Provide access to a particular product or platform	Represents rights of legal ownership in a company and an entitlement to a share of dividends, future profits or cash flows
Operation	External to the platform running the token	Units of value that organizations or projects can customize and develop on top of existing blockchains	Access to a function provided by the businesses who issued it	Backed by company shares with a promise of future profits from dividends, revenue share, or

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[46] Deloitte (n.d.) The tokenization of assets is disrupting the financial industry. Available at: https://www2.deloitte.com/content/dam/Deloitte/lu/Documents/financial-services/lu-tokenization-of-assets-disrupting-financial-industry.pdf

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				market appreciation
Purpose	Medium of exchange	Store of value	Access to digital service	Digital versions of financial securities like stocks and bonds
Examples	USDT, USDC, Dash, Dai etc.	Bitcoin, ADA, Paxos Gold, NFTs like CryptoKitties, etc.	Ether, BAT, EOS, or exchange utility tokens	Tzero Equity Token, 22X, BCAP, etc.

Tokenization incentivises blockchain participants to grow the network and also enables exchange of assets on the blockchain.[47] Public blockchains like cryptocurrencies are decentralised in nature, and rely on an open consensus method where all the nodes in the network are engaged to validate transactions, to avoid double spending.[48] Tokens are rewarded to people who validate transactions through a proof-of-work/proof-of-stake.[49] Since validating transactions or growing a blockchain through mining requires time and effort, it is necessary to compensate miners for this. Reward tokens incentivise participants to maintain the integrity of a system and develop it further.

Besides their use in cryptocurrencies, tokens are required to facilitate the operations of decentralised applications (Dapps). These are built on decentralised networks using smart contracts (backend code that enforces transactions on the blockchain) that operate on a blockchain or a peer-to-peer network of computers. They have multiple use cases like decentralised finance, gaming and secondary marketplaces, among others. Since Dapps are incompatible with traditional currency systems, each Dapp uses its own token.[50]

Further, tokenization offers the potential to solve legacy issues such as the under provisioning of public goods. Tokenized public goods, with their value stored in coins, will allow people to contribute capital for the creation of public goods and later sell their investment on secondary markets. The United Nations International Children's Emergency Fund (UNICEF), for instance, launched a 'Boost Token' to incentivise donations and volunteering activities.[51]

Tokenization is therefore an integral part of the value proposition of blockchain technology, especially public blockchain. The move to ban cryptocurrencies will adversely affect tokenization. The draft Banning of Cryptocurrency and Regulation of Official Digital Currency Bill, 2019 defines cryptocurrencies as "*any information or code or number or*

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[47] Bits on Blocks (2015). A gentle introduction to digital tokens. Available at: https://bitsonblocks.net/2015/09/28/gentle-introduction-digital-tokens/

[48] 101 Blockchains. Permissioned vs Permissionless Blockchains. Available at: https://101blockchains.com/permissioned-vs-permissionless-blockchains/#:~:text=The%20consensu s%20algorithm%20used%20by,concepts%20such%20as%20smart%20contracts.

[49] It is a system that ensures the integrity of the transactions on a public blockchain by preventing any tampering to the ledger.

[50] Entremont, P. (2017). Token Economy 101, or why Blockchain-powered decentralized networks are important. Available at: https://pentremont.medium.com/token-economy-101-or-why-blockchain-powered-decentralized-net works-are-important-310de1cc8bac

[51] Glavin, P. (2019). Tokenized Public Goods — A New Store of Value. Available at: https://medium.com/@tpgwhitepaper/tokenized-public-goods-a-new-store-of-value-83b91c53d436# :~:text=The%20proposal%20for%20Tokenized%20Public%20Goods%20%E2%80%94%20A%20New %20Store%20of,to%20fund%20non%2Dexcludable%20goods.

token not being part of any Official Digital Currency." [52] If the same understanding persists in the new Bill, any ban on cryptocurrency will also bring tokenization to a close.

