CIS Report on Regulation of Private Crypto-Assets in India

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By Aman Nair, Vipul Kharbanda and Aryan Gupta

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About the Authors

Aman Nair

Aman Nair is a policy officer at CIS focused on Fintech, Data governance and Digital cooperative research. He has a degree from Sciences Po in Economics and International Relations.
Email: aman@cis-india.org

Vipul Kharbanda

Vipul Kharbanda is a non-resident Fellow at the Centre for Internet & Society, India, focussing on the Financial Technology (FinTech) research agenda of the organisation. Vipul is a lawyer by training and holds a BA, LLB (Hons.) degree from the National Law School of India University, Bangalore and worked with a leading corporate law firm based in Bombay for two and a half years. He has a background in corporate laws, privacy jurisprudence and fintech among other things.
Email: vipul@cis-india.org

Aryan Gupta

Aryan Gupta is a third year undergraduate student of BA LLB (Hons.) at the Rajiv Gandhi National University of Law (RGNUL), Punjab, with majors in Law and Economics. He is keen on exploring the interface of law and technology, particularly in the areas of fintech regulation, crypto asset & blockchain regulation, and data privacy.
Email: aryangupta764@gmail.com

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EXECUTIVE SUMMARY

As of May 2021, the crypto-asset market in India stood at USD 6.6 billion.[1] With no signs of slowing down, crypto-assets have become an undeniable part of both Indian and global financial markets. In the face of this rapid growth, policymakers are faced with the critical task of developing a regulatory framework to govern private crypto-assets.

This report is an introductory resource for those who are looking to engage with the development of such a framework. It first provides an overview of the technical underpinnings of crypto-assets, their history, and their proposed use cases. It then examines how they fit within India's current legislative and regulatory framework before the introduction of a dedicated crypto-asset law and how the government and its institutions have viewed crypto-assets so far. We present arguments for and against the adoption of private crypto-assets and compare the experiences of 11 other countries and jurisdictions. Finally, we offer specific and actionable recommendations to help policymakers develop a cohesive regulatory framework.

WHAT ARE CRYPTO-ASSETS?

At their core, cryptocurrencies (CCs) or virtual currencies (VCs) are virtual monetary systems consisting of intangible 'coins' that use blockchain technology and serve a multitude of functions.[2] While the word 'cryptocurrency' is often used as an umbrella term to describe various assets within the crypto-market, we note that these assets do not all share the same characteristics and often serve different functions. Therefore, for the purposes of this report, we use the term 'crypto-assets' rather than 'cryptocurrencies' when discussing the broad range of technologies within the crypto-marketplace.

Crypto-assets utilize a distributed ledger technology (DLT) known as blockchain technology. A blockchain is a complete ledger of all recorded transactions, which is created by combining individual blocks, each of which stores some information and is secured by a hash.[3] Blockchain, by the very nature of its architecture, can be used to ensure decentralisation, authenticity, persistence, anonymity, and auditability.

HISTORY AND PROPOSED USES OF CRYPTO-ASSETS

While other forms of crypto-assets have been proposed in the past, the modern conception of one can be traced to a research paper published under the pseudonym,

Satoshi Nakamoto, which first proposed the idea of bitcoin.[4] Bitcoin, as it was presented, seemingly solved the 'double spending'[5] problem by utilising a form of DLT known as blockchain.[6] Bitcoin, which was first operationalised on 3 January 2009, has since become the dominant crypto-asset globally – trading at over USD 57,000 per bitcoin.[7]

Following the popularity of bitcoin, several alternatives (known as alt coins) were launched, the most popular of which is ethereum.[8] According to CoinMarketCap, as of April 2021, there are over 9,500 traded cryptocurrencies in existence, with a total market capitalisation of over USD 2 trillion.[9] The rise of bitcoin and other crypto-assets also led to the emergence of crypto-exchanges such as Binance. These exchanges act as platforms for users to buy, sell, and trade crypto-assets.

Many potential use cases for crypto-assets have been identified, including:
1. A method of payment
2. A tradeable asset
3. Initial coin offerings
4. Crypto-asset funds and derivatives
5. Crypto-asset-related services

LEGAL FRAMEWORKS AND PRIVATE CRYPTO-ASSETS IN INDIA

While crypto-assets are also referred to as virtual currencies and cryptocurrencies, they do not currently satisfy the legal requirements to be considered as currency under Indian law. Although they have not yet been classified as a financial instrument, it is possible, through executive action, to include them within the definition of any of the following instruments: currency, foreign currency, derivative, collective investment scheme, or payment system. Such a move would give the government a legal basis to regulate the hitherto unregulated crypto-asset market, thereby bringing about much-needed stability and minimising the risk of fraudulent practices.

UNDERSTANDING THE CASE FOR PRIVATE CRYPTO-ASSETS

This report examines both the benefits and limitations of crypto-assets across a number of their use cases.

1. Benefits of crypto-assets as a currency and asset:
- Decentralised and verifiable transactions
- Reduced transaction costs
- Confidentiality
- Security
- Easier cross-border transactions
- A potential tool for financial inclusion
- As a tool for verifying asset ownership

2. Limitations of crypto-assets as a currency and asset:

- High environmental costs
- Replaces traditional transaction costs with new costs
- A few actors dominate mining
- Cannot replace traditional money
- Introduces challenges in implementing monetary policies
- Lack of network externalities
- The limited actual impact on financial inclusion
- Use for illegal activities
- Prone to schemes and scams

INTERNATIONAL PERSPECTIVES

In order to draw inferences and lessons from a multitude of perspectives, we examined the regulatory frameworks governing private crypto-assets in the following jurisdictions:

1. European Union
2. El Salvador
3. United States
4. United Kingdom
5. Japan
6. Venezuela
7. South Africa
8. Singapore
9. Indonesia
10. Switzerland
11. China

RECOMMENDATIONS

Keeping in mind the benefits and limitations, as well as the experiences of countries around the world, we recommend the following measures to develop an appropriate regulatory framework in India. We have divided our recommendations into 2 types: immediate or short term measures and longer term measures.

A. IMMEDIATE/ SHORT TERM MEASURES

1. Steering clear of bans on private crypto-assets

Earlier, regulatory bodies made calls to ban private crypto-assets, but this resulted in crypto-assets being assimilated into the unregulated black market, thereby stifling potential innovation. To that end we recommend avoiding a ban, and adopting a regulatory approach instead.

2. Recommend that regulatory bodies use their ad-hoc power to exercise interim oversight

During the interim period, prior to the adoption of a dedicated crypto-asset legislation, crypto-assets could be included under one of the existing financial instrument categories. The regulations governing them would apply to both cryptocurrency exchanges as well as vendors who accept payments in cryptocurrencies.

B.LONG TERM MEASURES

1. Specific Regulatory Framework

There needs to be an independent regulatory framework specific to crypto-assets since the unique features of crypto-assets make them unsuitable to be regulated through the existing regulatory frameworks.

2. Identify clear definitions

Policymakers should adopt a definition of crypto-assets that includes entities that have emerged within the crypto space but which cannot be classified as 'currencies'. They must also categorise and define these various entities as well as crypto-asset service providers.

3. Limit the scope of regulations to crypto-assets rather than their underlying technologies

Any proposed regulation must differentiate between the assets themselves and the technology underlying them. This would ensure that crypto-assets are not defined by the technology they currently use (i.e.,

DLT and blockchain) but by the purpose they serve.

4. Introduce a licensing and registration system

A licensing system, similar to those adopted in other jurisdictions such as the EU or New York, can be adopted to ensure that the state is able to effectively monitor crypto-related activities.

5. Make provisions for handling

A dedicated taxation programme and strict limitations on mining can minimise the environmental costs associated with crypto-assets.

6. Consumer protection measures

Any potential licensing system must include mandatory obligations for crypto-asset service providers that ensure that consumer rights are protected.

7. Taking measures to limit the impact of crypto-asset volatility on the wider financial market

Governments must take measures to ensure that the volatility of crypto-markets does not have a significant knock-on effect on the wider financial market. Such steps can include limiting financial institution holdings and dealings in crypto-assets.

8. Extending Anti Money Laundering/ Counter Financing of Terrorism norms and exchange control regulations

Given the anonymous nature of crypto-assets and their potential for use in illegal activities, we recommend ensuring that crypto-specific anti-money laundering, prohibition of terror financing and foreign exchange management rules are introduced.

9. Create an oversight body

Subject to the availability of resources, the government might consider establishing a dedicated body to oversee and research changes in the crypto-marketplace and make appropriate suggestions to the concerned regulatory authorities.

10. Taxation

The existing uncertainty with regard to the correct tax provisions to be applied for various transactions when dealing with crypto-assets needs to be clarified with specific amendments to the tax provisions.

11. Stablecoin Specific Regulation

Given the specific position occupied by stablecoins, and the unique role that they perform in the crypto-ecosystem, any legislation that seeks to regulate private crypto-assets must focus heavily on them. To that end, policymakers should pay special attention to identifying the various entities associated with stablecoins, applying greater regulatory scrutiny onto those entities and taking steps to limit the risk that stablecoins pose to the wider financial system.

01
INTRODUCTION

Very few technologies have permeated the modern zeitgeist the way cryptocurrencies and crypto-assets have. Having entered popular consciousness only in 2008, the crypto-market has seen an astronomical rise in the last decade – its global value is estimated to be over USD 2 trillion as of August 2021.[10]

India is no exception to this trend. Over 15 million Indians have invested in the crypto-market, resulting in its phenomenal growth from about USD 923 million in April 2020 to USD 6.6 billion in May 2021.[11] In response, the government has formulated a private cryptocurrency bill that is currently awaiting cabinet approval before it is presented in the legislature.[12]

In the face of such rapid growth, governments are faced with the necessary task of developing a framework to govern private crypto-assets. This report is an introductory resource for those looking to design a regulatory framework for private crypto-assets. First, we provide an overview of the technologies underlying crypto-assets, their history, and proposed use cases. We then examine how they fit within India's current legislative and regulatory framework prior to the introduction of a dedicated crypto-asset law and what the government's institutional

position with regards to crypto-assets has been so far. The report presents the case for and against the adoption of private crypto-assets and provides a comparison of the experiences of 11 other countries and jurisdictions. Finally, it proposes specific and actionable recommendations that may help regulators develop a cohesive regulatory framework.

It should be noted that this report only discusses private crypto-assets; we do not analyse the efficacy of state-owned cryptocurrencies or crypto-assets, though we make references to them to provide appropriate context to the reader.

1.1) WHAT ARE CRYPTOCURRENCIES AND CRYPTO-ASSETS?

Cryptocurrencies (CCs) or virtual currencies (VCs) are a virtual monetary system consisting of intangible 'coins' that attempt to serve a multitude of functions – most notably, as a medium of exchange for goods and services and as a store of value.[13] Since these currencies do not possess a physical form, transactions generally occur through the exchange and validation of digital information between participants in the system. These transactions are protected

and guaranteed primarily through the utilisation of blockchain technology, which ensures that each exchange of information is deemed valid and irreversible in most cases.

While the term 'cryptocurrency' is often used to describe various assets within the crypto market, it is important to note that these assets do not all share the same characteristics, and, often, do not serve the same function. Therefore, for the purposes of this report, we use the term 'crypto-assets' rather than 'cryptocurrencies' when discussing the broad range of technologies within the crypto-marketplace. All crypto-assets included in this report do, however, make use of blockchain technology and cryptographic encryption.

While we generally use the term crypto-assets, for the sake of accuracy, when discussing specific legal documents, such as Supreme Court judgments, circulars, parliamentary questions, and government reports, we use the same terminology as the source – which may be 'virtual currencies' or 'cryptocurrencies.'

1.2) DIFFERENT TYPES OF CRYPTO-ASSETS

Although there is significant diversity among crypto-assets, they can be classified into three categories:

1.2.1) COINS

Coins are crypto-assets that are built – and operate – on their own native, independent and dedicated blockchain.[14] The sole function of these coins is to store and transfer value. Examples of such coins include bitcoin, ethereum, and litecoin. Note

that any coin that is not bitcoin is referred to as an 'alternative coin' or an 'altcoin'.

1.2.2) TOKENS

Tokens are crypto-assets that do not make use of their own proprietary blockchain; rather, they are built on a pre-existing blockchain.[15] Many popular tokens are built on top of proprietary blockchains – like that of ethereum. While tokens may be utilised to store and transfer value, they can also have other auxiliary purposes. Examples of tokens include the following:

I. Stablecoin
Stablecoins are tokens whose values are fixed – often, they are pegged to a currency such as the US dollar. Some prominent examples include tether, USD coin (USDC), and binance USD.

II. Security tokens
Security tokens are tokens that indicate that the owner possesses a stake in some real-world asset or enterprise.[16] These tokens therefore "derive their value from an external asset that can be traded."[17] They are in some ways similar to stocks, bonds, and other investment mechanisms.[18]

III. Asset tokens
These are tokens that represent real-world assets such as gold or real estate. Ownership of these tokens indicates ownership of the equivalent real-world asset.[19]

IV. Utility tokens
Utility tokens provide users with special access to a product, service, or offer.[20] They are often issued as part of a project or company's initial coin offering (ICO).[21]

V. Non-fungible tokens (NFT)

An NFT is a unique token that corresponds to a specific and unique digital item (or a digital representation of a physical item).[22] NFTs are used to establish ownership over that specific item and also to provide an auditable chain of custody for it.

VI. Payment tokens

These tokens are used to facilitate payments outside of the platform on which they are issued. [23]

1.2.3) NATIONAL CRYPTO-ASSETS

These crypto-assets are not privately owned or maintained. Issued by national governments, they are meant to act as digitised versions of the state's existing currency. They are backed by their respective national governments and considered legal tender. The most notable of such assets is China's Digital Yuan, which is at present still under trial.[24]

National crypto-assets differ from traditional digital representations of currency, as in the case of bank accounts. While the money in banks is represented, stored, and transferred digitally, this money is the liability of banks that are obligated to maintain sufficient reserves to pay customers when they withdraw cash. National crypto-assets, on the other hand, are the liability of the state, and the responsibility of holding reserves rests with the central bank.[25]

1.3) THE TECHNICAL AND ECONOMIC UNDERPINNINGS OF CRYPTO-ASSETS

Before proceeding with our analysis of crypto-assets in India, we first outline certain technical characteristics so as to establish a foundational understanding of the technology as well as the different types of crypto-assets. [26]

1.3.1) DISTRIBUTED LEDGER TECHNOLOGY

The definition of the term 'distributed ledger technology' (DLT)[27] lacks a clear consensus in academic literature.[28] Given this ambiguity, Rauchs et al. provide a framework for defining DLT – they identify the minimum number of characteristics that a DLT implementation must possess rather than by attempting to outline every characteristic. [29]

They define a DLT implementation as a system of electronic records, which "enables a network of independent participants to establish a consensus around the authoritative ordering of cryptographically-validated ('signed') transactions. These records are made persistent by replicating the data across multiple nodes, and tamper-evident by linking them by cryptographic hashes. The shared result of the reconciliation/consensus process – the 'ledger' – serves as the authoritative index for these records."[30]

In simpler terms, a DLT is a system of making electronic records that is distributed across several entities (or nodes), which enables the sharing of records and establishes consensus around them without having to rely on any centralised coordination to provide an accurate version of the records (or ledger).

1.3.2) HASH AND HASH FUNCTIONS

Henson (2003) describes a hash function as a function that "maps a variable length input string to a fixed length output string – its hash value, or hash for short."[31] A string is a type of data constituted by an ordered sequence of characters that can act as either a constant or a variable. In simpler terms, data (usually strings) that is put through a hashing function creates an output that consists of a fixed-length sequence of symbols – also known as a fixed-length output string. The hashes that are produced as a result of this process are, to an extent,[32] unique and can be used to identify and differentiate multiple pieces of data from each other.

1.3.3) BLOCKCHAIN

Zheng et al. define blockchains as "a public ledger, in which all committed transactions are stored in a chain of blocks. This chain continuously grows when new blocks are appended to it. The blockchain technology has the key characteristics, such as decentralisation, persistence, anonymity and auditability." [33]

Blockchain represents a form of DLT that is most often used in crypto-assets. As the name suggests, a blockchain is a complete list of all recorded transactions created through a combination of individual blocks – each of which stores some information – secured in the form of a hash. [34]

The various elements of a blockchain are outlined below:

I. Node
A node refers to any device – from phones and laptops to dedicated servers –that possesses a complete record of all the transactions undertaken on the blockchain. In most blockchain[35] networks, nodes are traditionally interconnected and constantly share data between themselves. Nodes perform three major functions: Firstly, they verify whether a block on the blockchain is valid.[36] Secondly, they store the entire transaction history of the blockchain.[37] Thirdly, owing to their interconnected nature, they transmit this history to all other nodes to ensure that they are up to date. [38]

II. Block
Each block on a blockchain network can store only a certain predefined amount and type of data depending on the implementation. [39]

As Figure 1 demonstrates, a block comprises a block header and a block body (titled as transactions in the figure).[40] The block header consists of a block version parameter, which indicates which set of validation rules that block must adhere to. Changes to the block parameter will affect the implementation of the blockchain. It may also contain the hash of all transactions stored within the block, the hash of the previous block – called the parent block – the timestamp, a nonce, which is a random number that is used to verify the hash and achieve consensus among the blocks, and the nBits, which are the current hashing target in a compact format.[41] Additionally, it has the Merkle root, which is the hash of all the hashes relating to every transaction within the block, which is used as part of the verification mechanism in a blockchain.[42] On the other hand, the block body consists of all the transactions stored within the block as well as a counter for the transactions, which provides immutability. [43]

Figure 1: The Structure of a Block Within a Blockchain[44]

BLOCK 0 HEADER	BLOCK 1 HEADER	BLOCK 2 HEADER
VERSION	VERSION	VERSION
PREVIOUS BLOCK HEADER HASH	PREVIOUS BLOCK HEADER HASH	PREVIOUS BLOCK HEADER HASH
MARKLE ROOT HASH	MARKLE ROOT HASH	MARKLE ROOT HASH
TIME	TIME	TIME
nBits	nBits	nBits
NONCE	NONCE	NONCE
TRANSACTIONS	**TRANSACTIONS**	**TRANSACTIONS**
COINBASE	COINBASE	COINBASE
TX1	TX1	TX1
TX2	TX2	TX2
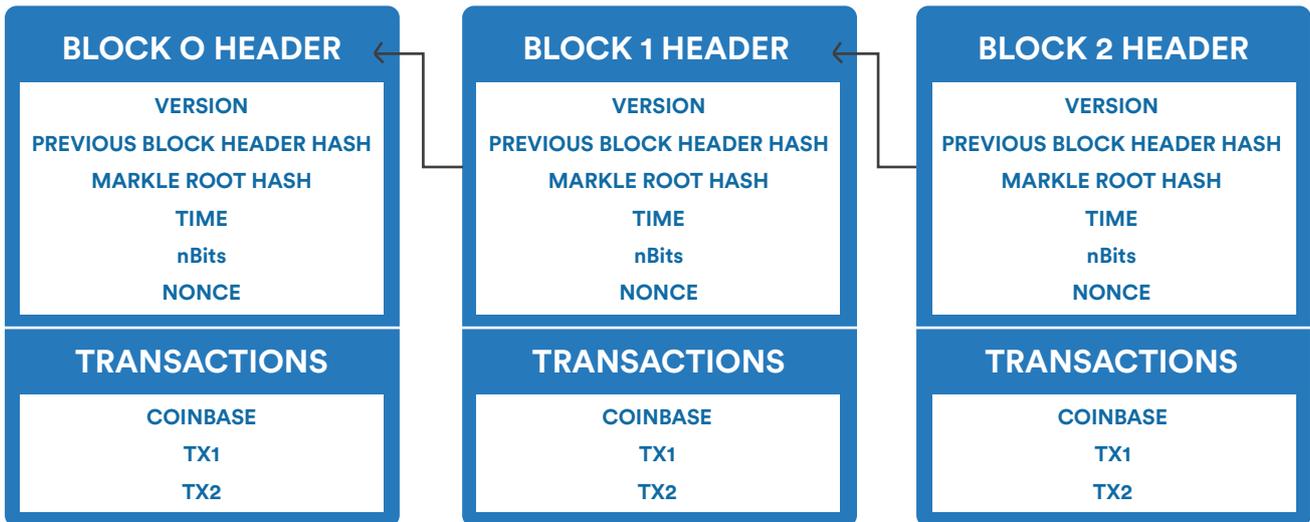
(Source: Horizon Academy)

III. Digital signature

The blockchain is secured through a digital signature, which is used to authenticate transactions between users.[45] Digital signatures in the context of blockchain utilise both public and private keys.