Blockchains can lead to hardware and software development

Over the last decade, cryptocurrencies have contributed to the evolution of computer hardware to accommodate the computationally intense work of generating codes. In 2013, the computing power of Bitcoin was already equivalent to 150,000 petaflops[53] per second, which is 600 times the combined power of all supercomputers belonging to the Top500 list.[54] Such an increase in the Bitcoin network has created an opportunity for the data centre industry, providing powerful computers and server capacity to miners.[55] This, coupled with India's proximity to South Asia's burgeoning digital market and readily available skilled workforce, can enable the country to become a Global Data Centre hub, as envisioned by the Ministry of Electronics and Information Technology (MeitY).[56] India currently has about 375 Megawatts installed power capacity for Data Centre which can triple by 2025, according to the Draft National Data Centre Policy, 2020. The demand for Data Centre infrastructure also has the potential to generate investments worth USD 4.9 billion in the country by 2025.

In terms of software development, cryptocurrencies like Ethereum allow the application of blockchain in finance, gaming, identity management, among others. The Ethereum blockchain has also enabled the evolution of Dapps, which have an advantage over regular webapps as they're not managed by a centralised third party. This brings transparency in the network, and reduces massive data breaches due to the absence of a central place to hack. In 2019, India stood sixth in the number of patent approvals in the blockchain space.[57] Increased development of Dapps in the country can pose as an opportunity for the growth of this nascent technology.

Cryptocurrency can revolutionise philanthropy

Donations in cryptocurrencies present numerous benefits to charitable activities and can resolve the issues associated with raising funds in traditional currency. Donations made in traditional currency are less transparent, and are costly due to the increased participation of intermediaries, which lead to high transaction charges, especially for international donations. Digital currencies can overcome issues associated with donations made in traditional currency in the following way:

    a. <u>*Transparency:*</u> Unlike traditional currencies, cryptocurrencies are non-fungible, i.e., each unit is unique and identifiable. Consequently, cryptocurrencies are traceable even through complex supply chains. From the donors' perspective, it offers greater

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[52] Clause 2(1)(a), Banning of Cryptocurrency and Regulation of Official Digital Currency Bill, 2019.

[53] A unit of computing speed equal to one thousand million million (10^{15}) floating-point operations per second

[54] Top500 (2013). Available at: https://www.top500.org/statistics/sublist/

[55] Data Center Knowledge (2014). As Crypto Infrastructure Booms, Mining Heads to Data Center. Available at: https://www.datacenterknowledge.com/archives/2014/01/21/bitcoin-infrastructure-mining-data-center

[56] Ministry of Electronics and Information Technology (2020). Data Centre Policy 2020: Draft for Discussion. Available at: https://www.meity.gov.in/writereaddata/files/Draft%20Data%20Centre%20Policy%20-%20200311202 0_v5.5.pdf

[57] Inc42 (2019). Blockchain This Week: India Ranked Sixth In The No Of Blockchain Patent Approvals, And More. Available at: https://inc42.com/buzz/blockchain-this-week-india-ranked-6th-in-the-no-of-blockchain-patent-appr ovals-and-more/

transparency by enabling them to see where their money ended up being used. This can also provide greater confidence to the donors and encourage them to donate more money.

b. _Direct giving:_ Charitable activities have witnessed an increase in intermediation through multiple specialised organisations that collect donations from people and put them to use in the service of beneficiaries. However, with the advent of digital currencies, various platforms seek to enable person-to-person (P2P) donations.[58] Evidence suggests that P2P donations are far easier and a more cost-effective way of philanthropy.[59] Donors can use the public key to directly transfer cryptocurrency to the wallet of any beneficiary or charitable organisation, without the need of any other information.

c. _International donations:_ Many charities operate across international borders and need to move money accordingly. Banks levy high charges for foreign exchange and money transfers, which reduces the money in the hands of the charitable organisation. On the other hand, cryptocurrencies are non-geographic in nature and thus, do not attract any foreign exchange fees beyond the standard transaction charges levied on payments. This makes digital currencies a cost-effective alternative to traditional currencies.[60]

Section III: National Development

Enabling international payments and trade facilitation

Cryptocurrencies are useful to make international payments including remittances.[61] Some of the key benefits of cryptocurrencies in enabling international payments are discussed below.