Private keys are used to encrypt the hash of a piece of data generated by the sender. Once the hash has been encrypted, it is sent to the receiver along with the original data. Once they receive the encrypted hash, the receiver uses the public key to 'decrypt' it to access the original hash. The receiver also generates a hash from the original data using the same hash function that the sender used. The receiver then verifies whether the hash they obtained from the original data matches the one they decrypted using the public key. If these hashes are the same, then the transaction is verified.[46]

IV. Mining

The process by which new blocks are added to the chain is referred to as 'block mining' or simply 'mining'.[47] During a new transaction, a call is sent across the blockchain to initiate the transaction, which is then 'converted' into

a block.[48] To mine the block (that is, to add it to the blockchain), a computer must solve an equation produced for that block and which corresponds to a nonce. The first person – or, more accurately, the first computer – that solves the equation gains the ability to add the block, which consists of a list of pending transactions, to the blockchain. Then, this solution is verified by the other nodes of the blockchain, which validate the transactions and the new block. Through this process, the other nodes within the network are updated with the new transaction records. After this, the new block becomes a part of the chain. As a reward for executing this process, miners are awarded a set amount of cryptocurrency.[49]

This mining process is not universal – rather, it is predicated upon the use of proof-of-work consensus mechanisms, as is the case for cryptocurrencies like bitcoin. In the following sections, we explore the alternative consensus mechanisms of other cryptocurrencies, which make use of different mining procedures.

V. Consensus mechanism

Changes or additions can be made to the blockchain only after a majority of blocks within the chain validate both, the transactions within a block and the block itself, through the use of a consensus mechanism.[50] A consensus mechanism, according to Swanson, is "the process in which a majority (or in some cases all) of network validators come to agreement on the state of a ledger. It is a set of rules and procedures that allows maintaining coherent set of facts between multiple participating nodes."[51] The consensus mechanism plays an important role in preventing 'double spending', or tampering of the transaction record to allow the same crypto-asset to be spent multiple times simultaneously. It is worth noting that the consensus mechanism determines the exact parameters that would constitute a 'majority' required for validating a transaction. The consensus mechanism thus verifies new transactions and ensures that they are not immediately added to the blockchain. [52]

Here are a few examples of consensus mechanisms:

● *Proof-of-work (POW)*

In a proof-of-work mechanism, every node in the network competes to calculate a complex mathematical problem whose answer has to fit within certain predetermined parameters.[53] Once one node solves the problem, all the other nodes on the chain have to verify it. Once the nodes reach a consensus, the transactions are considered validated and authenticated, and a new block is created.

● *Proof-of-stake (POS)*

Proof-of-stake is an alternative consensus mechanism, wherein rather than competing to solve an equation, users are required to verify that they own a certain amount of crypto-assets.[54] This mechanism operates on the assumption that the more crypto-assets a user possesses, the less likely they are to attack the network. Therefore, a user with a greater amount of crypto-assets has a higher likelihood of being chosen to validate the newly created block.[55] Since selection based on the size of crypto-assets disproportionately favours larger accounts, this mechanism also considers other parameters to make the process fairer. [56]

● *Proof-of-activity*

The proof-of-activity mechanism combines elements of both POW and POS.[57] In a proof-of-activity model, miners compete with each other to create new blocks on the blockchain. However, once a block is created, it must be validated by many randomly selected users. Only after this validation process is the new block considered a legitimate part of the blockchain.[58]

● *Proof-of-capacity or proof-of-space*

This mechanism relies on the utilisation of hard drive space rather than computational power or crypto-asset amounts.[59] It can be divided into two steps – plotting and mining.[60] Plotting refers to the creation of a random solution (known as a plot) that is stored on a miner's hard drive. The miners then compete to be the first to reach the solution.

● *Delegated proof-of-stake (DPOS)*

DPOS is a variation of the POS mechanism,

wherein all users vote and select a number of users (known as delegates) who will validate the next block.[61] The number of elected delegates is usually small, making the validation process – and the subsequent mining process – much quicker.

● *Practical Byzantine fault tolerance (PBFT)*

A PBFT algorithm is designed to protect the system against any type of Byzantine or faulty behaviour – such as sending out incorrect information –by a node either due to a software error or malicious attack.[62] The nodes in a PBFT system are ordered in a sequence, with one node acting as the leader and the others as backup.[63] All nodes within the system communicate with each other so that all the non-byzantine nodes come to a majority consensus. During this communication, a node must prove that the message it received came from a specific peer node and that there was no change to the message during the transmission process.[64] The entire process is broken up into three phases, and a node is only allowed to move from one phase to another if it has been verified by two-thirds of the nodes in the system. [65]

VI. Forks

It is possible that during the mining process, multiple nodes find the appropriate nonce at the same time, leading to the simultaneous creation of multiple valid blocks.[66] Subsequent blocks are then added to one of the two newly developed blocks, leading to the discarded block becoming 'orphaned' by the network.[67] This is known as a fork in the blockchain.

Forks can also occur when the blockchain's protocol is changed, which determines the rules by which a block is validated.[68] If there is no consensus regarding the protocol changes, then the blockchain forks into two. Such forks can be divided into hard and soft forks.[69] Soft forks occur when the changes to the protocol are backwards compatible, while hard forks arise when they are not.

VII. Type of blockchain

Based on the consensus mechanism they use, blockchains can be further categorised as public, consortium, or private.

● *Public blockchain*

A public blockchain is one that any individual is able to read and use in transactions and whose consensus process they can participate in.[70] This is the most decentralised form that a blockchain can take. Many prominent crypto-assets, such as bitcoin[71] and ethereum,[72] utilise public blockchains. An essential component of public blockchains is the blockchain explorer otherwise known as block explorer.[73] They are tools that allow any individual to view all transactions on the blockchain, irrespective of whether they are a node operator or not.

● *Private blockchain*

A truly private blockchain is one where the writing permission rests entirely with a centralised organisation. It can have read permissions that are open to the public to whatever extent the centralised organisation deems appropriate. [74]

● *Consortium blockchain*

Finally, a consortium blockchain is one where the consensus procedure is controlled by a predetermined number of entities or nodes.

Such blockchains can either be open for the public to read, entirely closed, or restricted to a certain extent. It represents a form of partial decentralisation. [75]

VII. Key characteristics and advantages of blockchain technology

Blockchain technology is characterised by many properties that imbue it with significant value and which have tangible benefits in the real world. We must note that while all blockchains share a common form, the characteristics (and subsequent benefits) that are ascribed to public, private, and consortium blockchains are different. For this analysis of the advantages of blockchain, we shall consider only public blockchains. They include:

● *Decentralisation*
Unlike legacy transaction systems that are highly centralised, a major benefit of blockchain is that transactions can be conducted between any two peers without the involvement of a central agency.[76] This also ensures that the network is able to function even when individual nodes are damaged or unavailable as a result of network outages. [77]

● *Authenticity and persistence*
Since every transaction is validated and recorded across the entire network, it is difficult to falsify or alter records at a later time, and any attempt at such falsification can be detected with relative ease.[78] Furthermore, as every node maintains an up-to-date copy of all transactions, this list cannot be lost or destroyed – this may be possible if it were possessed by a central agency.

● *Anonymity*
Blockchains provide anonymity to users, as they can interact with the blockchain through their generated blockchain addresses rather than with their real identities.[79] We would like to point out that blockchain technology – or rather, the fiat nature of a lot of transactions – may end up compromising user privacy. We discuss this issue in the following section.

● *Auditability*
The timestamping and network-wide validation processes in blockchains allow users to track and verify the status of pending transactions as well as records of previous transactions. [80]

XI. Limitations of blockchain technology

While blockchain technology undoubtedly has a multitude of advantages, it is important to remember that it is far from a silver-bullet solution. There remain several clear limitations that we must acknowledge:

● *Lack of transaction privacy*
While blockchains do provide user anonymity through generated addresses, the fact that all nodes maintain records of all transactions almost eliminates the possibility that users might have transaction privacy.[81] However, dedicated users may still achieve transaction privacy by adopting certain methods, depending on the depth of privacy they want.

● *Computational and environmental costs*
While the decentralisation of blockchain has clear advantages, these advantages come at substantial computational and environmental costs. The extent of this cost depends on the specificities of the

blockchain (and the mining process, as in the case of bitcoin). The upcoming sections demonstrate how these costs can skyrocket in the context of crypto-assets like bitcoin and ethereum.[82]

● *Governance and regulatory difficulties*
Decentralisation also presents difficulties in terms of applying regulatory, legal, and governance frameworks on the functioning of blockchains. This can prove especially difficult in the context of industries such as banking and finance,[83] which are often cited as industries wherein blockchains could have multiple uses.

Susceptibility to collusion
Blockchains could also be potentially vulnerable to attacks from miners who are colluding. Such exploitation from miners working together can take multiple forms, including a 51% attack, selfish mining, and stubborn mining, to name a few.[84]

1.3.4) CRYPTONOMICS AND TOKENOMICS

Cryptonomics can be defined as "the study of economic interaction in adversarial environments."[85] Cryptonomics draws on decision and game theory to predict and incentivise the actions of users within a decentralised network and "create robust decentralized peer-to-peer (P2P) networks that thrive over time despite adversaries attempting to disrupt them."[86]
Tokenomics, on the other hand, relates to the functioning of economies borne out of the development, use, and sale of crypto-assets. [87]
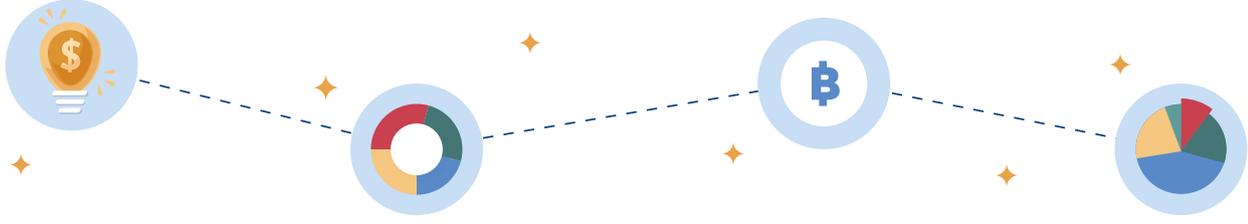
02
A BRIEF HISTORY OF THE CRYPTO-ECOSYSTEM

2.1) EARLY CRYPTO-ASSETS

Even before the advent of bitcoin, the concept of cryptocurrencies existed, although in a primitive form and with different names. Its first iteration was proposed by an American cryptographer named David Chaum, who, in 1983, introduced the idea of anonymous digital cash that utilised a cryptographic technology known as a 'blind signature'.[88] At the same time, Chaum's ideas fuelled the growth of the Cypherpunk movement, which advocated the widespread use of cryptographic technologies and privacy-oriented approaches,[89] and were vital to the overall growth of the idea of cryptocurrency.[90] Then, along with fellow cryptographers Amos Fiat and Moni Naor, Chaum further developed this concept[91] and founded the company DigiCash in 1989 with the intent of commercialising 'ecash' – his anonymous cryptographic payment system.[92] However, the technology was used and then abandoned by a handful of banks; eventually, it failed completely, with DigiCash declaring bankruptcy in 1998 and subsequently selling all its assets and patents to another company.[93]

This was not the only cryptography-based digital currency proposed before bitcoin.

Wei Dai, a computer engineer, introduced the concept of 'b-money'; in a 1998 white paper, he described it as an anonymous, distributed electronic cash system.[94] This technology, which comprised various components that are now used in modern cryptocurrencies, was never deployed as a means of exchange.[95] Around the same time, Nick Szabo, another computer scientist, proposed a digital currency known as 'bit gold' – widely considered a precursor to the infamous bitcoin.[96] Although his system was based on the same proof-of-work concept, Szabo was never keen on privacy, a key aspect of bitcoin. Nevertheless, like other similar currencies before it, bit gold failed to gather public attention, and the cryptocurrency domain was dormant until the introduction of bitcoin in 2008.[97]

Interestingly, in between all these developments, the National Security Agency (NSA) of the United States also briefly ventured into this field and published a paper describing a cryptocurrency system. This paper first appeared in an MIT mailing list in 1996 and was later published in the American Law Review in 1997.[98]

2.2) BITCOIN

The genesis of the widely popular cryptocurrency, bitcoin, can be traced back to a research paper posted on a cryptocurrency mailing list in 2008.[99] This paper was authored by someone who used the pseudonym Satoshi Nakamoto (the exact identity of the real author(s) of the paper remains unknown to date).[100] The cryptocurrency they proposed was the first to theoretically solve the 'double-spending problem' by doing away with third-party interference and utilising a publicly-distributed ledger popularly known as the blockchain.[101]

The theoretical idea was practically implemented for the first time on 3 January 2009, when Nakamoto themself mined the first 50 bitcoins – or the 'genesis block' [102] – and then transferred 10 bitcoins to a computer scientist named Hal Finney, thereby completing the first-ever bitcoin transaction in recorded history.[103]

Bitcoin received support from early crypto-developers such as Wei Dai and Nick Szabo and digital communities in general.[104] It initially remained limited only to the small group of individuals who mined it and started public trading only in 2010.[105] Another major milestone in bitcoin history took place on 22 May 2010, when the first commercial transaction involving bitcoins took place: Laszlo Hanyecz, a Florida-based programmer, paid for two pizzas using 10,000 bitcoins.[106] By this time, Nakamoto had mined approximately one million bitcoins before disappearing and handing over control of the code repository to Gavin

Anderson, another software developer who then spearheaded the development of the software client for the bitcoin network.[107]

Although it was initially used mostly in black-market transactions, bitcoin started to attract wider public attention after 2011, and, since then, it has grown exponentially in many ways.[108] Being open-source, it has also helped speed up the emergence of other cryptocurrencies,[109] thereby pushing us into a new era of digital transactions. Over the last decade, the value of bitcoin has fluctuated wildly as the public started trading and using the currency. When it was first traded publicly on 25 April 2010, it was originally valued at 0.3 cents (USD 0.003) per bitcoin,[110] and as of May 2021 – more than a decade after its launch – it trades for over USD 57,000 per bitcoin.[111]

2.3) ETHEREUM, 'ALT COINS', AND OTHER CRYPTO-ASSETS

Although the underlying foundational technology of cryptocurrency had been researched and tested earlier, it was only after the success of bitcoin that the technology was effectively used at a large scale.[112] Starting in 2011, other, similar cryptocurrencies – such as litecoin, swiftcoin, and namecoin – began to emerge (many of which were either software forks of or modifications of bitcoin's core client),[113] although none of them went on to become as popular as bitcoin. In 2013, Russian-Canadian programmer, Vitalik Buterin, authored a white paper putting forth the idea of ethereum, another open-source blockchain, which can be used for more than just trading cryptocurrency.[114]

Apart from operating its crypto-asset, named ether, the network offers other functionalities, such as operating decentralised finances[115] and enabling the creation and sale of the emerging non-fungible tokens (NFTs).[116]

The ethereum platform was developed with the help of crowdsourcing (raising more than USD 18 million) and started functioning in 2015.[117] It is extensively used today and has undergone many changes since its original release. It has also been subject to attacks by hackers, which have led to hard forks[118] (permanent changes in network protocols that renders certain previously valid blocks and transactions invalid).[119] Since then, thousands of cryptocurrencies (and tokens) have emerged, boosted by the inception and growth of ICOs, while others have fallen.[120.121] Some of the more famous cryptocurrencies include XRP in 2012,[122] dogecoin in 2013,[123] tether (formerly called realcoin) in 2014,[124] and binance coin in 2017.[125]

According to CoinMarketCap, as of April 2021, there were over 9,500 traded cryptocurrencies currently in existence, with a total market capitalisation of over USD 2 trillion.[126] However, only a few of these enjoy widespread popularity and hold significant market share.[127]

2.4) THE RISE OF CRYPTOCURRENCY EXCHANGES

At the time of launching bitcoin, there were only two ways for individuals to acquire it. The first was to mine it themselves; the second was through a P2P trade (of either currency or commodities) on forums like Bitcointalk – which hosted discussions on

bitcoin. In 2010,[128] Bitcoin Market sought to address this market gap for an organised platform where users could buy, sell, and trade their bitcoins. Announced on Bitcointalk, it was the first dedicated bitcoin exchange.[129] It offered bitcoins at a floating exchange rate so that users could purchase bitcoins from other users through Paypal payments.[130]

Several other exchanges emerged soon after, the most notorious of which was Mt. Gox. Mt. Gox (Magic: The Gathering Online Exchange), named after the card trading game, Magic: The Gathering, for which the site was initially intended, became the largest bitcoin exchange during 2013-2014 and contributed to around 70% of all bitcoin transactions. However,[131] in 2014, the exchange was subject to a significant hack, with the hackers stealing USD 460 million and 744,000 bitcoin – or 6% of all bitcoin in existence at the time.[132] While Mt Gox was the first high-profile instance of a crypto-exchange being hacked, it was far from the last. Many more modern exchanges, such as Bitfinex, Binance, and others, have all been subject to attacks from hackers, resulting in the theft of vast sums of crypto-assets. [133]

03
PROPOSED USE CASES FOR CRYPTO-ASSETS

Proponents of crypto-assets have posited many areas where they can add value within modern society. In this section, we discuss some of these in detail.