a. Reduced time costs- Simple clearing and settlement mechanisms, instant exchange of information, and increased automation of processes in cryptocurrencies enable faster cross-border payments.[62]

b. Negligible monetary costs- Unlike service providers like Western Union, PayPal, and TransferWise, the use of cryptocurrencies for international payments involves negligible foreign exchange transactions costs ('FX costs') and payments limits.[63] In this context, Facebook's Diem project aims to use cryptocurrency to build a cross-border payments system which is fast, cheap, stable, secure and scalable.[64]

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[58] GiveDirectly (n.d.). Respond to COVID-19. Available at: https://www.givedirectly.org/
[59] Charities Aid Foundation (2015). Giving a Bit(Coin): Cryptocurrency and Philanthropy. Available at: https://www.cafonline.org/docs/default-source/about-us-publications/givingabitcoin-cryptocurrency-philanthropy-may2015.pdf?sfvrsn=5
[60] Ibidem
[61] Euro Banking Association (2017). Cryptotechnologies in international payments Information Paper. Available   at: https://www.abe-eba.eu/media/azure/production/1550/cryptotechnologies-in-international-payments.pdf
[62] Tapscott, D. and Tapscott, A. (2016). The Impact of the Blockchain Goes Beyond Financial Services. Available at: https://hbr.org/2016/05/the-impact-of-the-blockchain-goes-beyond-financial-services
[63] Euro Banking Association (2017). Cryptotechnologies in international payments Information Paper. Available   at: https://www.abe-eba.eu/media/azure/production/1550/cryptotechnologies-in-international-payments.pdf
[64] Diem Website. Available at: https://www.diem.com/en-us/

c. <u>Improved information and risk management-</u> Cryptocurrencies enable the complete transparency of information via a distributed depository of KYC and fraud information.[65] This eliminates the need for individual banks to perform repetitive KYC checks and also benefits in payments reconciliation. Therefore, the use of cryptocurrencies could save banks' time and resources devoted to complicated reconciliation processes and which could be passed on to end users. Further, cryptocurrencies reduce the risk of non-settlement of a pending payment as it diminishes/eliminates the need for intermediaries and instantly transfers value.[66]

Besides enabling international payments, use of cryptocurrency through its underlying blockchain technology (majorly public/permissionless blockchains) contributes to trade facilitation.[67] Some of the technology's fundamental features that make it particularly suitable for trade facilitation, along with potential areas of suitability, and for compliance procedures are discussed in Table 3.

Table 3: Public/Permissionless Blockchains' Features and their Suitability Areas for Trade Facilitation

Feature	Suitability
Public key cryptography[68]	➔ Cross-border G2G, G2B or B2B cooperation in data exchange. ➔ Data protection and prevention of data breaches. ➔ Non-repudiable digital signatures and digital identities. ➔ Detection of tampering.
Timestamps[69] and cryptographic hashes[70]	➔ Identification, verification and acceptance of electronic copies of trade documents. ➔ Detection of counterfeits and elimination of intellectual property theft. Detection of tampering and unauthorized intrusions.

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[65] Euro Banking Association (2017). Cryptotechnologies in international payments Information Paper. Available at: https://www.abe-eba.eu/media/azure/production/1550/cryptotechnologies-in-international-payments.pdf

[66] Ibidem.

[67] UNCTAD (2020). Trade Facilitation in Developing Countries: Can Blockchain Prompt a Leap Forward?. Available at: https://unctad.org/system/files/official-document/presspb2020d1_en.pdf

[68] Cryptography is a method of encrypting data for storing and transferring it in a secure way.

[69] Timestamps are the standard of certain documents or files that exist for a certain time period without relying on any third-party authentication and also avoiding long term maintenance cost or needs.

[70] Hashing is a cryptography method to convert any data into a unique text string.