3.1) AS A METHOD OF PAYMENT

The effectiveness of crypto-assets as a method of payment has to be analysed based on their ability to satisfy the three main functions of money – as a medium of exchange, a store of value, and a unit of account. Here, we examine the suitability of crypto-assets for use as a method of payment, focusing on crypto-assets such as bitcoin – which we refer to as cryptocurrencies.

3.1.1) A MEDIUM OF EXCHANGE

One of the most fundamental functions of money is its use as a medium of exchange in facilitating transactions. A medium of exchange is defined as any instrument used "to simplify the process of exchanging one's products for those of the rest of society."[134] Without a medium of exchange, goods and services can only be exchanged between sellers and buyers whenever there is a double coincidence of wants (i.e. when they both have what the other wants).[135]

Thus, in simple words, it acts as a medium of exchange that enables the sale and purchase of goods and services. Money, in the form of currency such as the US dollar or the Indian rupee, acts as the medium of exchange in most transactions. [136]

For any currency to act as a medium of exchange, there must be individuals or entities who are willing to accept it as a valid form of payment. Since the inception of cryptocurrencies, peer-to-peer (P2P) transactions have been fairly common, as they depend solely on the discretion of the individuals conducting them, but commercial transactions in cryptocurrencies have been limited.[137] As was discussed earlier, the first of such transactions took place on 22 May 2010, when a Florida-based programmer paid for two pizzas using 10,000 bitcoins (although it is debatable whether it was a commercial transaction in the truest sense, as the bitcoins were actually paid to a third person who then ordered the pizzas using fiat currency).[138] While the number of establishments accepting payment in cryptocurrencies was initially very limited, many small and large businesses, especially in the US and across Europe, now do so. This points towards greater acceptance of cryptocurrencies as a medium of exchange.[139]

It has also been argued that even though a large number of establishments accept these currencies, this does not automatically signify that they are being used widely; instead, the metric that we need to look at is the number of transactions made using cryptocurrencies over the years.[140] When looking at this metric, there has been a rapid increase in the number of transactions,[141] possibly indicating increased usage - we say possibly here as it is entirely possible that these transactions are concentrated around a few users. The P2P and decentralised nature of most cryptocurrencies, and the added advantage of privacy, encourage their use as a medium of exchange.[142]

On the other hand, there are also many deterrents – their relatively limited commercial acceptance and regulatory uncertainties – to the widespread adoption of cryptocurrencies as a medium of exchange. The most prominent deterrent is its price volatility, driven by speculative demand[143] (although there are exceptions like stablecoins). Data indicates that in 2017, the daily volatility amounted to around 7–10%,[144] and even in 2021, after making tremendous gains in the early months, bitcoin dropped in value by as much as 47%.[145] Such large variations in price make it extremely difficult for businesses and individuals to make effective use of cryptocurrencies as a regular instrument for payment. Similarly, other issues, such as relatively slow transaction speeds,[146] environmental concerns,[147] and regulatory uncertainty, prevent cryptocurrency transactions from becoming mainstream; instead, they are seen largely as investments.[148]

Regardless, the growing popularity of cryptocurrencies across the world, coupled with rapid technological advancements in this space[149] – which may help in overcoming technical and operational barriers – hint towards a future where such instruments may be widely used as a medium of exchange, perhaps even at the scale of fiat currencies. Reports indicate that even in India, gig workers, small businesses, and freelancers are now accepting payments in cryptocurrencies.[150] Finally, developments such as the RBI's plans to introduce its own Central Bank Digital Currency (CBDC)[151] and China's Digital Yuan[152] are clear indicators that governments around the world are considering cryptocurrencies an integral element of any future monetary system. We are yet to see, however, if this will facilitate increased cryptocurrency transactions to the point that it establishes itself as a viable alternative to existing means of exchange.

3.1.2) A STORE OF VALUE

Another important function of money is that it acts as a store of value. For any instrument or commodity to act as a store of value, it must "be able to purchase approximately the same value of goods and services at some future date as it can purchase now."[153] In simple words, over a period of time, it must be able to retain its original value to a reasonable extent and also be useful to the holder in some way. As currency, money is well-suited to act as a store of value because of its relatively stable value over a (short) period of time (even though it depreciates due to inflation in the long run) as well as its liquidity, durability, and widespread acceptance.[154] Other commodities or instruments that are

commonly used as stores of value (even for longer periods of time) are precious metals, financial instruments, and real estate.

There are varying viewpoints on the use of cryptocurrencies as a store of value. Many argue that cryptocurrencies do not possess any intrinsic value;[155] however, fiat money, such as currencies, also do not possess any intrinsic value – they gain their value through state backing. Moreover, the following parameters (which also apply to traditional currencies and precious metals like gold) are reasons why they can be considered viable stores of value:

i. Scarcity

Some cryptocurrencies, such as bitcoin, litecoin, cardano, IOTA, and binance coin, have a limited supply.[156] This means that after a certain point, there will be no more of such cryptocurrencies left to mine, as all of them will already be in circulation. This feature, along with processes such as halving – which "refers to the number of coins that miners receive for adding new transactions to the blockchain being cut in half" every four years, done for some cryptocurrencies such as bitcoin;[157] and burning – "the process of permanently removing volumes of cryptocurrencies from circulation", done periodically for cryptocurrencies like binance coin[158]– make these cryptocurrencies scarce and deflationary in nature and increases their value as their supply is limited and demand increases.

ii. Utility

Cryptocurrencies have been used in multiple ways, including but not only as methods of payment and investment. While cryptocurrencies are not yet widely accepted as payments, the situation is improving steadily and acceptance is expected to increase. Even as a store of value, while concerns of volatility exist, many have observed long-term steady gains.[159] Thus, cryptocurrencies possess utility in various forms.

iii. Durability

Due to their digital nature, cryptocurrencies are extremely durable. If there are no changes in the underlying technology, they can be used in the same manner even after long periods without any loss of value since there are no physical changes.[160] This is in addition to the security and verifiability made possible through blockchain technology,[161] although the risk of users' crypto wallets being hacked still exists.[162]

iv. Transportability

Given the range of cryptocurrency exchanges and wallets, cryptocurrencies can be carried, transferred, and used anywhere with relative ease.[163] These transfers are cheap and fast – although, as we have discussed, with older cryptocurrencies like bitcoin, they are not fast enough for it to act as a day-to-day means of payment. This also makes it suitable for easy cross-border transactions, although regulatory uncertainty might restrict this use.

On the other hand, some argue that the extremely volatile nature of cryptocurrencies makes them unreliable as stores of value, especially in the short term. In the long term,[164] however, some analysts believe that the value of almost all cryptocurrencies is bound to increase.[165] This, coupled with the

other advantages we have discussed, makes them an appealing store of value.

Finally, debates on whether cryptocurrencies might replace established stores of value like gold (it is already referred to as digital gold)[166] in the near future is perhaps a bit premature. Unlike gold and other safe-haven assets, cryptocurrencies like bitcoin have not demonstrated an ability to maintain their value during periods of market downturn.[167] Moreover, persistent regulatory and market uncertainties also diminish their ability to act as effective stores of value.

3.1.3) A UNIT OF ACCOUNT

Money is considered a unit of account – that is to say, it acts as "a standard numerical unit of measurement of market value of goods, services, and other transactions."[168] This function of money allows us to compare the value of a wide variety of goods and services through the use of a standard measure.

Again, the extreme short-term volatility of cryptocurrencies makes them poor reference points or standard measures.[169] Moreover, since there is no centralised authority regulating price, there are minute differences in price in the short term across various exchanges and wallets.[170] Thus, unless the short-term volatility of cryptocurrencies stabilises in the near future, they cannot be effective as a unit of account.

3.2) AS A TRADABLE ASSET

Crypto-assets can serve as assets that are traded between consumers. This is currently their most popular use in the market, with much of their value coming from speculation.[171] Traders can sell or purchase crypto-assets for a multitude of reasons, including to access specific services or goods, make speculative profits, or store value.

3.3) AS INITIAL COIN OFFERINGS (ICOS)

ICOs are a means of capital generation where an entity offers a crypto-asset for sale to raise capital for a specific purpose or project.[172] The sold crypto-assets provide the purchasers some form of future value – access to goods or services, project voting rights, or a percentage of future project revenues.[173] An ICO, therefore, represents an alternative model for organisations to secure funding outside of the traditional debt and equity framework.

3.4) AS CRYPTO-ASSET FUNDS AND DERIVATIVES

Certain entities may provide investment funds or derivative products with crypto-assets as the underlying asset.[174] However, it is worth noting that some jurisdictions, like the United Kingdom, have already banned the sale of derivatives linked to certain types of crypto-assets to retail customers.[175]

3.5) CRYPTO-ASSET-RELATED SERVICES

Finally, a number of related services have arisen as a result of the growth of crypto-assets: these include crypto-wallets, mining services, and crypto escrows.[176]
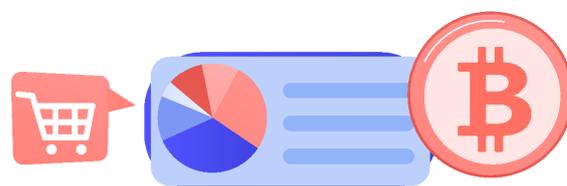
04
LEGAL FRAMEWORKS AND CRYPTO-ASSETS IN INDIA

4.1) DEFINING CRYPTO-ASSETS UNDER INDIAN LAW

Crypto-assets have been variously described as currencies, money, investments, and commodities.[177] In order to better understand the legal treatment of crypto-assets, we analyse the legal definitions of the financial instruments that they resemble most in their functionality, to determine how well crypto-assets may fit any of these definitions, viz. currency, money, securities, derivatives, commodity derivatives, collective investment schemes, prepaid payment instruments, etc.

4.1.1) CURRENCY OR MONEY?

The term 'currency' is not defined in the Reserve Bank of India Act, 1934, the Banking Regulation Act, 1949, or the Coinage Act, 2011. However, it is defined in Section 2(h) of the Foreign Exchange Management Act, 1999 (FEMA) thus:

"'currency' includes all currency notes, postal notes, postal orders, money orders, cheques, drafts, traveller's cheques, letters of credit, bills of exchange and promissory notes, credit cards or such other similar instruments, as may be notified by the Reserve Bank."

This is an inclusive definition that allows scope for expansion. The legislature consciously left room for expansion by giving the Reserve Bank of India (RBI) the authority to notify as currency instruments that are similar to the ones enumerated in the definition[178] and which are used as a currency, although they do not fit within this definition. In fact, the Supreme Court alluded to this method in Internet and Mobile Association of India v. Union of India.[179] The Court noted that vis-à-vis virtual currencies (VCs) – which was the term adopted by the Court when describing crypto-assets – the RBI could easily recognise them as 'currency' by notifying them as such under the category of 'other similar instruments' in Section 2(h) of FEMA.[180]

However, crypto-assets are dissimilar to the instruments mentioned in the definition, not least because none of them is digital or virtual in nature. The Supreme Court also recognised the creation and discharge of financial liability as a function of money or currency when it identified that over time, the three main functions of money have been expanded by adding a fourth function, i.e., the final discharge of debt or standard of deferred payment. Money acquires this fourth function through the conferment of

legal tender status by a government/central authority. Since private crypto-assets are not backed by any central bank or state institution, and as most of the transactions involving acceptance of crypto-assets are voluntary, we cannot consider private crypto-assets as instruments that can be used to create financial liability. It is pertinent to mention here that the only country that has granted a private crypto-asset the status of legal tender is El Salvador, which did so in 2021. [181]

Apart from FEMA's definition of currency, the Prize Chits and Money Circulation Schemes (Banning) Act, 1978 defines money in Section 2(b) as

"a cheque, postal order, demand draft, telegraphic transfer or money order".

Further, Section 65-B(33) of the Finance Act, 1994 (inserted via the Finance Act, 2012), defines money to mean

"legal tender, cheque, promissory note, bill of exchange, letter of credit, draft, pay order, traveler cheque, money order, postal or electronic remittance or any other similar instrument, but shall not include any currency that is held for its numismatic value."

These definitions use the same device as the FEMA in that they list out some instruments that they consider money, even though these instruments may not be legal tender.

Section 2(75) of the Central Goods and Services Tax Act, 2017, defines money as

"the Indian legal tender or any foreign currency, cheque, promissory note, bill of exchange, letter of credit, draft, pay order, traveler cheque, money order, postal or electronic remittance or any other

instrument recognised by RBI, when used as a consideration to settle an obligation or exchange with Indian legal tender of another denomination but shall not include any currency that is held for its numismatic value."

In this definition, we see a reference to the fourth function of money – discharge of debt – since it uses the phrase "when used as a consideration to settle an obligation." However, it is clear from a bare reading of these definitions that crypto-assets do not fit into the definitions of currency or money under Indian law. This does not mean that the RBI cannot regulate crypto-assets or transactions involving crypto-assets. The RBI can very well notify crypto-assets as 'currency' and then prescribe rules and regulations for crypto-asset transactions. We could argue that such an approach is not feasible due to the P2P nature of most public crypto-assets, as it may not be technically feasible for the RBI to regulate every crypto-asset transaction. Nevertheless, it would be possible for the RBI to target crypto-asset exchanges, which are the entry points for most users. In fact, the effectiveness of this approach was evident between April 2018 and March 2020, when the RBI circular prohibiting banks from dealing with crypto-assets and crypto-asset entities was in effect.[182]

To sum up, although crypto-assets are not classified as a currency at present, this does not preclude the RBI from regulating them in the future. The Supreme Court has specifically held that the statutory obligation of the RBI, as a central bank, would naturally compel it to address all the

issues that are perceived as potential risks to the monetary, currency, payment, credit, and financial systems of the country. If an intangible property can act as money under certain circumstances – even without faking a currency – then the RBI can definitely take note of and deal with it.[183]

4.1.2) FOREIGN CURRENCY

FEMA defines 'foreign currency' as

"any currency other than Indian currency."

Since the definition of foreign currency uses the term 'currency', for any instrument to be defined as foreign currency, it must first satisfy the definition of 'currency'. As we discussed previously, crypto-assets do not satisfy this definition. Therefore, they cannot be said to fall within the definition of foreign currency.

4.1.3) SECURITIES

Section 2(h) of the Securities Contracts (Regulation) Act, 1956 (SCRA), defines 'securities' thus:[184]

"'securities' include—
(i) shares, scrips stocks, bonds, debentures, debenture stock or other marketable securities of a like nature in or of any incorporated company or a pooled investment vehicle or other body corporate;

(ia) derivative;

(ib) units or any other instrument issued by any collective investment scheme to the investors in such schemes;

(ic) security receipt as defined in clause (zg) of section 2 of the Securitisation and Reconstruction of Financial Assets and

Enforcement of Security Interest Act, 2002 (54 of 2002);

(id) units or any other such instrument issued to the investors under any mutual fund scheme;

(ida) units or any other instrument issued by any pooled investment vehicle; Explanation.—For the removal of doubts, it is hereby declared that "securities" shall not include any unit linked insurance policy or scrips or any such instrument or unit, by whatever name called, which provides a combined benefit risk on the life of the persons and investment by such persons and issued by an insurer referred to in clause (9) of section 2 of the Insurance Act, 1938(4 of 1938).

(ie) any certificate or instrument (by whatever name called), issued to an investor by any issuer being a special purpose distinct entity which possesses any debt or receivable, including mortgage debt, assigned to such entity, and acknowledging beneficial interest of such investor in such debt or receivable including mortgage debt, as the case may be; (ii) Government securities; and

(iii) rights or interests in securities"

It is clear from a preliminary reading of this definition that crypto-assets do not fall within any of the categories mentioned in this definition of securities other than those of 'derivatives' or 'collective investment schemes', both of which we examine in detail in the following sections.

4.1.4) DERIVATIVES

Section 43-U(a) of the Reserve Bank of India Act, 1934, defines a 'derivative' as:[185]

"'Derivative' means an instrument, to be settled at a future date, whose value is derived from change in interest rate, foreign exchange rate, credit rating or credit index, price of securities (also called "underlying"), or a combination of more than one of them and includes interest rate swaps, forward rate agreements, foreign currency swaps, foreign currency-rupee swaps, foreign currency options, foreign currency-rupee options or such other instruments as may be specified by the Bank from time to time"

The value of crypto-assets is generally not derived from any change in interest rate, foreign exchange rate, credit rating or credit index, price of securities, or a combination of any of these. Therefore, crypto-assets would not fulfil the requirements of the term 'derivative' under the RBI Act. However, if there are any crypto-assets that derive their value from a change in interest rate, foreign exchange rate, credit rating or credit index, price of securities, or a combination of these, then such stablecoins could be considered 'derivatives' under the RBI Act and be governed by the provisions of Chapter IIID. However, the RBI has not yet taken a stand on whether such stablecoins would be classified as derivatives. Section 2(1)(b) of the Payment and Settlement Systems Act, 2002, has a similar definition; the only change is that the list of underlyings includes the catch-all phrase "or any other underlying."[186] This increases the scope of the underlyings for the derivative beyond the list in the definition.

The term derivative is also defined in Section 2(ac) of the SCRA:[187]

"(ac) "derivative" includes—

(A) a security derived from a debt instrument, share, loan, whether secured or unsecured, risk instrument or contract for differences or any other form of security;

(B) a contract which derives its value from the prices, or index of prices, of underlying securities;

(C) commodity derivatives; and

(D) such other instruments as may be declared by the Central Government to be derivatives"

As we discussed in the previous section, crypto-assets are not 'securities' as the SCRA defines them, and therefore they do not satisfy the first part of the definition of 'derivative'. Further, since most crypto-assets (other than stablecoins) are voluntary currencies based on two parties deciding that the code itself ascribes ownership of a value, they cannot be described as a contract that derives its value from the prices or index of prices of underlying securities. Further, the term 'contract' under the SCRA has very limited scope; it is defined as "a contract for or relating to the purchase or sale of securities."[188] Therefore, it is clear that crypto-assets (other than certain stablecoins) would not satisfy the second part of the definition either. The third part of the definition refers to "commodity derivatives", which we discuss in detail in the next sections. However, as per the fourth part of the definition, the central government has the power to notify crypto-assets as derivatives, thereby bringing them within the scope of the SCRA and under the jurisdiction of the Securities Exchange Board of India (SEBI).

The status of stablecoins

The aforementioned legal analysis may change for certain stablecoins on a case-by-case basis. There may be stablecoins backed by shares or bonds in a company (or anything else that falls within the SCRA's definition of a 'security'), and their value may change based on the value of the underlying security. In such cases, if the stablecoin can be considered a 'contract' between its issuer and the holder, then, technically, it could be a derivative. In case a stablecoin satisfies this definition of derivative, then according to Section 18A of the SCRA, it can only be traded in a recognised stock exchange.[189]

4.1.5) COMMODITY DERIVATIVES

Section 2(bc) of the SCRA defines 'commodity derivative' as follows:[190]

"'commodity derivative' means a contract —

(i) for the delivery of such goods, as may be notified by the Central Government in the Official Gazette, and which is not a ready delivery contract; or

(ii) for differences, which derives its value from prices or indices of prices of such underlying goods or activities, services, rights, interests and events, as may be notified by the Central Government, in consultation with the Board, but does not include securities as referred to in sub-clauses (A) and (B) of clause (ac)"

The first part of the provision defines a commodity derivative as a contract for the delivery of goods, as may be notified by the central government and which is not a ready delivery contract. The second part of the definition describes a commodity derivative as a contract for differences, which derives its value from prices – or indices – of prices of such underlying goods or activities, services, rights, interests, and events, as may be notified by the central government. Therefore, a notification from the central government is essential for any contract to be considered a commodity derivative, and there has not yet been any such notification in relation to crypto-assets. Even if the government issues it, it is unclear whether crypto-assets can be classified as a contract under the SCRA, which is essential to the definition of commodity derivative.

4.1.6) COLLECTIVE INVESTMENT SCHEMES

The Securities Exchange Board of India Act, 1992, defines the term 'collective investment scheme' as any scheme or arrangement which satisfies the conditions specified in Section 11AA. Section 11AA contains the following conditions:[191]

"11AA. (1) Any scheme or arrangement which satisfies the conditions referred to in sub-section (2) or sub-section (2A) shall be a collective investment scheme:

Provided that any pooling of funds under any scheme or arrangement, which is not registered with the Board or is not covered under sub-section (3), involving a corpus amount of one hundred crore rupees or more shall be deemed to be a collective investment scheme.

(2) Any scheme or arrangement made or offered by any person under which, —

(i) the contributions, or payments made by the investors, by whatever name called, are pooled and utilized for the purposes of the

scheme or arrangement;

(ii) the contributions or payments are made to such scheme or arrangement by the investors with a view to receive profits, income, produce or property, whether movable or immovable, from such scheme or arrangement;

(iii) the property, contribution or investment forming part of scheme or arrangement, whether identifiable or not, is managed on behalf of the investors;

(iv) the investors do not have day-to-day control over the management and operation of the scheme or arrangement."

The conditions that this provision specifies for any scheme or arrangement to be considered a collective investment scheme are fairly wide in their scope. In fact, the pooling of funds under any scheme or arrangement where the corpus involved is greater than INR 100 crore (or INR 1000 million), would automatically be deemed a collective investment scheme. Relying on this definition, the Supreme Court, in the case of Osians Connoisseurs of Art Pvt. Ltd. v. Securities Exchange Board of India and another,[192] held that an art fund managed by a Trust would fall within the definition of collective investment scheme. Therefore, we could argue that if a company issues its own crypto-assets in exchange for money from the public (as in the case of an ICO), and if the pool of money is above INR 100 crore – or the conditions specified in Sub-section (2) of Section 11AA are satisfied – then such an arrangement could possibly fall within the definition of a collective investment scheme. We must point out that even though the definition does not specify this, common sense suggests that a mere pooling of funds should not automatically fall within the definition of a collective investment scheme. Rather, the pool of funds should be used for investment purposes. However, this argument is untested. In any case, the relevant regulator, i.e., SEBI, has not yet taken any position on whether crypto-assets would be considered collective investment schemes.

4.1.7) PREPAID PAYMENT INSTRUMENTS (PPIS)

The enactment of the Payment and Settlement Systems Act, 2007, brought payment systems under the regulatory jurisdiction of the RBI. Exercising its powers under Sections 18 and 10 of the Payment and Settlement Systems Act, 2007,[193] the RBI issued various circulars to regulate institutions such as mobile wallets, which issue PPIs. In 2017, the RBI issued the Reserve Bank of India (Issuance and Operation of Prepaid Payment Instruments) Directions, 2017 (or PPI Master Directions), which replaced all previous circulars. The PPI Master Directions define the term PPI as follows:[194]

"PPIs are payment instruments that facilitate purchase of goods and services, including financial services, remittance facilities, etc., against the value stored on such instruments. PPIs that can be issued in the country are classified under three types viz. (i) Closed System PPIs, (ii) Semi-closed System PPIs, and (iii) Open System PPIs."

Since PPIs store a definite, which is equal to the amount that the holder has paid in cash or by debit or credit card, they are dissimilar from crypto-assets (other than stablecoins),

which have no static value; rather, they have an inherent value. In other words, the amount of money that a person pays to buy crypto-assets is based on the demand and supply of the VC rather than an immutable fixed value. The value (or exchange rate) of such crypto-assets thus keeps changing on a daily basis.

However, stablecoins – which are pegged against a currency – could possibly fall within this definition of PPI. Thus, issuing stablecoins where the underlying asset is the Indian rupee may require the issuer to comply with the conditions laid down in the PPI Master Directions, including its licensing requirements. However, the RBI has not yet taken a stand on whether any stablecoins will be classified as PPIs.

4.1.8) PAYMENT SYSTEM

Section 2(1)(i) of the Payment and Settlement Systems Act, 2017 defines payment system as follows:[195]

"'payment system' means a system that enables payment to be effected between a payer and a beneficiary, involving clearing, payment or settlement service or all of them, but does not include a stock exchange.

Explanation.--For the purposes of this clause, "payment system" includes the systems enabling credit card operations, debit card operations, smart card operations, money transfer operations or similar operations;"

The definition is extremely wide and we could argue that since any particular crypto-asset which runs on a particular blockchain is a system that can be used to enable payment between a payer and a beneficiary

therefore crypto-assets could be considered to be payment systems. The issue of whether crypto-assets could be classified as payment systems or not was raised before the Supreme Court in the context of whether the RBI had power to regulate them.[196] However this issue was not specifically addressed by the Court which held that the RBI could assume jurisdiction over anything that poses a risk to the financial system of the country even if it is not a part of the credit system or payment system. This reasoning of the Court eliminated the need for a definitive answer to the question of whether crypto-assets can be classified as payment systems or not. The Court further held that due to the nature of crypto-assets they have the potential to interfere with matters that the RBI has powers to regulate and therefore the RBI also has the power to regulate crypto-assets themselves.

4.1.9) HOW CAN WE CLASSIFY CRYPTO-ASSETS?

As we just discussed, other than certain kinds of stablecoins, crypto-assets cannot be classified as regular financial instruments – such as currency, security, derivative, or prepaid payment instruments – as they are currently defined under Indian law.

What, then, should be the legal treatment of crypto-assets under Indian law? Section 3(36) of the General Clauses Act, 1897, defines the term movable property[197] as "property of every description, except immovable property." Immovable property has been defined in Section 3(26) to "include land and the benefits arising out of land or things attached to the earth or permanently

fastened to anything attached to the earth."[198] Relying upon the broad definition of movable property from the General Clauses Act, 1897, it can be suggested that crypto-assets (which are merely lines of code) should be considered movable property. Further, Section 2(7) of the Sale of Goods Act, 1930, defines goods to mean "every kind of moveable property other than actionable claims and money; and includes stock and shares, growing crops, grass, and things attached to or forming part of the land which are agreed to be severed before sale or under the contract of sale."[199] On a bare reading of this definition, we can say that crypto-assets would also fulfil the conditions of this definition. Thus, at the very least, crypto-assets can be considered both moveable property as well as goods under Indian law.

4.2) INTERNATIONAL JUDICIAL PERSPECTIVES ON DEFINING CRYPTO-ASSETS

In *Internet and Mobile Association of India v. Union of India,*[200] the question of the legal treatment of crypto-assets (referred to by the Court as VCs) came under discussion in the Supreme Court. We present a brief outline of how various international authorities treat crypto-assets, as discussed by the Supreme Court:

4.2.1) VCS/CRYPTO-ASSETS AS MONEY

In *Securities and Exchange Commission v. Trendon Shavers,*[201] the Sherman Division Eastern District Court of Texas held that the only limitation of bitcoin is that it is limited to those places that accept it as currency.

However, the court said that it can also be exchanged for conventional currencies, such as the US dollar, euro, yen, and yuan; therefore, it should be treated as a currency or form of money. Similarly, bitcoin was held to be money or funds in *United States v. Faiella,*[202] which followed *United States v. Ulbricht;*[203] both cases dealt with the operation of the underground website, Silk Road.

4.2.2) VCS/CRYPTO-ASSETS AS FUNDS

Apart from *United States v. Faiella,*[204] where bitcoin was treated as currency or 'funds', the US District Court, Southern District of New York, in *United States v. Murgio*[205] – where the defendant was charged with running an unlicensed money-transmitting business – held that as the word 'funds' would mean pecuniary resources, generally accepted as a medium of exchange or means of payment, therefore bitcoin fits within the definition of funds.

4.2.3) VCS/CRYPTO-ASSETS AS PAYMENT INSTRUMENTS

In the case of *State of Florida v. Michell Abner Espinoza,*[206] the Third District Court of Appeal, State of Florida, relied on the term 'monetary value' – which was included in the definition of payment instrument in the relevant statute – to state that monetary value means a medium of exchange, whether or not redeemable in currency. It, therefore, concluded that since virtual currencies have monetary value, they are payment instruments.

4.2.4) VCS/CRYPTO-ASSETS AS COMMODITY

The Commodity Futures Trading Commission (CFTC) of the USA, in *In re Coinflip, Inc.,*[207] and In the matter of *BFXNA Inc., d/b/a BITFINEX,*[208] took the view that VCs are commodities. However, the court rejected this stand in *United States v. Murgio,*[209] where the defendant was charged with running an unlicensed money-transmitting business. Subsequently, in *Commodity Futures Trading Commission v. Partick McDonnell,*[210] the US District Court, Eastern District New York, held virtual currencies to be commodities under the Commodity Exchange Act of the United States. The United States District Court, District of Massachusetts also took a similar view in *Commodity Futures Trading Commission v. My Big Coin Pay, Inc. et al.*[211] on the ground that since there is future trading in VCs, they can be considered a 'commodity' under the statute.[212]

4.2.5) VCS/CRYPTO-ASSETS AS PROPERTY

In *Quoine Pte Ltd. v. B2C2 Ltd.,*[213] the Court of Appeal in Singapore held that cryptocurrencies are capable of assimilation into the general concepts of property, even though there are many questions about the type of property. The English High Court, in *AA v. Persons Unknown & others Re Bitcoin,*[214] opined that virtual currencies are neither choses in action (i.e., they do not embody a right capable of being enforced in action) nor choses in possession (i.e., they are virtual and incapable of being possessed). However, they can still be treated as property based on the four classic criteria of property, which require that they be: (i) definable; (ii) identifiable by third parties; (iii) capable in their nature of assumption by third parties; and (iv) capable of some degree of permanence.

It is now clear that depending upon the context, VCs may be described as many things, such as money, commodity, or property. Recognising this multifaceted functionality of VCs, the Supreme Court of India, in *Internet and Mobile Association of India v. Union of India,*[215] stated that this divergence of views on the nature of virtual currencies per se is not the problem; the problem is when this divergence is driven by fear of regulation, i.e., if it is presented as a commodity to the regulator of money markets and as a currency to the regulator of securities markets, etc. so as to ensure escape from the regulatory framework.

4.3) TAXATION

Crypto-assets could be liable to taxation both under the direct tax regime as per the Income Tax Act, 1961 as well as the indirect tax regime as per the Central Goods and Services Tax Act, 2017 ("CGST") as well as the various State Goods and Services Tax Acts.

4.3.1) DIRECT TAXES

On March 23, 2021 the Minister of State for Finance, made it clear in the Rajya Sabha that any earnings made by dealing in crypto-assets would be liable to tax under the Income Tax Act, 1961 however it was not clarified what provision such gains would fall under.[216] The answer to this question would depend upon whether such gains could be

considered as income or capital gains. If trading in crypto-assets is the main business of any person or company then the profits made by such a person would be liable to income tax as they would be considered as profits and gains of business and profession under section 28(i) of the Income Tax Act, 1961.[217]

The situation is a bit more complicated for most individuals dealing in crypto-assets since trading in crypto-assets is not their primary business or profession. In such instances it becomes more difficult to determine whether profits and gains from dealing in crypto-assets would fall within the definition of income or capital gains.

The term income has been given an inclusive definition under section 2(14) of the Income Tax Act, 1961 which contains a list of various types of incomes. One of the basic principles in determining whether a receipt falls within income or not is whether it is a casual or a recurring receipt,[218] i.e. if it is a recurring receipt it would fall within the heading of income otherwise it could be considered as capital gain.[219] Over the years a large number of cases have tried to determine whether a particular item would fall within the ambit of income or capital receipt, however it is still not possible to derive an ultimate test which could be applicable to every situation. Income tax authorities cannot tax all receipts but can only tax those that amount to income and before any tax is imposed they have to find that such receipts amount to income.[220]

Even if earnings from investing in crypto-assets do not fall within the scope of "income", they could still be taxed as capital gains through the sale of a capital asset

since the term capital asset as defined in the Income Tax Act, 1961 has a very wide scope. Section 2(14) of the Income Tax Act, 1961 defines it and the first clause of the definition says that capital asset means "property of any kind held by an assessee, whether or not connected with his business or profession". Interpreting this provision the Supreme Court has held that property is a term of widest import subject to any limitation which the context may require and it signifies every possible interest which a person can hold and enjoy.[221] As we have discussed above, crypto-assets can be classified as moveable property and in the backdrop of the wide interpretation given to the definition of capital asset, if they are not categorised anywhere else in the Income Tax Act, 1961 it may be possible to consider crypto-assets as falling within the definition of capital assets. Any profits or gains made from the transfer of a capital asset are chargeable to capital gains tax as per section 45(1) of the Income Tax Act, 1961 and therefore any profits made by a person through the appreciation in the exchange rate of the crypto-assets could be liable to capital gains tax.

4.3.2) INDIRECT TAXES

The term "goods" has been defined in section 2(52) of the CGST as: [222]

"every kind of movable property other than money and securities but includes actionable claim, growing crops, grass and things attached to or forming part of the land which are agreed to be severed before supply or under a contract of supply;"

As has already been discussed above, crypto-assets do not fall within the definition

of money as defined in the CGST, neither are they securities as defined in the SCRA. Instead, crypto-assets would fall under the definition of moveable property under Indian law and therefore would satisfy the requirement of goods under the CGST. Section 9 of the CGST levies a tax on the supply of all goods and services, we could therefore argue that all crypto-asset trades would be liable to tax under the CGST. However it must be noted that the term supply has been defined in section 7 as supply "in the course of furtherance of business", thus the liability to pay tax under the CGST for crypto-asset trades would depend upon whether they are being sold in the course of business or as a hobby or investment. In the former case they would be liable to taxation under CGST (provided the seller fulfills the requirements of registration under the CGST), whereas in the latter there would be no tax liability under the CGST regime.[223] Since the Schedule of GST Rates on Goods does not recognise and provide a category for crypto-assets they could be taxed under the residuary provision contained in the Schedule.

The activity of crypto-asset exchanges by its very nature would have to be classified as a service, since they provide various services such as online wallets, order matching, escrow services, etc. for their customers.[224] It must be pointed out that this tax would not be applicable on the total volume of the trades on the crypto-asset exchange but only on the commission or fees that the exchange charges for its services.

4.4) DRAFT PRIVATE CRYPTOCURRENCY BILL

The only publicly available version of the Draft Cryptocurrency Bill was contained in the Report of the Inter-Ministerial Committee (IMC) under the Chairmanship of the Secretary for Economic Affairs.[225] The Banning of Cryptocurrency and Regulation of Official Digital Currency Bill, 2019, had two primary purposes. First, it aimed to completely ban 'private cryptocurrencies'. Second, if the RBI launches an official digital currency, it would be recognised under this Act. Interestingly, while the Bill proposed a ban on crypto-asset transactions, it carved out an exception for DLT and specified that using DLT was not prohibited as long as it did not involve cryptocurrency. We must note that the IMC report was published in 2019, when the RBI Circular prohibiting banks from dealing with cryptocurrency entities was still in force. Even though the Supreme Court of India struck down this circular in March 2020,[226] there persists ambiguity over the future legality of private crypto-assets.[227] The Cryptocurrency Bill was scheduled to be tabled in Parliament in the Budget Session of 2021,[228] but this did not happen; later, there were news reports that the Bill would be presented in the monsoon session,[229] but that did not happen either. In November, 2021 the government indicated that the Cryptocurrency Bill would be presented in the Winter Session of Parliament between November 29 and December 23.

Between the publication of the IMC Report and July 2021, the government seemed to want a ban on private crypto-assets, but still encouraged DLT. Later news reports suggest

that the government's stance has changed from favouring an outright ban to regulating crypto-assets in some form.[230]

4.5) THE LEGALITY OF CRYPTO-ASSET TRADING AND ASSOCIATED OBLIGATIONS (FEMA, PMLA, KYC, AML AND CFT)

Issues concerning the legality of crypto-asset trading with regard to money laundering, foreign exchange, and KYC requirements can be divided into two parts, (i) compliance obligations, and (ii) penal violations.

4.5.1) COMPLIANCE OBLIGATIONS

i. KYC/AML/CFT processes

Compliance obligations in the financial sector as a whole usually emanate from various circulars and directions by the relevant regulator. For instance, the RBI does this for the banking sector, SEBI for the securities and investment sector, and IRDAI for the insurance sector. These regulators issue directions (whether as legislation or circulars) to the entities under their supervision regarding various compliances for know your customer (KYC), anti-money laundering, and combating terrorism financing (KYC/AML/CFT) requirements.[231] Although the modalities of these requirements may vary, the underlying principle is the same: ensuring that regulated entities are able to identify their clients as well as their source of funds and report any suspicious transactions to the relevant regulatory authorities. Since crypto-assets are yet to be defined as any of the legally recognised financial instruments, the activities of crypto-exchanges currently do not fall under the jurisdiction of any of the financial regulators in India, such as RBI, SEBI, or IRDA. Therefore, crypto-exchanges are not legally required to follow any of their circulars.[232]

Still, most exchanges in India voluntarily follow some form of KYC process – possibly as a matter of abundant caution and to limit their liability in case any fraud or unauthorised activities are carried out through their platforms and the authorities approach them for information during the investigation.

ii. Companies Act, 2013

In March 2021, a notification issued by the Ministry of Corporate Affairs made amendments to Schedule III of the Companies Act, 2013. The amendments mandated that any company that has traded or invested in any type of "cryptocurrency or virtual currency" during the financial year must disclose their Statement of Profit and Loss, the profit or loss that has occurred due to these transactions, along with the amount of cryptocurrency they hold on the date of reporting. Additionally, companies are now also required to disclose deposits or advances made for the purposes of trading or investing in VCs.[233]

4.5.2) PENAL VIOLATIONS

Just as with any financial commodity, crypto-assets are at risk of theft, cheating, fraud, etc. Depending upon the facts of the case, offenders can be prosecuted under the relevant provisions of the Indian Penal Code, 1860, the Information Technology Act, 2000, or any other relevant legislation. A detailed

discussion of the different provisions of these legislations that could hypothetically apply to crypto-assets would make this paper unnecessarily voluminous, and therefore we do not delve into it here. Instead, we focus on the two legislations that the authorities seem to be most concerned about when reviewing possible violations of law through crypto-assets: the Foreign Exchange Management Act, 1999 (FEMA) and the Prevention of Money Laundering Act, 2002 (PMLA).[234]

The PMLA prohibits any person from indulging in money laundering, i.e., dealing in the proceeds of a crime and projecting it as untainted money.[235] Since crypto-assets provide the option for pseudonymous transactions, they are thought to pose a higher risk of money laundering. Due to the decentralised nature of the network, crypto-assets can be used to quickly move funds across the globe to facilitate a range of financial transactions, such as money transfer services, trading in securities or commodity- or derivative-related activity. Further, the absence of face-to-face contact in crypto-assets-based transactions may increase the risk of money-laundering and terror-financing.[236] Thus, their decentralised nature, P2P capability, and intrinsic anonymity pose a risk for AML/CFT activities. However, financial regulators world over are not only aware of this concern, but they are also making active efforts to mitigate the risks associated with it – as is evident from the various Guidances issued by the Financial Action Task Force (FATF), the global money laundering and terror financing watchdog.[237]

FEMA declares that the conversion of Indian currency into foreign currency can only be done through a person or entity that has been authorised by the RBI to deal in foreign exchange under Section 10(1) of FEMA. Usually, entities with this authorisation tend to be money changers, travel agents, and banks. This is because Section 3 of the FEMA prohibits any person from "(i) dealing in or transferring any foreign exchange to any non-authorised person; (ii) making payments to or receiving payments on behalf of any person resident outside India; and (iii) entering into any transaction in India as a consideration for acquisition of any right or property outside India". However, the decentralised and P2P nature of crypto-assets enables individuals to transfer money outside the borders of India without going through any banking channels, so they can stay completely outside the purview of the RBI's supervision. A user could open an account with any Indian crypto-asset exchange and buy cryptocurrency, which can then be transferred to a standalone crypto-asset wallet. From there, it can further be transferred to the wallet of any person outside India. This non-resident could then exchange the crypto-assets for the foreign currency of the jurisdiction where they are located. Technically, there is no exchange of Indian currency into any foreign currency in this transaction, but Indian rupees are effectively converted and transferred to a person residing outside India – without complying with the provisions of FEMA or the use of an authorised entity.