Consensus mechanisms and distributed systems	The distributed servers (nodes) of 'permissionless' blockchains can ensure more resilient trade infrastructure which can withstand natural disasters, system outages and cyberattacks, thereby ensuring data preservation and business continuity.
e-Payments	Use of cryptocurrency can enhance governments revenue collection efforts, especially through improved compliance/automation mechanisms (e.g. a payment triggered by entry into a customs terminal or an automated issuance of final customs clearance documents after specified duties are received from a trader)

Source: UNCTAD 2020[71]

Banning cryptocurrency will therefore, preclude India from the larger benefits of public/permissionless blockchains in facilitating international trade. Global interventions to capitalise on this opportunity are already underway. For instance- the United Nations Centre for Trade Facilitation and Electronic Business (UN/CEFACT) has proposed to use blockchain-based distributed ledger technology to create a cross-border inter customs ledger for the exchange of certificates of origin.[72] This is expected to streamline the process, reduce costs and minimise compliance issues at the border.

In addition, cryptocurrency is well positioned, due to its decentralised nature and ease of transfer, to serve as a medium of exchange in such extraordinary circumstances as the imposition of sanctions on the country's trade partners.

Generate additional revenue for the State

A complete blanket ban on the use of cryptocurrencies may result in large economic losses to the government in terms of lost licensing revenue, capital gains tax, and/or transaction charges, based on its classification as an asset or a medium of exchange.

If treated as an asset, the government may impose a licensing fee on crypto exchanges, to ensure that they make a credible commitment to complying with rules like KYC, AML, etc. The government can also impose a capital gains tax on sale of cryptocurrencies, similar to what Australia does.[73] A capital gains tax on crypto is better than taxing essential commodities like fuel, which create inflationary pressures in the economy without growth. Besides, the government needs tax revenue to finance its high fiscal deficit arising due to:

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[71] UNCTAD (2020). Trade Facilitation in Developing Countries: Can Blockchain Prompt a Leap Forward?. Available at: https://unctad.org/system/files/official-document/presspb2020d1_en.pdf

[72] UNECE (2021). Cross Border Inter-Ledger Exchange for Preferential COO Using Blockchain. Available at: https://uncefact.unece.org/display/uncefactpublic/Cross+border+Inter-ledger+exchange+for+Preferential+CoO+using+Blockchain

[73] Australian Taxation Office (2020). Transacting with Cryptocurrency. Available at: https://www.ato.gov.au/general/gen/tax-treatment-of-crypto-currencies-in-australia---specifically-bitcoin/?page=2

Internet and Mobile Association of India

a. Outstanding disinvestment targets
b. Low debt rating in international markets increases the cost of raising money from abroad
c. Undersubscribed bond issues
d. Tax administration takes a while to improve, however, capital gains tax is easily enforced as intermediaries are regulated and information disclosures are mandatory

If cryptocurrency is treated as a medium of exchange, the government may impose a transaction charge on all the payments made through digital currencies. Besides, as discussed above, international trade facilitated through cryptocurrencies can enhance the State's revenue through customs duty collection.