While the concerns of authorities regarding terror-financing and exchange control may be well founded, authorities are not helpless in mitigating such risks. Regulating the entities that provide crypto-asset services

– such as wallets, exchange services, or other entities that accept crypto-assets as payment for goods and services – may ensure that regulatory agencies can monitor crypto-asset transactions at this critical point. The FATF also recommends this approach.[238]

4.6) INDIAN CASE LAW

4.6.1) INTERNET AND MOBILE ASSOCIATION OF INDIA V. RESERVE BANK OF INDIA[239]

On 6 April 2018, the RBI issued a Circular that prohibited RBI-regulated entities from dealing in VCs or providing services to any person or entity dealing in them. The Circular was challenged by various organisations across courts in India, and the Supreme Court clubbed all the petitions with the petition filed by the Internet and Mobile Association of India. The judgement in this case addressed many important issues pertaining to VCs in India and the role played by the RBI in its regulation.

Firstly, the petitioners argued that the RBI had no power to prohibit the trading of VCs through exchanges. They contended that VCs are not legal tender or currency but tradable commodities or goods, thereby placing them outside the purview of the RBI Act, 1934, and the Banking Regulation Act, 1949 and consequently outside the jurisdiction of the RBI. Moreover, the petitioners argued that the services rendered by VC exchanges do not fall under the definition of 'payment systems' under the Payment Systems and Settlement Act, 2007, and thus, these exchanges were also outside the scope of RBI regulation.

On this point, the Supreme Court stated that some institutions accept VCs as a valid means of payment for the purchase of goods or services, and that the users and traders of VCs certainly carry on an activity that is within the purview of RBI oversight. Additionally, it held that these VCs have the potential to create "a parallel monetary system" that can be perceived as a threat to the existence of the traditional monetary system regulated by the RBI, and this ensures that the RBI has the requisite power to regulate or prohibit any activity of this nature.

Secondly, the petitioners argued that the method in which the RBI exercised its power – by issuing a circular effectively banning VC trade in the country – was not in consonance with established parameters of law, and that (i) there was no application of mind by the RBI while passing the Circular; (ii) the Circular was tainted by malice in law, as it was issued in bad faith, without the object of protecting the regulated entities or the public in general; (iii) the RBI could rely only on the facts and materials it considered while passing the Circular and it did not rely on any other material (MS Gill Test); and (iv) the Circular was violative of the fundamental right to practise any profession, or to carry on any occupation, trade or business provided under Article 19(1)(g) of the Constitution of India; the blanket prohibition it imposed on the regulated entities did not pass the test of reasonableness or proportionality.

The Supreme Court rejected the first three parts of this argument and stated that since the RBI took a series of steps to regulate VCs over a period of approximately five years, there was application of mind in the issuance

of this Circular, and it was not vitiated by malice in law. Furthermore, the court did not assail the Circular on the basis of the MS Gill Test by reasoning that the test may not be applicable in cases involving larger public interest.

However, the Circular was quashed by the Supreme Court when it accepted that it was not a reasonable or proportionate restriction upon the fundamental right of VC exchanges and VC traders to practise any profession or to carry on any occupation, trade, or business. It maintained this position because the RBI had not considered other, less intrusive means of achieving the objective of safeguarding its regulated entities. Moreover, the RBI had failed to show the harm caused by VC trading to its regulated entities, that trading in VCs was not banned under any law, and that it did not report any defects in its operation over a period of five years.

05

INSTITUTIONAL POSITIONS ON CRYPTO-ASSETS

5.1) PARLIAMENT

While there has been no formal introduction of any bill related to crypto-assets in either house of Parliament, questions have been raised in both the Lok Sabha and Rajya Sabha on the subject. It is important to note that we have only examined those queries that specifically concern crypto-assets, and therefore have not included discussions wherein crypto-assets may have been mentioned transiently.

5.1) LOK SABHA

Date	Question
6 December, 2021	The Minister of Finance was asked for the reasons why the government has yet to regulate cryptocurrencies as well as the details of the number of people invested in Bitcoin in India. The Minister of State in the Ministry of Finance responded by clarifying that a bill on cryptocurrency regulation was scheduled for introduction and that the government did not currently collect data on bitcoin or cryptocurrency transactions.[240]
6 December, 2021	The Minister of Finance was questioned on whether the government had a plan to boost the cryptocurrency sector in India and also on the specifics regarding the activities of crypto-exchanges, the size of the crypto market and how trustworthy cryptocurrencies were. The Minister of State in the Finance Ministry, in his response, explained the the government did not have any plans to boost the cryptocurrency sector and that cryptocurrencies are presently unregulated, though a bill on regulating cryptocurrencies has been scheduled for introduction in this session.[241]

29 November, 2021	The Minister of Finance was asked whether the government was aware of the growing number of bitcoin transactions in India and whether it had any plans to recognise it as legal tender. The Minister of Finance, in her written response noted that the government did not collect data on bitcoin transactions and did not plan on recognising it as legal tender. [242]
29 November, 2021	A query was raised to the Minister of Finance as to whether the government was aware of the multi-core bitcoin scam that was identified in Karnataka and whether the government was planning any central investigation on the matter. The minister of State for Finance responded that the matter was being investigated by the appropriate state authorities, though a case had also been registered by the Bangalore Zonal Unit of the Directorate of Enforcement. [243]
29 November, 2021	A question was posed to the Minister of Finance as to whether the government is aware of crypto activities in India and whether these activities are considered legal. The Minister of State for Finance's response noted that the government did not collect any information on cryptocurrency trading and that cryptocurrency is currently unregulated in India, though the RBi has in a circular called upon all regulated entities dealing in crypto to follow certain regulatory standards.[244]
9 August 2021	The Minister of Finance was questioned regarding the steps taken to regulate cryptocurrency, the government's stance on a ban on cryptocurrencies, the applicability of FEMA to cryptocurrencies, and whether the government aggregates data on the environmental impact of cryptocurrencies. The Minister of State for Finance clarified that the government does not consider cryptocurrencies to be legal tender and that any legislation regulating them would be introduced in the appropriate manner. The applicability of PMLA, FEMA, and KYC/AML/CFT standards to crypto-asset transactions was also clarified. Finally, it was noted that the government did not collect information on the environmental impact of crypto-mining. [245]

2 August 2021	An inquisition was posed to the Minister of Finance regarding the status of cryptocurrency trading in India, the regulatory regime governing crypto-trading, laws that exist to protect consumers from fraud, and whether the government intends to adopt specific laws relating to crypto-trading. The Minister of State for Finance acknowledged that the government did not collect data on the status of crypto-trading. He also mentioned that related entities are regulated under the PMLA and FEMA and are required to comply with regulations that determine the standards for KYC/AML/CFT. He went on to say that fraud protection is ensured under the provisions of the Indian Penal Code and that the government has made its position clear in that it does not consider private cryptocurrencies to be legal tender and that it will take all steps to ensure that they are not used to finance illegal activities. Finally, any legislation introduced by the government on the matter will follow the recommendations of the Inter-Ministerial Committee constituted under the Chairmanship of Secretary (Economic Affairs), which recommended a ban of all private cryptocurrencies (except those issued by the state) in the country. [246]
19 July 2021	The Minister of Corporate Affairs was requested to share information on whether the government had made it mandatory for Indian companies to disclose their dealings in cryptocurrencies, and if they had, the details regarding the same, as well as the number of companies that had disclosed their dealings with the ministry. The government's response noted that it is now mandatory for companies to disclose the profit or loss made on cryptocurrency transactions, the amount of cryptocurrency held, and any deposits or advances from any person for the purpose of trading or investing in the same. This was done pursuant to amendments made to Schedule III of the Companies Act, 2013. [247]
8 March, 2021	A query was raised before the Minister of Finance as to whether there existed a ban on the trading of bitcoin and other cryptocurrencies. The Minister of State for Finance

	noted that keeping in mind the risks associated with cryptocurrencies, the RBI had advised entities under its regulation to not participate in or facilitate participation in cryptocurrencies. He also reiterated the government's position on not recognising cryptocurrencies as legal tender.[248]
8 July 2019	A query was raised to the Minister of Corporate Affairs as to whether the government had any intentions of banning cryptocurrencies, and the corollary details of such a ban, along with the list of organisations it would affect. The Minister of State for Finance and Corporate Affairs responded that at the time, the government did not officially recognise cryptocurrencies as legal tender and that the matter of regulation was being considered by the Inter-Ministerial Committee under the Chairmanship of Secretary (Economic Affairs). He proceeded to note that the RBI has consistently warned consumers of the risks associated with trading and investing in cryptocurrencies and has also directed banks regulated by it to not deal in cryptocurrencies or provide services for any person to do so. [249]

(Source: Authors Compilation, 15th December, 2021)

5.1.2) RAJYA SABHA

Date	Question
30 November, 2021	A question was posed to the Minister of Finance as to the status of NFT trading in India, and whether the government would look to introduce a separate framework for NFT trading. The minister was also questioned as to whether the government had details on the number of crypto related frauds and also on the taxes applicable on crypto-exchanges and other crypto service providers. The Minister of Finance, in her written response, noted that NFTs were currently unregulated and that legislation on cryptocurrency regulation is upcoming. The response also noted that the central government does not collect any

specific data on cryptocurrency related frauds, however eight cases of cryptocurrency fraud were investigated by the Enforcement Directorate. Finally, she clarified that while there is no specific clause of the income act dealing with income earned by crypto-exchanges or crypto-service providers, such income can be taxed under the head Business or Profession under Chapter-IV of the Income-tax Act, 1961. [250]

30 November, 2021	The Minister of Finance was questioned as to whether the government had an estimate for the volume of cryptocurrency transactions in India in 2020 and 2021, and whether the government had any plans on regulating cryptocurrencies in India. In her written reply, the Minister of Finance clarified that the government did not collect any data on cryptocurrency transactions. She also clarified that while currently unregulated, the government intends to bring a bill forward for their regulation. [251]
30 November, 2021	The Minister of Finance was asked whether the government had conducted any study on cryptocurrency, the kind of monitoring capacity and technical systems required to regulate cryptocurrencies. The Ministry of Finance, in her written reply, reiterated that the government had conducted a study on cryptocurrency through its inter ministerial committee. She also clarified that the government will soon introduce a bill regulating cryptocurrencies. [252]
30 November, 2021	A query was posed to the Minister of Finance as to whether India had seen a rise in cryptocurrencies, whether the RBI had taken steps to address such a rise and how the government planned on regulating cryptocurrencies. The Minister of State for Finance pointed to the fact that cryptocurrencies are currently unregulated in India and the government does not collect data on their transactions. He also pointed to the RBI's warnings on trading of cryptocurrencies as well as their circulars establishing appropriate regulations on entities transacting in cryptocurrencies. Finally, he clarified that

	the government was set to introduce a bill on regulating cryptocurrencies.[253]
29 November, 2021	The Minister of Finance was questioned as to whether the government had any plans on bringing forward a bill regulating cryptocurrencies, and the details of any such bill. The Minister of State in the Ministry of Finance responded by clarifying that cryptocurrencies were currently unregulated in India, and the government would be soon introducing a bill for their regulation. [254]
10 August, 2021	The Minister of Finance was asked about the government's stance on allowing private cryptocurrencies and whether the RBI has proposed a new digital currency. The Minister of State of Finance reiterated the government's position of not recognising cryptocurrencies as legal tender. He also noted that the RBI had yet to make any proposal for a digital currency. [255]
27 July 2021	The Minister of Finance was questioned on the number of cryptocurrency exchanges in the country, the number of investors trading to these exchanges, whether illicit activities are being conducted through cryptocurrency exchanges, and finally whether there would be an equalisation levy on individuals who have bought cryptocurrencies abroad. The government revealed that it did not have information regarding the first two questions and that the equalisation levy was imposed on the e-commerce operator and not on the investor.[256]
23 March 2021	A question was posed to the Minister of Finance in relation to the government's intention to ban cryptocurrencies in India, the collection of income tax and GST on crypto-earnings, and the consequent details on the same. The government declared that any decisions on regulations surrounding cryptocurrencies would be done pursuant to the recommendations of the Inter-Ministerial Committee constituted under the Chairmanship of Secretary (Economic Affairs). It was also disclosed that both income tax and GST are applicable on cryptocurrency transactions; however, no specific data on the subject had been collected. [257]

23 March 2021	The Minister of Finance was asked to elaborate on the threats posed by cryptocurrencies for the Indian economy, whether illicit trading of cryptocurrency had come to the attention of the government, and, if so, the steps taken to prevent it. The Minister of State for the Ministry of Finance explained that the RBI had previously warned consumers of the dangers associated with cryptocurrencies and that the state would take a decision on the regulation of cryptocurrencies based on the recommendations of the Inter-Ministerial Committee constituted under the Chairmanship of Secretary (Economic Affairs).[258]
23 March 2021	There were queries raised to the Minister of Finance regarding the grounds on which the government planned to introduce a ban on cryptocurrencies as well as the details of any primary research undertaken to reach its current position. The Minister of State in the Ministry of Finance reiterated that the government does not accept any cryptocurrency as legal tender and will follow the recommendations of the IMC when designing any legislation governing cryptocurrencies. [259]
9 February 2021	The Minister of Finance was asked whether a ban had been placed on bitcoin trading in 2018 and subsequently lifted by the Supreme Court; whether cryptocurrencies were still banned; if illegal trading of cryptocurrency was taking place; and when the government planned on introducing legislation to stop it. The Finance Minister responded in her statement that the RBI had sent out a circular advising the entities it regulated to not facilitate transactions relating to cryptocurrencies. However, this had been set aside by the Supreme Court.[260]
2 February 2021	A query regarding the launch of an Indian cryptocurrency was directed to the Minister of Finance, along with a question regarding the ministry's awareness of companies using cryptocurrencies to perform international transactions. The Minister of State for the Finance Ministry disclosed that the government had no information on potential foreign transactions and that they were not

	considering the possibility of introducing an Indian cryptocurrency. [261]
23 July 2019	The Minister of Finance was asked whether the government was aware of the growing popularity of cryptocurrencies, whether it was being used for illegal activities, and whether the government was planning on introducing legislation related to the matter. The Minister of State's response acknowledged the rising popularity of cryptocurrencies and noted that while they can be used for illegal purposes, the government did not have any data on this. They also noted that they were considering the recommendations and draft bill put forth by the Inter-Ministerial Committee and that there was – at the time – no specific bill regulating cryptocurrencies. [262]
16 July 2019	The question posed to the Minister of Finance was regarding whether the government had banned cryptocurrency in the country as well as what actions were being taken against individuals trading or investing in cryptocurrencies. The response from the ministry disclosed that cryptocurrencies had not been banned and that there was no specific law governing cryptocurrencies as yet. [263]
24 July 2019	The Ministry of Finance was questioned whether cryptocurrencies would be classified as a capital asset and therefore subject to capital gains tax and whether there would be any retrospective application in case of such a change in its categorisation. The government's response noted that any gains from cryptocurrency trading or investment would be liable to tax, subject to the nature of the cryptocurrency holding. [264]
27 March 2018	The Ministry of Finance was questioned whether cryptocurrencies would be classified as a capital asset and therefore subject to capital gains tax and whether there would be any retrospective application in case of such a change in its categorisation. The government's response noted that any gains from cryptocurrency trading or investment would be liable to tax, subject to the nature of the cryptocurrency holding. [265]

13 March 2018	The query raised to the Ministry of Finance was concerned with the number of startups in India working on the facilitation, purchase, and sale of cryptocurrencies as well as with the total volume of such transactions. Another point that was brought up concerned the total value of cryptocurrency investments in India and whether there was a law regulating the purchase and sale of the same. In its response, the ministry acknowledged their lack of data on the subject and clarified that a committee had been set up under the Department of Economic Affairs to examine the issue. [266]
13 March 2018	The Ministry of Finance was asked to clarify whether one of the unintended consequences of demonetisation was that it pushed citizens towards cryptocurrencies. It was also quizzed about the rise of Ponzi schemes associated with cryptocurrencies, and whether it had served notices to taxpayers who had not disclosed their cryptocurrency dealings. The government asserted that there was no relationship between demonetisation and the rise of cryptocurrency trading and that it has cautioned the public against such activities. It also verified that it had, in fact, served such tax notices to nine cryptocurrency exchanges in the country. [267]
6 February 2018	The Minister of Finance was asked whether the government had set up an interdisciplinary body to examine the legality of cryptocurrencies and the steps taken by the government to regulate the purchase and sale of cryptocurrencies. The government's response stated that an interdisciplinary committee under the Department of Economic Affairs has been created to research the subject of cryptocurrencies. The answer also highlighted the statements made by the government and reiterated that the RBI had cautioned users about the dangers of cryptocurrencies.[268]
2 January 2018	The Ministry of Finance was questioned as to whether it was aware that there was trading and investing of cryptocurrency taking place in India despite the RBI's warnings, whether it knew how much money was being

	invested by Indians in cryptocurrencies, and if it was aware of the use of cryptocurrencies for illegal and harmful activities. The Minister of State for Finance responded by confirming that the government does not maintain data on crypto-trading and that there is no credible evidence that these currencies are being used by criminal entities. He further noted that the government has set up an inter-disciplinary body to examine the regulation of cryptocurrencies.[269]
2 January 2018	The question posed was regarding the regulation of cryptocurrencies and the government's position on the legality of the same. The Ministry of Finance affirmed that a Committee under the Chairmanship of the Secretary, Department of Economic Affairs, was reviewing the matter, and that cryptocurrencies were not recognised as legal tender by the State.[270]
2 January 2018	The Ministry of Finance was queried about the RBI's view on the rise of bitcoin, whether it had any plans of recognising bitcoin, and how it had cautioned citizens of the risks of bitcoin. The minister elaborated that the RBI had through circulars and press releases cautioned citizens of the dangers of cryptocurrencies and that the government had set up a Committee under the Chairmanship of the Secretary, Department of Economic Affairs, to review regulations for cryptocurrencies. [271]

(Source: Authors Compilation, 15th December, 2021)

5.2) RESERVE BANK OF INDIA

The RBI has consistently taken a cautious approach to crypto-assets, releasing several circulars, notifications, and press releases warning consumers of the risks involved in investing and trading in the same.

Date	Question
31 May 2021	The RBI announced that banks were no longer able to caution customers against dealing in cryptocurrencies by referencing the earlier RBI circular of April 6, 2018 (which had directed banks to no longer facilitate transactions related to cryptocurrencies), since the circular had been set aside by the Supreme Court. The circular had stressed the need for banks to comply with the requisite procedures in line with existing standards for KYC, AML, and CFT as well as to fulfil all obligations under the PMLA and FEMA.[272]
6 April 2018	Following several warnings by the RBI regarding the risks associated with cryptocurrencies, it announced that it would not be dealing with, or facilitating any person dealing in, the same. Furthermore, it mandated that all entities that are regulated by it who are providing such services must cease to do so within a period of three months from the date of the circular. [273]
5 December 2017	The RBI cautioned consumers on the financial, economic, and legal risks associated with cryptocurrencies and stated that it had not provided any entity with a license or authorisation to deal in bitcoin or other cryptocurrencies.[274]
1 February 2017	In accordance with its press release on December 5th, 2017, the RBI warned consumers of the risks associated with cryptocurrencies and reinstated its position of not having authorised any organisation or entity to operate any schemes or deals involving bitcoin or other cryptocurrencies. [275]
24 December 2013	The RBI, in its first notification on the matter, outlined the nature of cryptocurrencies, crypto-wallets, and crypto-trading while cautioning consumers of the dangers associated with them. [276]

5.3) MINISTRY OF FINANCE

29 December 2017

In a press release, the Ministry of Finance issued a statement on virtual currencies, echoing many of the concerns posed by the RBI in its notifications and press releases. The press releaseshed light on cryptocurrencies' lack of intrinsic value and highlighted the fact that they are subject to the risk of forming a bubble – analogous to those seen in the case of Ponzi schemes. [277]

5.4) MINISTRY OF CORPORATE AFFAIRS

24 March 2021

The Ministry of Corporate Affairs released a notification, inter alia, mandating that companies disclose their cryptocurrency holdings in their balance sheets. The notification specified that companies are now required to report profits and losses accrued from trade or investment in any type of cryptocurrency or virtual currency, the amount of cryptocurrency that the company holds on the reporting date, and deposits or advances from any person that have been made for the purposes of trading or investing in virtual currencies. These changes were effectuated by making requisite amendments to Schedule III of the Companies Act, 2013.[278]

5.5) INTER-MINISTERIAL COMMITTEE UNDER THE CHAIRMANSHIP OF THE SECRETARY OF ECONOMIC AFFAIRS

2 November 2017

The Government of India instituted an Inter-Ministerial Committee (IMC) under the Chairmanship of Secretary (Economic Affairs), with Secretary (Ministry of Electronics and Information Technology), Chairman (SEBI), and Deputy Governor (RBI) as its members, to investigate issues related to virtual currencies, as well as propose specific actions to be taken in this regard. The IMC submitted its report (IMC Report), along with a draft bill to the Government on July 22, 2019.

The IMC Report extensively discusses the following points pertaining to cryptocurrencies and blockchain at large: [279]

I. Advantages of distributed ledger technologies (DLT)

The IMC Report recognises the value of the underlying technology of virtual currencies and notes that "DLT is an important new and innovative technology, which will play a major role in ushering-in the digital age. The DLT can be of great benefit to India in several financial and non-financial areas."

II. No inherent value

The IMC Report asserts that non-official digital currencies do not have any inherent value other than the technology underlying them. Relying on a very narrow concept of 'value', it argues that the currency must either be backed by bullion or be a legal tender.

III. Price fluctuations and volatility

While recognising the benefits of cryptocurrencies, the IMC Report qualifies this admission by claiming that the market potential for such benefits is "subject to technological and behavioural changes, as well as the scope of financial investment

that the cryptocurrencies can raise." The report then goes on to highlight certain characteristics of cryptocurrencies and suggests that because of these characteristics, 'regulation' is imperative.

IV. Network latency and validation

The IMC Report rightly points out that considering cryptocurrencies are backed by trust and consensus-based algorithms, processing transactions is time-consuming due to validation procedures and network latency.

V. Consumer protection

Discussing risks of cryptocurrencies for consumers, the IMC Report provides examples of fraud and hacker attacks to highlight the risks associated with them.

VI. Protection of the economy and financial system

The IMC Report points out that mining cryptocurrencies is highly resource-intensive, and that it may require colossal amounts of storage and processing power if it is scaled up to a national-level retail payment system. The report further points out that such decentralised currencies may pose a regulatory problem with regard to compliance with the data localisation requirements of the RBI.

VII. Criminal activities

It discusses an analytical note by the Reserve Bank of New Zealand, which suggests that virtual currencies have increased rewards for ransomware attacks in the context of preventing criminal activities.

VIII. Ban on private cryptocurrencies

The report asserts that private cryptocurrencies lack intrinsic value and do not function as a store of value or as a medium of exchange due to large fluctuations in price, and therefore, they lack all attributes of a currency. It is for this reason that the IMC Report recommended the disallowance of private cryptocurrencies in India.

06

UNDERSTANDING THE CASE FOR PRIVATE CRYPTO-ASSETS

Having identified the status of crypto-assets under Indian law, and the positions adopted by various institutions of the state, we now turn our attention to analysing the case for and against legalisation. To do so, we examine the benefits, limitations, and risks associated with private crypto-assets in India. It is important to note that our analysis does not consider the operation of state-owned and controlled crypto-assets; rather, it examines the inherent strengths and weaknesses of private crypto-assets.

6.1) BENEFITS OF LEGALISING PRIVATE CRYPTO-ASSETS

In order to understand the use case for private crypto-assets we first elucidate the benefits associated with their use and adoption.

6.1.1) BENEFITS AS A CURRENCY

This section analyses the benefits associated with using private crypto-assets as a form of currency.

I. Decentralised and verifiable transactions
Since crypto-assets make use of a blockchain for the purpose of completing transactions, the distributed nature of the blockchain ensures that these transactions are largely decentralised and do not rely on

any central, coordinating authority.[280] It is, however, important to note that the degree of decentralisation varies and is based on the nature of the blockchain used by that the particular crypto-asset.[281] The absence of any central, governing authority makes these transactions "less prone to corruption and manipulation", as this system is antithetical to the traditional money system which is "dependent on trust in the central authorities and it is vulnerable to a single point of failure or susceptible to a single point of attack."[282] Additionally, as discussed earlier, all crypto-asset transactions are verified using a consensus mechanism and permanently added to the blockchain. By ensuring that each transaction is recorded across all nodes permanently, there is no scope for falsifying transactions or of 'double-spending', as each of these transactions is available for everyone to view (in case of public blockchains).[283]

II. Reduced costs
The absence of intermediaries also leads to lower transaction costs compared to traditional payment systems. It has been argued that institutions such as banks and payment system providers "operate and maintain extensive electronic networks" and incur other costs to facilitate transactions and thus levy hefty charges.[284] The decentralised

peer-to-peer nature of crypto-asset transactions ensures that monetary costs are reduced, and in some cases, eliminated completely.[285]

III. Confidentiality

Crypto-asset transactions are pseudonymous in nature.[286] The transactions and crypto-assets stored in wallets are tied to public and private keys[287] specific to each user; no personally identifiable information is available publicly (in most cases), thus making transactions relatively anonymous. On the other hand, crypto-exchanges are required by law in many countries to collect and store their customers' personal information along with a record of all transactions, which undermines the pseudonymous nature of crypto-assets. However, as noted earlier, crypto-asset exchanges are not the only way to acquire and transact using crypto-assets.

IV. Security

Crypto-assets make use of public–private key cryptography and hence ensure secure and verifiable transactions.[288] The level of security usually depends on the type of blockchain being utilised by the crypto-assets, but these have generally proven to be efficient over the years.[289] However, blockchain networks are still susceptible to cyber-attacks; for instance, a 51% attack (a situation wherein a single entity or group gains access to over the network's mining capabilities).[290] Similar to other software, there are also risks associated with vulnerabilities present in the systems being used by a crypto-exchange.[291]

V. Easier cross-border transactions

Cross-border transactions between international businesses or individuals are made extremely efficient and easy with the use of crypto-assets. These transactions are not plagued by issues such as high transaction fees, delayed transfers, and complications with the exchange rate, which are associated with international transactions using traditional systems.[292] This feature of crypto-assets, however, also raises regulatory concerns because it implies that illegal cross-border transactions can also become significantly easier.

VI. Potential for financial inclusion

Proponents of crypto-assets argue that their decentralised nature facilitates financial inclusion among individuals who do not have access to traditional financial services.[293] Notably, El Salvador's legislation adopting bitcoin as legal tender expressly references the country's lack of financial inclusion and the role of bitcoin in improving it.[294] Crypto-assets can make it easier for individuals to make remittances by removing the need for intermediaries and the fees levied by them.[295]

6.1.2) BENEFITS AS AN ASSET

Having examined their benefits as a currency, we now examine the benefits of crypto-assets as an asset.

I. Benefits from NFTs and tokens

It is worth noting that not all crypto-assets share the same purpose. While cryptocurrencies such as bitcoin look to function as a medium of exchange between parties, there are several coins and tokens that forgo this to achieve other goals. Our section on 'different types of crypto-assets' outlined a number of such tokens that serve as proof of ownership of a commodity, good, or service – most notably NFTs. NFTs can

provide significant value to digital creatives who are able to demonstrate clear ownership over their intellectual property and be awarded royalties on their art. Similarly, tokens can be used to allow holders access to exclusive goods and services or grant holders certain profit or ownership rights.

6.2) LIMITATIONS AND RISKS OF LEGALISING PRIVATE CRYPTO-ASSETS

Having examined the potential benefits associated with private crypto-assets, we now turn our attention towards analysing the limitations that they possess.

6.2.1) LIMITATIONS AS A CURRENCY

We first examine private crypto-assets as a currency and look to elucidate some of the limitations associated with this potential use case.

I. High environmental costs

One of the most broadcasted limitations of crypto-asset adoption is the high environmental costs associated with their mining.[296] Studies have consistently pointed to a definitive link between high energy consumption and crypto-asset mining.[297] In fact, bitcoin mining alone is estimated to use more electricity than the entire country of the Netherlands.[298] The electricity consumption during the mining process is primarily linked to the use of multiple high-powered graphics processing units (GPUs) or graphic cards.[299]

The energy required to mine crypto-assets can be classified into two different categories: primary energy requirements and secondary energy requirements. Primary energy requirements are those that are directly associated with the process of crypto-asset mining. This consists mainly of the electricity costs associated with the computing required for the consensus mechanism. The amount of energy consumed during this process is dependent on the nature of the mechanism employed. Proof-of-work (POW), the mechanism currently employed by the largest crypto-assets, bitcoin and ethereum,[300] requires a significant amount of computational power, and, by extension, has enormous energy costs. Mora et al.[301] theorise that if bitcoin were to scale to the point of facilitating global transactions, its mining could create a spike in electricity demand and subsequent CO_2 production – causing the global temperature to increase by 2°C. In parallel, a study countering this was published by Sedlmeir et al.,[302] whose claims rest on two key assumptions: that the price of electricity and crypto-assets remain the same.

In addition, there are also secondary costs associated with crypto-asset mining. Cooling costs for the heat created and the electronic waste created due to mining must also be factored in when considering environmental impact. Similarly, there can be subsidiary costs to residents in areas where mining of crypto-assets like bitcoin are prevalent since mining takes up a disproportionate amount of electricity. With most electricity grids not having been designed to manage loads of such scale, this can result in increased energy expenditure for residents as well as diversion of power from essential services.[303]

II. Replacement of traditional banking costs with new intermediary costs

In transactions on a crypto-asset platform, the

platform can validate the transfer of currency between buyer and seller; however, it cannot verify the corresponding transfer of a good or service. Therefore, due to the irreversible nature of crypto-asset transactions, both the buyer and seller assume some risk when using these assets – especially in instances where there is no pre-existing relationship or trust between the parties.[304] For instance, should the buyer make the payment before the commodity or service is delivered, they then run the risk of the seller not delivering or providing what is due. Likewise, should a seller deliver a service or good first, they risk the prospect of not being paid.

The existence of this inherent risk will facilitate the rise of third-party companies that offer crypto-asset escrow services.[305] This effectively negates any proposed benefits that crypto-assets offer in terms of removing fees or inefficiencies associated with third-party intermediaries. Rather, widespread adoption would only see the growth of a modified set of mediators.

III. The dominance of a few actors over mining

Decentralisation is considered one of the key benefits and features of crypto-assets, allowing individuals to conduct transactions among themselves without the need for a central authority. However, while crypto-assets are undoubtedly decentralised in this regard, they lend themselves to centralisation in another way, i.e., through the creation of a natural monopoly.[306] Due to the existence of cost asymmetries as well as the effect of economies of scale, the POW mechanism creates a system wherein actors are incentivised to concentrate mining power among a small number of actors. This implies that rather than a competitive marketplace of crypto-asset mining, the future is likely to see a market dominated by a small number of incredibly powerful entities that have significant control over mining – and by extension, supply – of crypto-assets like bitcoin that utilise a POW protocol. The economic forces around such crypto-assets could incentivise the rise of 51% attacks in the near future, as large entities collaborate to gain control over the blockchain. Coins like bitcoin, and even one of its forks, have experienced attempted 51% attacks in the past.[307]

Such attacks can be mitigated to an extent through the use of other protocols such as proof-of-stake, which would shift the onus from requiring greater computing power to amassing a majority of the crypto-asset – which would prove to be a difficult barrier to overcome.[308] While not all crypto-assets utilise a POW system, due to the dominance of major currencies such as bitcoin that do, negating the aforementioned issues will represent a clear and challenging regulatory hurdle.

IV. Inability to replace 'traditional' money – volatility and scalability

Of the numerous possibilities envisioned for crypto-assets such as bitcoin, one such prospect was for it to act as a substitute for traditional fiat money, such that it would perform all the same functions, i.e., act as a medium of exchange, store of value, and a unit of account.

As mentioned in previous sections, two key reasons have been identified for why crypto-assets will be unable to widely replace

money – volatility and lack of scalability due to slow transaction speeds.[309] With regards volatility, the nature of the price fluctuations associated with crypto-assets more closely resembles that of a commodity than a currency.[310]

This volatility implies that crypto-assets cannot adequately act as either a store of value[311] or as a unit of account. Moreover, as the value of many crypto-assets is driven by speculation, crypto-assets are cyclically hoarded and dumped by investors rather than being used continuously like traditional currency.[312]

In terms of scalability, slower transaction speeds for day-to-day transactions for both bitcoin and ethereum – when compared to traditional means – limit the feasibility of adopting them at the global scale.[313] This lack of scalability prevents crypto-assets like bitcoin from truly replacing traditional money.

Finally, it must also be noted that certain crypto-assets such as bitcoin possess a long-term deflationary bias[314] due to their finite supply. Since the supply of bitcoins is limited to 21,000,000 units,[315] its widespread use as a currency would result in the demand for bitcoins eventually exceeding supply. This would increase the value of bitcoin which decreases the value of goods and services with respect to it – eventually culminating in deflation.

V. Increased difficulty in implementing effective monetary policies

At the current level of usage, it is unlikely that crypto-assets have had a significant effect on central banks' ability to implement changes to monetary policy.[316] However, two possible developments could significantly alter this situation – either a private crypto-asset achieves widespread adoption as a means of payment or a central bank launches its own crypto-asset. This report will only focus on the first of these scenarios.[317]

If a private crypto-asset becomes a mainstream means of exchange, it could limit the efficacy of a central bank's monetary policy by affecting both the quantity and velocity of money due to reduced demand for the national currency.[318] Moreover, in such a situation, the central bank "partially loses control over reserve requirement system and monetary multipliers, in addition to loss of seigniorage."[319] Furthermore, certain authors believe that the ability of the central bank to affect monetary policy through interest-rate-management would be nullified through the consumers' shift to crypto-assets.[320] Parallels have been drawn to economies that have gone through the process of dollarisation,[321] and whose monetary policy has become increasingly complex following the adoption of the dollar as a legal means of exchange.[322]

A few authors have proposed mechanisms to mitigate the effects of crypto-assets on monetary policy. Adopting a "prepaid"[323] mechanism for crypto-assets – where the crypto-asset is introduced into circulation in exchange for the national currency and then removed from circulation when exchanged back into the national currency – would limit the effects of crypto-assets on money supply. It is worth noting that a version of such a mechanism already exists in the case of fully-backed stablecoins such as Tether, True USD, and USD coin – though worries do persist about their backing, as visible in

the recent case put forth in the US against Tether exhibits (the case revolves around concerns that Tether Stablecoins are not wholly backed by adequate asset reserves). [324]

VI. Lack of network externalities enjoyed by national currencies

Widespread adoption of private crypto-assets as an alternative medium of exchange is hampered by the network externalities enjoyed by traditional money and the switching costs faced by consumers.[325] Drawing from the literature on currency switching,[326] it is likely that a move away from traditional money to crypto-assets, would only occur in instances wherein there is a significantly high rate of inflation (bordering on hyperinflation).

VII. The limited actual impact on financial inclusion

Despite claims to the alternative, crypto-assets are unlikely to have a significantly positive impact on financial inclusion in underdeveloped nations. This is taking into consideration the use case of facilitating remittances by reducing intermediary fees, which is often cited as a benefit of crypto-assets in the context of financial inclusion. Research by Hanke, Hanlon, and Chakravarthi[327] on the feasibility of using bitcoin to make remittance in El Salvador demonstrates that, at present, using bitcoin to send remittances is usually costlier than availing more traditional means of payment. Moreover, the use of crypto-assets by lower-income groups in underdeveloped countries requires both, access to digital infrastructure as well as specialised knowledge of crypto-asset markets, which present considerable challenges.[328]

6.2.2) LIMITATIONS AS AN ASSET: POTENTIAL AS A TOOL FOR FACILITATING ILLICIT ACTIVITY

Having examined the limitations of private crypto-assets as a currency, we now examine their limitations as an asset.