A future for blockchain unicorns

Figure 2: Geographical distribution of blockchain unicorns in the world

Countries with Blockchain Unicorns
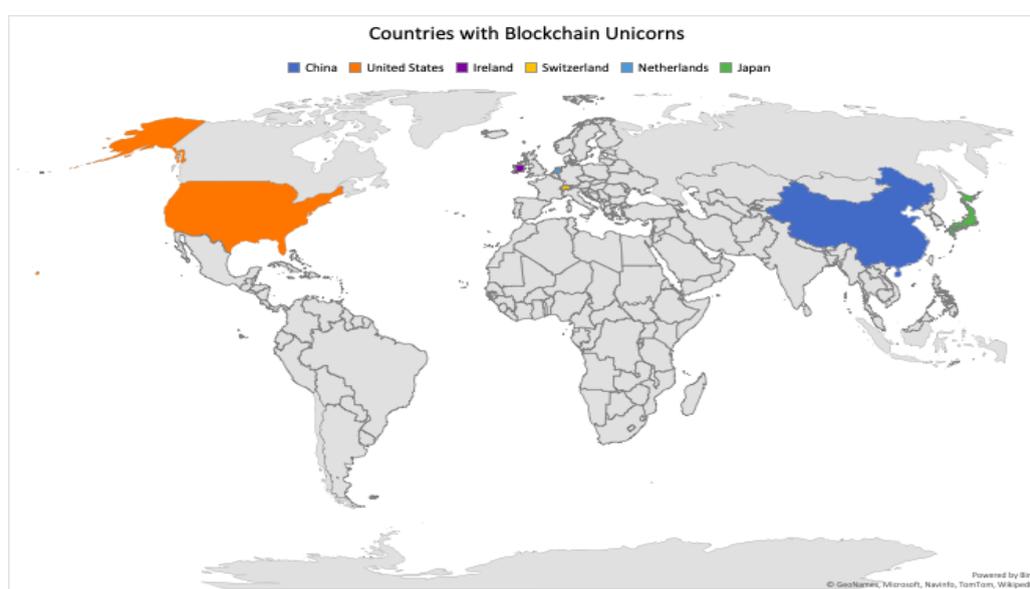
There are approximately 11 blockchain unicorns in the world, of which nine provide products/services to facilitate trade in cryptocurrencies as exchanges or enable mining of cryptocurrencies. Together these startups are valued at over USD 40 billion.[74]

In India, there are over 200 blockchain startups and many operate in the cryptocurrency industry/market.[75] Recently WazirX, India's largest cryptocurrency trading platform was acquired by Binance, world's leading global cryptocurrency exchange by trading volume. Launched in 2018, WazirX saw as many as 200,000 downloads in just one year, before its acquisition.[76]

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[74] Medium (2020). Blockchain Unicorns. Available at: https://medium.com/the-capital/blockchain-unicorns-33861561cc49

[75] Tracxn (2020). Blockchain Startups in India. Available at: https://tracxn.com/explore/Blockchain-Startups-in-India

[76] Binance (2019). Binance Acquires India's Leading Digital Asset Platform WazirX to Launch Multiple Fiat-to-Crypto Gateways. Available at: https://www.binance.com/en/blog/404105749895733248/Binance-Acquires-Indias-Leading-Digital-Asset-Platform-WazirX-to-Launch-Multiple-FiattoCrypto-Gateways

Similarly, many other Indian startups have attracted major investments and have the potential to grow further.[77] The Indian crypto industry was valued at nearly USD 13 billion in 2017 before the RBI banned the use of cryptocurrencies.[78] Since the ban was lifted in 2020, leading crypto startups grew more than 400 percent in terms of trading volumes and users.[79] Another ban will distort the industry and adversely affect the startups in India.

India can leverage its position as the third fastest growing hub of technology startups to build a strong ecosystem for innovation and entrepreneurship.[80] In 2020, the country ranked 48th among 131 countries in the Global Innovation Index (GII) ranking.[81] It was third among the lower-middle income countries, following Vietnam and Ukraine in the first and second position respectively. While India shows significant progress in its GII ranking over time, there is scope for further improvement. According to the Chief Innovation Officer of the Ministry of Human Resource Development (MHRD), India aspires to be within the top 25 of GII rankings by 2024.[82] This can be done by making innovation a key priority in India's path for development. The blockchain ecosystem is a hotbed of innovation, and increased development in this technology can lead India towards achieving its innovation goals.

According to the Ministry of Electronics and IT, "In the digital world, a trained workforce will become India's biggest competitive advantage". In 2019, the government approved a budget of Rs. 436 Crore for training around four lakh professionals in latest technologies like blockchain and artificial intelligence, among others. [83] Moreover, top blockchain startups in India like CoinDCX have also launched their own learning platforms with a vision to make this technology accessible to everyone.[84] Upskilling the labour force in India with fast-growing technologies like blockchain can give rise to more innovative products and solutions in the form of startups.

Section IV: Financial Depth

Cryptocurrency can promote financial inclusion

[77] Analytics India Magazine (2020). Top Indian Startups In The Field Of Blockchain Technology. Available at: https://analyticsindiamag.com/the-top-indian-startups-in-blockchain-crypto-technology/

[78] Business Insider (2020). India's crypto market was worth $12.9 billion in 2017 before it incurred the RBI's wrath. Available at: https://www.businessinsider.in/business/news/indias-crypto-market-was-worth-12-9-billion-in-2017-before-it-incurred-the-rbis-wrath/articleshow/74474034.cms

[79] Inc42 (2020). India's Crypto Startups Charged Up Even In The Times Of Covid-19. Available at: https://inc42.com/features/indias-crypto-startups-charged-up-even-in-the-times-of-covid-19/

[80] The Week (2015). India retains position as world's third-largest startup hub: NASSCOM. Available at: https://www.theweek.in/news/biz-tech/2019/11/05/india-retains-position-as-worlds-third-largest-startup-hub-nasscom.html#:~:text=India%20retains%20position%20as%20world's%20third%2Dlargest%20startup%20hub%3A%20NASSCOM,-India%20added%201%2C300&text=With%20the%20addition%20of%20more,to%20IT%20industry%20body%20Nasscom.

[81] WIPO (2020). Global Innovation Index 2020. Available at: https://www.wipo.int/edocs/pubdocs/en/wipo_pub_gii_2020.pdf

[82] Ministry of Human Resource Development (2019). National Innovation and Startup policy 2019 for Students and Faculty. Available at: https://www.startupindia.gov.in/content/dam/invest-india/Templates/public/AICTE%20Brochure_10.09.19.PDF

[83] The Hindu Business Line (2019). Skill development: Govt approves Rs. 436 crore to train professionals in IoT, AI and blockchain. Available at: https://www.thehindubusinessline.com/info-tech/skill-development-govt-approves-rs436-crore-to-train-professionals-in-iot-ai-and-blockchain/article30338880.ece

[84] DCX Learn. Available at: https://dcxlearn.com/

Lack of access to financial services to the people at the bottom of the pyramid is amongst the many causes of poverty in a country. Most people who are unable to access financial services suffer from multiple forms of social exclusion.[85] Therefore, financial inclusion is imperative for the development of a country as it strengthens the availability of economic resources, promotes savings among the poor, and provides an efficient way to transfer and receive payments.

India is home to the second largest unbanked population in the world.[86] Cryptocurrency can enhance access to financial services in the country through two channels – lending and storage. Micro-lending or microfinance has played a crucial role in driving financial inclusion in the country.[87] It enables easy access to formal credit to people in rural areas. However, microfinance is characterised by high operating costs, slow transaction resolution and lack of transparency and standardization.[88] With transparency, speed and low transaction cost forming the core of cryptocurrencies, they are well-positioned to address these concerns and make microfinance more accessible to the people. Cryptos can also revolutionise peer-to-peer lending, further bringing down the cost of credit.

Crypto wallets, that hold digital currencies, can be used to transfer or receive cryptocurrency without a bank account. Compared to banks, the internet is accessible to a larger fraction of the population, making cryptocurrency an efficient way to transfer funds, especially remittances. India is by far the largest recipient of international remittances, which account for approximately 2.9 percent of the GDP.[89,90] Besides, India has over 120 million migrant workers, who send remittances to rural parts of the country. States like Bihar and UP receive approximately 60 percent of domestic remittances.[91] Due to instant transfer of funds and low transaction charges, cryptocurrencies offer a great alternative to send and receive remittances in India, and improve access to financial services in the country's rural areas. Further, unlike traditional digital wallets, crypto wallets offer interoperability, i.e., they allow different wallets to connect with each other. This functionality can foster wider adoption, higher transaction volumes and greater velocity of money.