I. Use for illegal activities (funding criminal operations, tax evasion, etc.)

Crypto-assets have emerged as a means to facilitate the financing of illicit or illegal activities, with some estimates noting that 46% of all bitcoin transactions between January 2019 and April 2017 were for illegal purposes, with the value of transactions amounting to approximately USD 76 billion.[329] Several characteristics of crypto-assets make them ideal for this purpose, namely – pseudonymity, no need for intermediary verification, and ability to conduct transactions outside of a law enforcement agency's jurisdiction. [330]

II. Prone to schemes and scams

Being a novel and generally unregulated space, the crypto-marketplace harbours a myriad of scams. While none of these scams is inherently new, the lack of regulation within the crypto-market allows them to thrive in this sector. A few such scams are as follows:

● **Pump-and-dump scams and market manipulation**

Like its securities counterpart, pump and dump schemes in the crypto-world relate to artificially inflating the price of a crypto-asset through false or misleading advertising. Once the price has been adequately boosted, the individuals who had purchased the crypto-asset at lowered prices (or who held reserves of the crypto-asset from its inception) sell

their stores and make a significant profit. [331]

● **Ponzi schemes and High-Yield Investment Programs**

High-Yield Investment Programs (HYIP) are a type of online Ponzi Scheme that have now entered the crypto-asset marketplace.[332] These schemes purport to provide investors with high returns on their interest while actually using money from new investors to pay older investors.[333]

● **Mining scams**

Mining scams can take two forms; the first being those operations that receive payment from customers without delivering the product[334] and the second being cryptojacking – wherein malicious actors utilise web users' CPU resources to mine crypto-assets by injecting malicious payloads into the compromised websites." [335]

● **Scam wallets**

Scam wallets are services that appear to be legitimate crypto-asset wallets but are instead used by the creators to steal a portion of the crypto-assets deposited within them.[336]

● **Crypto-asset exchange scams**

Crypto-asset exchange scams refer to entities that pretend to operate legitimate crypto-asset exchanges but do not actually provide consumers with their purchased crypto-assets once the transaction has been completed.[337]

07

INTERNATIONAL PERSPECTIVES

Having identified the legal and regulatory frameworks currently applicable to crypto-assets in India, as well as their potential benefits and limitations, we now examine other jurisdictions. Analysing the frameworks governing crypto-assets across the world helps us contextualise India's status with respect to crypto-assets, while also providing valuable insights into how a successful regulatory framework could function.

7.1) EUROPEAN UNION

As of 2021, pan-European regulations governing crypto-assets are yet to be implemented. This has resulted in individual states adopting their own standards of practice, leading to a set of regulations that are not harmonised – and the very real possibility of unintended gaps stifling the growing crypto-market and affecting consumer confidence.[338]

7.1.1) EXISTING EU REGULATIONS

Reports from both the European Securities and Markets Authority (ESMA)[339] and the European Banking Authority (EBA)[340] have outlined the existing legal and regulatory status of crypto-assets at the EU level. The ESMA report examined the legal status of crypto-assets as 'financial instruments' under Directive 2014/65/EU, or the Markets in Financial Instruments Directive II ("MiFID II").[341] Meanwhile, the EBA report examined whether certain crypto-assets would qualify as 'electronic money' under Directive 2009/110/EC, also known as the E-money directive ("EMD2"), and whether it would qualify as 'funds' under Directive (EU) 2015/2366, also known as the Payment Services Directive (PSD2).[342]

I. Crypto-assets as financial instruments

In its process to determine whether crypto-assets can be classified as financial instruments under MiFID II, the ESMA identified different types of crypto-assets:

● **Investment type -** These assets have profit rights attached to them

● **Utility type -** These assets may have some utility or consumption rights attached to them

● **Payment type -** These crypto-assets have no inherent value linked to them other than the expectation that they could act as a means of exchange

● **Hybrid type -** These crypto-assets may have a mix of characteristics from the three previous categories

In order to determine whether these crypto-assets would be considered as financial instruments, the ESMA conducted a survey among 29 National Authorities (27 EU states - Poland did not respond - as well as Norway and Liechtenstein).[343] The survey looked at whether the national authorities would classify 6 lesser known crypto-assets as financial instruments. These crypto-assets were a mix of investment types, utility types and hybrids of investment, utility and payment types.[344] Pure payment types, such as Bitcoin, were excluded as they are unlikely to come within the definition of a financial instrument.

Following from the results of the survey, most of the national authorities seemed to agree that pure investment types fell within the definition of a financial instrument, while a pure utility type did not. The responses over the hybrid types varied.[345]

The ESMA noted that it is the prerogative of each national authority to determine whether a crypto-asset can be deemed to be a financial instrument under MiFD II. Furthermore, there was broad agreement among National Authorities that should a crypto-asset fit the criteria for a financial instrument then it should be regulated accordingly.[346]

Should a crypto-asset be classified as a financial instrument then a number of secondary directives would also be applicable such as the Prospectus Directive, Transparency Directive, Market Abuse and Short-Selling Regulation, Settlement Finality Directive and Central Securities Depositories Regulation.

Many of the national authorities noted the failure offor national regulations and legislation to adequately categorise the 6 crypto-assets that the ESMA had shared. This points to the need for EU level regulations to harmonise regulations across member states and eliminate existing gaps.[347]

II. Crypto-assets as electronic money or funds

When determining whether a certain crypto-asset falls within the ambit of 'electronic money' under EMD2, the EBA notes that such a determination must be made on a case by case basis. It recommends that national authorities, when making such a decision, adopt a "substance over form"[348] approach, since the characteristics of a crypto-asset might change across its lifespan.

The EBA provides 2 clear examples of crypto-assets that would qualify as electronic money, while clarifying that should a crypto-asset possess the necessary criteria then it will be regulated appropriately as electronic money.[349]

On the question of whether crypto-assets can be deemed to be funds, the EBA finds that crypto-assets can only be classified as funds if they meet the criteria for electronic money. If they do not then they cannot be classified as funds.[350]

III. Anti Money Laundering Considerations

The EU's 5th Anti Money Laundering Directive (AML5) had initially implemented AML requirements onto entities that provided exchange services between virtual currencies and fiat currencies. It also applied requirements onto custodian wallets.

This has since been expanded under the EU's proposed legislative package.[351] The

proposed legislation would look to ensure that AML and CFT rules are applied to all crypto-asset service providers. The new rules prohibit anonymous wallets, ensure crypto-asset transaction and transfer traceability and detection of when crypto-assets are being used for money laundering or financing terrorism.

IV. Taxation

While there is no pan European harmony on taxation at present, EU Member states often impose either capital gains tax, income tax, business tax, wealth tax or a combination of these onto crypto-assets. However, the EU's new Directive on Administrative Cooperation 8 (DAC 8) seeks to introduce a new taxation structure associated with crypto-assets.[352] The aim of DAC 8 is to "establish a uniform transparency within the Member States and disclosure requirements for crypto-asset services providers and issuers, as well as for e-money institutions in order to ensure fair taxation." [353]

7.1.2) PROPOSED EU WIDE REGULATION

The European Commission has proposed – but has yet to enact – regulations on "Markets in Crypto-assets (MiCA)".[354] The proposed measures attempt to overcome some of the regulatory challenges posed by the decentralisation of crypto-assets, by emphasising consumer protection and transparency,[355] Specifically, they focus heavily on the regulation of stablecoins.[356] MiCA, however, does not cover those crypto-assets that already fall within the scope of existing EU regulations, such as the Markets in Financial Instruments Directive (MiFID) and the Electronic Money

Directive (EMD). [357]

These regulations apply specifically to crypto-assets as opposed to the blockchain or DLT technology that underlies them.[358] This distinction ensures that regulations are able to provide specific protections related to crypto-assets while not stifling innovations that may arise from using blockchain or DLT in other sectors.

Policymakers have adopted a wide definition of 'crypto-assets' as "a digital representation of value or rights which may be transferred and stored electronically, using distributed ledger technology or similar technology."[359] Adopting such a wide definition of crypto-assets ensures that regulations are future-proofed and will not be made redundant by short-term technological advancements.

It further categorises crypto-assets as being either a utility token, an asset referenced token, or an electronic money token – based on the purpose that each serves:[360]

I. Asset referenced tokens

These tokens maintain a stable value as they are backed by currencies, commodities, other crypto-assets, or a combination of these. A token that is backed by an individual currency would not conform to this definition.[361]

II. Utility tokens

These are crypto-assets that are used to access a digital service or commodity that is available on the DLT and is accepted only by the issuer. [362]

III. Electronic money/e-money token

These tokens are designed to act as a medium of exchange; their value is maintained by the backing of a single fiat currency.

IV. Other forms of crypto-assets

While not a formal category, MiCA includes provisions for crypto-assets that do not fit either of the above categories – to ensure that technological development does not result in the creation of crypto-assets that exist outside of the regulatory regime.[363]

Following this classification, policymakers have applied varying levels of regulations to each crypto-asset type. A brief view of these regulations is listed in Table 1.

Table 1. EU's MiCA Regulations Simplified

Regulatory obligation	Asset referenced tokens	E-money tokens	Other crypto-assets
Need for authorisation	The issuer must be authorised as either an asset referenced token institution or a credit institution in at least one EU member state.	The issuer must be authorised as either an e-money token institution or a credit institution in at least one EU member state.	There are no authorisation requirements for issuers.
Legality of issuer	The issuer must be a legal entity that is established within the EU.	The issuer must be a legal entity that is established within the EU.	The issuer must be a legal entity but need not be established within the EU.
Publishing of white papers	Issuers must publicly publish a whitepaper that contains all the information required as per Article 17. The white paper must be approved by the member state that is conducting the authorisation process.	Issuers must publicly publish a whitepaper that contains all the information outlined in Article 46. The white paper must be approved by the member state that is conducting the authorisation process.	Issuers must publicly publish a whitepaper that contains all the information required as per Article 5. The white paper must be approved by the member state that is conducting the authorisation process.

Holder's redemption rights	There is no mandatory right to redemption placed on the issuer. However, issuers that do not provide such a right must ensure that appropriate measures are put in place to ensure the token's liquidity.	Token holders are provided with a mandated right to redemption and direct claim on the issuers. This means that issuers must be able to redeem a token holder's tokens at any point, at the same value of the tokens held.	No applicable regulations.
Interest	Issuers cannot pay interest to holders.	Issuers cannot pay interest to holders.	No applicable regulations.
Significant tokens	The EBA can categorise certain tokens as 'significant asset-referenced tokens' and apply additional regulations on their issuers.	The EBA can categorise certain tokens as 'significant e-money tokens' and apply additional regulations on their issuers.	No applicable regulations.
Marketing	All marketing information must be clearly identifiable. All information must be fair, not misleading, and in line with the published whitepaper. It must also be made expressly clear whether any redemption right is provided to holders or not.	All marketing information must be clearly identifiable. All information must be fair, not misleading, and in line with the published whitepaper. The holder's right to redemption must also be clearly specified.	All marketing information must be clearly identifiable. All information must be fair, not misleading, and in line with the published whitepaper.

Other issuer obligations	Other obligations cover areas such as – conflict of interest, disclosure requirements, requirements to act fairly and honestly, rules for acquisition, and conditions for liability.	Additional obligations cover issues of liability and investment of funds received in exchange of e-money token issuers.	Obligations to act fairly and honestly.

(Source: Authors Compilation, 15th December, 2021)

7.2) EL SALVADOR

El Salvador became the first country to adopt a private crypto-asset – bitcoin – as legal tender, with the passing of its 'Bitcoin Law' on 8 June 2021.[364] As such, its unique position is worth examining so as to draw inferences on how bitcoin could operate as a means of exchange within a state. Our analysis of El Salvador will primarily revolve around the intricacies of its new bitcoin bill.

7.2.1) A BRIEF HISTORY

Following years of civil war and natural disasters, El Salvador dollarised in 2001 – moving away from its previous currency of colones – in an attempt to increase growth and facilitate foreign trade and remittances. This was done by lowering interest rates, reducing the cost of international transactions, and increasing foreign investment. [365]

With similar goals in mind, the town of El Zonte adopted bitcoin as a local currency in 2019, earning itself the moniker of 'Bitcoin Beach.'[366] The official Bitcoin Beach website mentions bitcoin's potential to increase local financial inclusion in an area where "the majority of people do not have access to bank accounts and the local businesses could never qualify for merchant accounts needed to accept credit cards."[367] However, despite these steps, infrastructure and technological limitations have meant that even in Bitcoin Beach, the dollar was the preferred means of exchange.[368] Additionally, the dollar remained deeply popular among lawmakers, who were incredibly hesitant to adopt the crypto-asset.[369]

7.2.2) THE 2021 BITCOIN LAW

The law mandates that all private and public entities within the state should accept bitcoin as legal tender and notes that there will be no capital gains tax levied on individuals who use bitcoin to complete transactions. The law acknowledges that the exchange rate between bitcoin and USD (which is also legal tender within El Salvador) shall be subject to market forces. Moreover, the state commits to building the institutional capacity required to make bitcoin transactions widespread among the population, while noting that it will also develop alternative mechanisms for

users to convert bitcoin to USD. Finally, the law establishes a dedicated trust within the central bank that will facilitate instantaneous conversion of bitcoins into USD.

The question arises as to why El Salvador adopted bitcoin as a legal tender. One of the most obvious reasons is El Salvador's reliance on foreign remittances[370] – with President Nayib Bukele expressly noting the losses incurred in sending remittances through traditional intermediaries as the motivation for adopting bitcoin.[371] At present, however, there are two distinct limitations to this plan – the lower cost of traditional money transfers when compared with bitcoin and a general preference for dollars over bitcoin among the population. [372]

7.2.3) OTHER REGULATORY REQUIREMENTS

Following the adoption of the Bitcoin law, and the subsequent establishment of Bitcoin as legal tender on 7th September, 2021, a number of steps have been taken by the state to ensure that its use fits within a defined regulatory framework.

Financial institutions have had to follow additional AML requirements in order to be able to provide customers with access to digital wallet services or US Dollar to Bitcoin exchange services.[373] When banks receive customer payments in Bitcoin they are converted to US Dollars using external wallets, while making sure that there is no exposure of the bank's balance sheets.[374]

All Virtual Asset Service Providers (VASPs) must be registered with the El Salvadoran central bank, and are subject to supervision by the Financial System Superintendence.[375]

All VASPs must also possess dedicated AML programs that are in line with the standards set down by the Financial Action Task Force, as well as cybersecurity, physical security and disaster recovery policies. VASPs must also ensure that they enforce transaction limits, ensure proper due diligence and undertake comprehensive risk management procedures.[376]

7.2.4) STEPS TAKEN BY THE STATE TO PROMOTE THE USE OF BITCOIN

Given Bitcoin's inherent volatility, low levels of financial inclusion and lack of internet infrastructure, the country has yet to see widespread adoption of Bitcoin as a means of payment.[377] In order to boost the use of Bitcoin the state has taken a number of steps including launching its own wallet, providing incentives to people making payments through Bitcoin and making taxes payable through Bitcoin. [378]

Chivo wallet, El Salvador's dedicated wallet, is backed by a government created fund that exists to guarantee the conversion of Bitcoin to USD. As part of its push for Bitcoin adoption, the government incentivized prospective users by offering 30 US dollars worth of Bitcoin on signing up with the wallet - leading to a reported 3 million downloads.[379] However, the wallet is not without its problems, with reports of hackers undertaking large scale identity theft in order to access the free 30US dollars provided on signing up for the wallet.[380]

7.3) THE UNITED STATES OF AMERICA (USA)

With no clear stand on the nature of crypto-assets, the regulatory framework in the US comprises guidance from various agencies, with regulations differing across states. These positions can briefly be described as follows:

7.3.1) SECURITIES AND EXCHANGE COMMISSION (SEC)

The SEC in the US has regularly emphasised that certain tokens are 'securities' under the existing legal framework, and thus, they fall under the regulatory purview of the SEC, provided they meet the standards of the 'Howey test' (given in the case of SEC v. W.J. Howey Co.[381] in 1943).[382] William Hinman, director of the SEC's Division of Corporation Finance, in June 2018, emphasised that all digital assets are not necessarily to be considered as securities. Rather, it is the underlying rights linked to the assets, the manner of its sale and the reasonable expectations of the purchaser that determines whether the digital asset is to be considered a security.[383] Following this approach, the SEC has also taken enforcement actions against various entities that were deemed to have conducted illegal securities offerings.[384]

7.3.2) COMMODITIES AND FUTURES TRADING COMMISSION (CFTC)

The CFTC stated, in December 2014, that virtual currencies are 'commodities' as defined under the Commodity Exchange Act, 1936 (CEA), and thus subject to its jurisdiction.[385] In September the following year, the CFTC also brought its first enforcement action against an unregistered bitcoin option-trading platform, and since then, it has taken a number of enforcement actions in cases involving virtual currencies.[386]

7.3.3) INTERNAL REVENUE SERVICE (IRS)

In 2014, through a notice, the IRS described the term 'virtual currencies' as being "a digital representation of value that functions as a medium of exchange, a unit of account, and/or a store of value." It went on to describe something called 'convertible' virtual currency, which is a "virtual currency that has an equivalent value in real currency, or that acts as a substitute for real currency", and bitcoin is cited as an example of such a 'convertible' virtual currency.[387] Additionally, the note clarifies that it only addresses the US federal tax consequences for transactions involving such virtual currencies[388] and that these are to be considered 'property' and not regarded as 'currency'.[389] The IRS also maintains an FAQ on the crypto-asset taxation policy for federal taxpayers "who hold virtual currency as a capital asset".[390]

7.3.4) FINANCIAL CRIMES ENFORCEMENT NETWORK (FINCEN)

The FinCEN, in March 2013, issued guidance stating that the following would be considered money service businesses (MSBs), regulated under the Bank Secrecy Act, 1970, and thus need to comply with AML/CFT norms: (i) a virtual currency exchange; and (ii) an administrator of a centralized repository of virtual currency who has the authority to both issue and

redeem the virtual currency.[391] It also stated that: "An administrator or exchanger that (1) accepts and transmits a convertible virtual currency, or (2) buys or sells convertible virtual currency for any reason is a money transmitter under FinCEN's regulations – unless a limitation to, or exemption from the definition applies to the person." [392]

Apart from these, various states in the US have also issued regulations. For instance, the New York Department of Financial Services requires all cryptocurrency businesses to obtain licences to operate in the state, a scheme more commonly known as the BitLicense.[393]

7.3.5) UPCOMING LEGISLATION

There are, at the time of writing, two pieces of federal legislation that could have a significant impact on private crypto-assets in the United States: The Digital Tokens Act, 2021 and the Digital Commodity Exchange act, 2020.