Cryptocurrency can be highly profitable and safe

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[85] Benavides, J. (2019). Blockchain: Decentralization as the Future of Microfinance and Financial Inclusion. Available at: https://www.researchgate.net/publication/331101506_BLOCKCHAIN_DECENTRALIZATION_AS_THE_FUTURE_OF_MICROFINANCE_AND_FINANCIAL_INCLUSION

[86] World Bank (2017). The Global Findex Report. Available at: https://globalfindex.worldbank.org/sites/globalfindex/files/2018-04/2017%20Findex%20full%20report_0.pdf

[87] KPMG (2019). Microfinance – contributions to financial inclusion; opportunity and challenges. Available at: https://home.kpmg/in/en/home/insights/2019/12/mfi-microfinance-contributions-to-financial-inclusion.html

[88] Forbes (2020). Blockchain Promised Democratization Of Finance – Collaborating With Microfinance Can Make This A Reality. Available at: https://www.forbes.com/sites/seansteinsmith/2020/10/07/blockchain-promised-democratization-of-finance--collaborating-with-microfinance-can-make-this-a-reality/?sh=4153ad75602b

[89] World Bank (2019). Personal remittances, received (current US$) - India. Available at: https://data.worldbank.org/indicator/BX.TRF.PWKR.CD.DT?locations=IN

[90] World Bank (2019). Personal remittances, received (% of GDP) - India. Available at: https://data.worldbank.org/indicator/BX.TRF.PWKR.DT.GD.ZS?locations=IN

[91] The Times of India (2020). Bouncing back to normal: Domestic remittances return to the pre-pandemic level. Available at: https://timesofindia.indiatimes.com/blogs/voices/bouncing-back-to-normal-domestic-remittances-return-to-the-pre-pandemic-level/

Cryptocurrency, as an asset class, is popularly characterised as one that offers high-risk and high-returns. A recent poll found that 40.6 percent of those surveyed believe that cryptocurrency is too risky to invest in, while 37.7 percent do not understand the market.[92] In order to compare the return offered by cryptocurrencies with that of other assets, it is essential to adjust it with the amount of risk associated with each asset type. Risk-adjusted return offers a consistent view of profitability across various investment options belonging to different risk classes.

Sharpe ratio, a measure of risk-adjusted return, is used to estimate the total return earned in excess of the risk-free rate per unit of risk, measured through volatility. A higher Sharpe ratio would mean that an asset is more profitable for each unit of risk, and hence, a better investment alternative. Table 4 compares the risk-adjusted return of Bitcoin with stock market indices in India.

Table 4: Risk-adjusted return from various investment alternatives in 2020

	Bitcoin	NIFTY 50	SENSEX 30	NIFTY Small Cap 100
Risk Free Return*	5.30%	5.30%	5.30%	5.30%
Return on Investment	302.79%	14.77%	15.60%	20.62%
Annualised Standard Deviation	72.14%	31.22%	31.89%	30.53%
Sharpe Ratio	**4.12**	**0.30**	**0.32**	**0.50**

*Note: Risk free return is for 364-day government of India treasury bill as on 1st January 2020; Source: RBI (2021)[93]; NSE (2021)[94]; BSE (2021)[95]; CoinMarketCap (2021)[96]

In 2020, the Sharpe ratio of Bitcoin (4.12) was much higher than that of India's stock market indices. For every one percent increase in risk, Bitcoin offers higher return to investors than NIFTY 50, SENSEX 30 or NIFTY Small Cap 100, making it a superior investment option.

Additionally, the following investor protection initiatives/tools/instruments can make cryptocurrency a safe investment alternative:

a. *Cryptocurrency derivatives:* Derivatives are tradable securities/contracts that derive their value from an underlying asset. Similarly, cryptocurrency derivatives derive their value from the underlying cryptocurrency. Crypto derivatives can be effective in risk-reduction in two ways:

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[92] Financial Express (2021). How to play safe while investing in cryptocurrencies like Bitcoin. Available at: https://www.financialexpress.com/market/how-to-invest-buy-bitcoin-cryptocurrency-safely/2170283/

[93] RBI (2021). Auctions of 364-day Government of India Treasury Bills. Available at: https://dbie.rbi.org.in/DBIE/dbie.rbi?site=publications

[94] NSE (2021). Historical Index Data. Available at: https://www1.nseindia.com/products/content/equities/indices/historical_index_data.htm

[95] BSE (2021). Historical Data. Available at: https://www.bseindia.com/Indices/IndexArchiveData.html

[96] CoinMarketCap (2021). Historical Data for Bitcoin. Available at: https://coinmarketcap.com/currencies/bitcoin/historical-data/

(i) Protection from volatility - Using digital currencies as a medium of exchange exposes individuals to the risk of fluctuation in prices. Derivative instruments, like futures, can be used to offset these fluctuations, provide certainty to individuals and protect them from the volatility of daily price movements.[97]

(ii) Hedging - Due to high volatility, holding cryptocurrency as an asset exposes investors to the risk of a sudden fall in the prices. Crypto derivatives, particularly options, can serve as a risk management tool for the investors and offset any potential losses.[98]

b. *Stop-limit order:* Cryptocurrency exchanges in India allow investors to set stop-limit orders to protect their profits and minimise losses.[99] In case of a sudden downside movement, investors can protect their wealth by setting a stop order, which is let's say 10 percent below their buying price. In this case, if the price of the cryptocurrency falls by 10 percent or more, the stop order will square off the position, protecting 90 percent of investors' wealth.

c. *Investor education programmes:* 37.7 percent of Indians fail to understand the cryptocurrency market, and hence, decide to stay away from it. Lack of knowledge leads to fear and misconception around digital currencies. Therefore, it is necessary to educate investors about this new asset class and risks associated with it. Crypto exchanges offer various educational programmes to guide people about digital currencies, upskill them to trade in cryptocurrencies and conduct webinars in colleges to educate students about the same. Further, just like RBI's financial inclusion fund (FIF), the government may legally mandate the regulator/intermediaries to educate investors about cryptocurrencies.

Further, introducing regulation will also lead to the development of more exchanges. This will help provide reliable information to investors and increase liquidity in cryptocurrency which would further protect investments.

Additionally, if used as a currency, crypto is relatively safer than traditional currency. On account of better security systems, cryptocurrency theft, hacks, and fraud fell by approximately 57 percent in 2020 to USD 1.9 billion globally.[100] On the other hand, in India alone, fiat currency related frauds amounted to USD 26.09 billion during 2019-2020.[101]

Conclusion

The decentralized nature of cryptocurrencies makes a blanket ban on their use and possession virtually impossible. Moreover, bans would promote the rapid proliferation of a shadow market, stall constructive uses of blockchain technology, prohibit the ability of

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[97] Aziz (n.d.). Guide to Cryptocurrency Derivatives. Available at: https://masterthecrypto.com/what-is-cryptocurrency-derivatives-guide-crypto-derivatives/#:~:text= You%20can%20use%20derivatives%20%E2%80%93%20in,case%20AAPL%20stocks
[98] Ibidem
[99] WazirX (2020). Stop-Limit Order. Available at: https://support.wazirx.com/hc/en-us/articles/360021320673-Stop-Limit-Order
[100] Reuters (2021). Cryptocurrency crime drops in 2020 but 'DeFi' breaches rise, study finds. Available at: https://www.reuters.com/article/crypto-currency-crime-int-idUSKBN29X1YO
[101] BloombergQuint (2020). RBI Annual Report 2019-20: Bank Frauds More Than Double. Available at: https://www.bloombergquint.com/business/rbi-annual-report-2019-20-bank-frauds-more-than-double

regulatory bodies to control undesirable side effects, and cost the government significant losses in potential revenue. By incorporating a measured mix of international best practices, existing domestic regulatory regimes, and some new regulations, the Indian Government can promote the use of cryptocurrency in the country.

As highlighted, cryptocurrencies offer numerous benefits in terms of enhanced financial inclusion, transparency in donations/fundraising activities, facilitate international payments and trade, and offer people a new and superior asset class to invest in. The Government must therefore regulate the use of cryptocurrencies in India, whether as an asset or a medium of exchange. In a regulated market, crypto exchanges will play a crucial role by ensuring compliance to KYC and AML guidelines, and mitigate illicit activities in digital currencies. The rise of cryptocurrencies and blockchain is an exciting opportunity, and India should look to capitalise on the ground-breaking potential of this technology to advance its global position as an IT power.