I. The Digital Tokens Act, 2021

Under the aforementioned 'Howey test', a digital asset could be considered a security while its network is still being developed. Once the token has been developed and it meets a few criteria (notably if there is no centralized entity being invested or where the token is sold to be used for the purchase or sale of goods through its dedicated network, i.e. it the network reaches maturity), then it would no longer be deemed as a security.[394] This creates a problem insofar as the applicability of securities regulations onto early stage tokens prevents them from achieving the maturity stage where they would no longer be considered as securities.

The Digital Tokens Act looks to solve this.[395]

The Act is based almost entirely on SEC Commissioner Hester Peirce's 'Safe Harbor 2.0' proposal.[396] It establishes the 'Token Safe Harbour' whereby new tokens would not be required to register under the 1933 securities act provided that the following criteria are met:[397]

● The development team plans for the network to reach maturity within 3 years from the date of the initial token sale

● The token if sold or offered with the intention to allow external entities to access, participate in or develop the network

● Certain disclosure and filing requirements are met

What is particularly interesting in the context of the legislation is the definition adopted for 'network maturity.' The act states a network is mature if either of the following conditions are met: [398]

● The network is not economically or operationally controlled by a single individual, entity or group of people or institutions that have common control.[399]

● The tokens are being used by token holders as either a means of storing or transferring value on the network, participating in any application on the network or "otherwise in a manner consistent with the utility of the network."

II. The Digital Commodity Exchange Act, 2020

The act looks to fill in the regulatory gaps that exist with respect to digital assets by clarifying the jurisdictions of the CFTC and the SEC, and by developing a regulatory

framework to govern the operations of trading entities that allow for the trading of digital assets.[400]

The bill defines a digital commodity as "any form of fungible intangible personal property that can be exclusively possessed and transferred person to person without necessary reliance on an intermediary, and which does not represent a financial interest in a company, partnership, or investment vehicle."[401] It also defines a Digital Commodity Exchange (DCE) as "a trading facility that lists for trading at least one digital commodity."[402]

The bill would bring DCEs under the jurisdiction of CFTC, and thereby make them subject to regulations such as monitoring of trading activity, minimum capital requirements, cybersecurity requirements, etc.[403] A DCE would also be required to hold its customer's digital commodities in a Qualified Digital Commodity Custodian, that would be subject to appropriate state, federal or international banking regulators.[404] The requirements for an entity to be a Qualified Digital Commodity Custodian is also laid out in the bill.

7.4) UNITED KINGDOM (UK)

Crypto-assets, while unprohibited, are not considered to be currency or money in the UK and are subject to a variety of statutes. The regulatory landscape on these emerged largely after the UK Cryptoassets Taskforce – comprising the UK Financial Conduct Authority (FCA), HM Treasury, and the Bank of England – submitted its final report in October 2018.[405] The report defined a broader category of 'crypto-assets'

as "a cryptographically secured digital representation of value or contractual rights that uses some type of [distributed ledger technology] and can be transferred, stored or traded electronically".[406] This was further classified into three types of assets, namely:

● **Exchange tokens** – Defined as assets that are often referred to as 'cryptocurrencies', are not issued or backed by a central body, and are used as a means of exchange or for investment.

● **Security tokens** – Equated with a 'specified investment' under the Financial Services and Markets Act (2000) [FSMA] (Regulated Activities) Order (RAO), may provide certain rights – such as ownership, repayment of a specific sum of money, etc., and may also be transferable securities or financial instruments.

● **Utility tokens –** Can be redeemed for access to a specific product or service.[407]

The FCA also defines these assets largely in the way as the report, but it specifies that while exchange and utility tokens are unregulated, security and e-money tokens are regulated tokens.[408] This essentially clarifies the tokens that are regulated under the FSMA; however, it is important to note that even businesses dealing with unregulated tokens are required to comply with AML/CFT norms for crypto-assets under the Money Laundering, Terrorist Financing and Transfer of Funds (Information on the Payer) Regulations, 2017.[409] All such businesses (whether dealing with regulated or unregulated crypto-assets) are also required to register with FCA mandatorily.[410]

On the tax front, Her Majesty's Revenue and

Customs (HMRC) provides guidance to both individuals and corporations on how the existing taxation liabilities apply to crypto-asset transactions through its Crypto-assets Manual.[411] The manual "derives from the positions set out in the policy papers entitled Crypto-assets: tax for individuals and Crypto-assets: tax for businesses, which were first published in December 2018, and November 2019 respectively."[412] Individuals or businesses are liable to pay a variety of taxes – such as capital gains tax, income tax, corporation tax, etc., depending on the nature of the transaction.[413]

The FCA had recently banned "the sale of derivatives and exchange traded notes (ETNs) that reference certain types of crypto-assets to retail consumers"[414] and had also halted the operations of the crypto-exchange, Binance, in the country.[415] Thus, although widespread regulations exist, the policy arena on cryptocurrencies or crypto-assets in the UK is an evolving one, especially in light of the UK's exit from the European Union (EU).[416] This is evidenced in Her Majesty's Treasury's Crypto-asset & Stablecoin Consultation and Call for Evidence in early 2021.[417]

7.5) JAPAN

Japan is thought to have one of the most progressive regulatory regimes for crypto-assets, having introduced regulations through relevant amendments to its Payment Services Act, 2009 (PSA), and Act on Prevention of Transfer of Criminal Proceeds, 2007, in 2016 itself.[418] Additionally, licensing requirements were introduced for crypto-exchanges to function in Japan.[419] These changes were introduced in the aftermath of the Mt. Gox hack in 2014 and the subsequent setting up of a working group under the

Financial Services Agency of Japan (FSA) to recommend policy changes.[420]

In 2020, new amendments were introduced to the PSA and the Financial Instruments and Exchange Act, 2006 (FIEA), which lead to more stringent regulations along with the replacement of the term 'virtual currencies' with 'crypto-assets';[421] this provided a complex, yet wider and more inclusive definition. In brief, it defines crypto-assets as something that is used as a payment method or exchanged with an unspecified person digitally and is not denominated in fiat currency.[422] Under these new rules, crypto-asset exchanges are regulated under the PSA, while initial coin offerings (ICOs), security token offerings (STOs), and crypto-asset derivative transactions fall under the scope of the FIEA.

Prior to 2017, the sale of cryptocurrencies was subject to consumption tax if the seller was located in Japan; however, crypto-asset transactions are now exempt from consumption tax.[423] Further, the National Tax Agency of Japan has specified that profits generated through the sale or use of crypto-assets are to be treated as miscellaneous income and are taxable accordingly.[424] Moreover, it has also been specified that in the event that a corporation holds crypto-assets as a business asset, or if it uses it as a payment method, it will be treated as business income, according to the profit or loss accrued from its use.[425]

In addition to these regulations, Japan has also established two self-regulatory bodies in 2020 to promote regulatory compliance: the Japanese Virtual Currency Exchange Association (JVCEA) and the Japan STO Association (JSTOA).[426]

7.6) VENEZUELA

On 9 April 2018, the Venezuelan government passed the 'The Decreto Constituyente Sobre Cripotactivos y la Criptomoneda Soberana Petro' (Constitutional Decree on Cryptoassets and the Sovereign Cryptocurrency Petro). The decree established the legality of crypto-asset trading and creation in Venezuela and announced the launch of the state's very own cryptocurrency – Petro – backed by the country's mineral and oil reserves.[427] However, crypto-assets (including Petro) are not recognised as legal tender under the constitution.[428] The decree, nonetheless, places an obligation on the state to protect and promote the use of crypto-assets as a means of payment – both nationally and internationally.[429] It is worth noting that despite the constant use of the terms 'crypto-assets' and 'cryptocurrencies', neither are formally defined within this decree. Moreover, several questions remain in terms of the constitutionality of the decree, and, by extension, the constitutionality of crypto-asset use in Venezuela.[430]

Building on this, the 'Decreto Constituyente Sobre el Sistema Integral de Cripotactivos' (Constitutional Decree on the Integral System of Crypto assets) was passed in 2019, creating a legal framework for all crypto-assets within the state and also establishing the 'Superintendencia Nacional de Criptoactivos y Actividades Conexas' (SUNACRIP) (National Superintendency of Cryptoactivities and Related Activities), the office in charge of regulating crypto-asset-related activity within Venezuela.[431] This decree outlined a clear definition of a crypto-asset as a digital asset that uses cryptography and distributed records.[432] The law establishes legally binding guidelines for the purchase, sale, use, and transfer of crypto-assets within the state while also mandating clear registration and audit requirements.[433] The law also outlines a number of punitive measures that the state may take in cases of non-compliance – including confiscation of mining equipment, suspension or revocation of licenses, fines, and even jail time.

In 2020, the state declared that it would be legalising crypto-asset mining and announced the creation of a National Digital Mining Pool (NDMP).[434] All crypto-asset mining in the country would take place within this pool and licenses to miners would be granted under an Internal Miners Registry.[435] Any mining activity done beyond the mandate of the NDMP will be subject to penalisation, with the body also regulating the distribution of rewards to miners.[436]

Venezuela does not have any crypto-asset-specific AML requirements; however, the official website of Petro has two documents detailing the matter: a) The guidelines for the manual on internal control regarding prevention of money-laundering and financing of terrorism; b) guide for the prevention of laundering of crypto-assets, financing terrorism, and "know your customer" policies.[437] However, it is worth noting that the validity of these documents has been under scrutiny.[438]

The Venezuelan government, through its Decree No. 3719 on 28 December 2018, mandated that any individual or entity that carries out transactions in crypto-assets must make their requisite tax payments using crypto-assets.[439] The decree did however

provide exemptions to transactions of securities that occurred on a stock exchange and to export of goods and services that are done by public bodies.

On 29 January 2020 amendments were made to the VAT structure that had an impact on crypto-assets. The decree introduced a new flexible tax rate on goods and services "paid in foreign currency, cryptocurrency, or crypto assets different from those issued or guaranteed by the Bolivarian Republic of Venezuela."[440]

7.7) SOUTH AFRICA

The South African Reserve Bank, in a 2014 position paper, stated that crypto-assets were not considered legal tender within South Africa.[441] Following this, the Reserve Bank, the Financial Sector Conduct Authority, and the National Treasury developed an Intergovernmental FinTech Working Group (IFWG). The Crypto Assets Regulatory Working Group (CARWG) of the IFWG, in June 2021, published its position paper with recommendations on how to develop a regulatory framework for crypto-assets in the country.[442]

The CARWG's position paper defines a crypto-asset as "a digital representation of value that is not issued by a central bank, but is capable of being traded, transferred or stored electronically by natural and legal persons for the purpose of payment, investment and other forms of utility; applies cryptographic techniques and uses distributed ledger technology."[443] Interestingly, the CARWG excludes nationally issued crypto-assets from its definition.

The paper goes on to provide multiple key recommendations for establishing a regulatory framework in South Africa:[444]

● Implementation of anti-money-laundering and combating terror-financing by bringing crypto-exchanges under the e-Financial Intelligence Centre Act 38 of 2001 (FIC Act).

● Having the Reserve Bank monitor and regulate cross-border financial flows relating to crypto-assets.

● Formal declaration of crypto-assets as financial products, thereby ensuring it is under the purview of the appropriate financial legislation.

● Limiting the exposure of financial institutions to crypto-assets due to the inherent risks.

Crypto-assets are subject to both income and capital gains tax in South Africa.[445]

7.8) SINGAPORE

Crypto-assets in Singapore are regulated by the Monetary Authority of Singapore (MAS) and are not accepted as legal tender. MAS has categorised crypto-assets into 3 distinct types:[446]

a. Utility tokens - These tokens are not meant to act as investments and allow users to access products or services provided by the issuing entity.

b. Payment Tokens - These tokens are used as a means of exchange for goods and services.

c. Securities Tokens - These are used to refer to those tokens where buyers invest with the expectation of profit. E.g. ICOs.

In terms of legislation, the Payment Services Act (PSA), 2019, regulates traditional and crypto-asset payments and exchanges. The

PSA defines digital tokens (used in place of virtual or crypto-assets) as any digital representation of value that fulfils the following criteria:

i. "Is expressed as a unit;

ii. is not denominated in any currency, and is not pegged by its issuer to any currency;

iii. is, or is intended to be, a medium of exchange accepted by the public, or a section of the public,

iv. as payment for goods or services or for the discharge of a debt;

v. can be transferred, stored or traded electronically; and

vi. satisfies such other characteristics as MAS may prescribe."[447]

The act also outlines a license requirement, as well as AML and CFT guidelines, that must be followed. The AML/CFT provisions under the PSA address the risk of financial crimes and promote best practices, including KYC, to help crypto-businesses comply with the new regulatory framework.

The Securities and Futures Act is also applicable for public offerings and issues of digital tokens. A May 2020 Guide to Digital Token Offerings published by the MAS details the regulations surrounding digital tokens and their applicability to securities, collective investments, derivative contracts, and the determination of whether a token is a type of "capital market product".[448]

Finally, The Inland Revenue Authority of Singapore (IRAS) announced:

"Businesses that choose to accept digital tokens such as bitcoins for their remuneration or revenue are subject to normal income tax rules. They will be taxed on the income derived from or received in Singapore. Tax deductions will be allowed, where permissible, under our tax laws."[449]

The IRAS has also provided citizens with a dedicated guide on taxation of crypto-assets under income tax.[450]

7.9) INDONESIA

In 2019, the Indonesian Commodity Futures Trading Regulatory Agency (BAPPEBTI) approved regulations legally recognising and regulating crypto-assets as commodities.

Derivative transactions and crypto-exchanges are also subject to the regulatory requirements of BAPPEBTI. [451]

The 2019 regulation defines a 'crypto-asset' as "an intangible commodity in the form of a digital asset that uses cryptography, a peer-to-peer network and distributed ledger technology to regulate the creation of new units, verify transactions and ensure transaction security without the involvement of a third party intermediary."[452] However, it must be noted that Indonesian law does not recognise crypto-assets or digital currencies as a means of payment or currency.[453] The BAPPEBTI Regulation No. 7 (2020) not only provides a list of 229 approved crypto-assets that are allowed to be traded within Indonesia, but it also lays down the guidelines and criteria for crypto-assets to be approved by the BAPPEBTI.[454] For a crypto-asset to be approved for trading, it should fulfil the following criteria:

a. distributed ledger technology basis;
b. in the form of utility crypto, or crypto-backed asset;

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c. market cap is within the big 500 list in the coin market cap for utility assets;

d. part of asset transaction of crypto asset in the world;

e. has economic value, such as tax, development of informatic industry and digital talent; and

f. has performed the risk assessment, including money theft and terrorism sponsor as well the proliferation of mass destruction weaponry.

In addition to these guidelines, the crypto-assets that may be traded are those that have already been designated by BAPPEBTI in the list of crypto-assets.[455]

The government is, as of the time of writing, discussing the possibility of a dedicated crypto-asset tax. In the interim, a representative has clarified the applicability of income tax on profits garnered from crypto-assets.[456]

7.10) SWITZERLAND

Switzerland is known as one of the most crypto-asset friendly nations in the world; however, it does not accept crypto-assets as legal tender. Switzerland's financial markets regulator, the Swiss Financial Market Supervisory Authority (FINMA), adopted the following definition (first used by the Swiss federal government in a report dated June 25, 2014) when it amended its anti-money laundering regulations, which came into force in January 2016:

"A virtual currency is a digital representation of a value which can be traded on the Internet and although it takes on the role of money – it can be used as a means of payment for real goods and services – it is not accepted as legal tender anywhere. These currencies have their own denominations. They differ from e-money in that they are not based on a currency with legal tender status. Virtual currencies exist only as a digital code and therefore do not have a physical counterpart for example in the form of coins or notes. Given their tradability, virtual currencies should be classified as an asset."[457]

In 2018, the FINMA introduced three token categories in its Guidelines for Enquiries Regarding the Regulatory Framework for Initial Coin Offerings,[458] although it also recognises the possibility of hybrid tokens:

I. Payment tokens

Payment tokens are synonymous with cryptocurrencies and have no further functions or links to other development projects. Tokens may, in some cases, only develop the necessary functionality and become accepted as a means of payment over time. These tokens are not treated as securities but would require compliance with FINMA anti-money laundering regulations.

II. Utility tokens

Utility tokens are tokens intended to provide digital access to an application or service. They are not treated as securities, provided that their sole purpose is to confer digital access rights to an application or service. However, if a utility token functions solely or partially as an investment (in economic terms), FINMA would treat it as a security (i.e., the same as asset tokens).

III. Asset tokens

Asset tokens represent assets such as participation in an underlying physical company or earning stream or an entitlement to dividends or interest payments. In

terms of their economic function, the tokens are analogous to equities, bonds, or derivatives. They are regarded by FINMA as securities; and securities law requirements for trading in such tokens, as well as civil law requirements under the Swiss Code of Obligations (e.g., prospectus requirements), would be applicable to them.

In Switzerland capital gains arising from private crypto-assets are not subject to income tax (with a few exceptions) but are rather subject to the national wealth tax.[459] There are also canton specific taxes that may be applicable.

7.11) CHINA

The People's Bank of China banned financial institutions from dealing in crypto-assets in 2013 and later expanded the ban to crypto-exchanges and ICOs through the "Notice Regarding Prevention of Risks of Token Offering and Financing" issued in September 2017.

China has been the epicentre for mining by virtue of low electricity costs. Although the government asserted in 2019 that crypto-mining would remain legal, in May 2021, China's Financial Stability and Development Committee, the financial regulatory agency under Vice-Premier Liu He, said the Chinese government would "crack down on bitcoin mining and trading behaviour, and resolutely prevent the transfer of individual risks to the society."[460]

China has imposed a ban on financial institutions and payment companies from providing crypto-asset related services.[461] The People's Bank of China maintains that services offering trading, order matching, token issuance, and derivatives for virtual currencies are strictly prohibited and that overseas crypto-exchanges providing services in China are also illegal.[462] In September 2021, 10 state agencies in China got together to issue a ban on all crypto-asset related activities, including mining.[463]

However, the People's Bank of China has embraced blockchain technology and has been at the forefront of developing the central bank's own digital currency – the Digital Yuan.

7.12) TABLE OF REGULATIONS

Country	Regulations			
	Status	AML/CFT norms	Taxation	Other relevant regulations
European Union	Legal; not accepted as legal tender.	Currently governed by the EU's 5th Anti Money Laundering Directive (AML5), and will also be governed by the	Capital gains tax, income tax, business tax, wealth tax or a combination of these. Directive on Administrative	Proposed Markets in Crypto-assets (MiCA) regulation would overhaul crypto-asset regulation in the EU.

		EU's proposed future legislative package.	Cooperation 8 (DAC 8) seeks to introduce a new taxation structure associated with crypto-assets	Structure associated with crypto-assets
El Salvador	Bitcoin is mandated by law to be accepted as legal tender.	Additional AML and CFT obligations applied on financial institutions who are looking to provide bitcoin facilities.	Exchanges in bitcoin are not subject to capital gains tax.	
USA	Legal; not accepted as legal tender.	Compliance is required under the Bank Secrecy Act, 1970.	Virtual currencies are considered property for taxation purposes.	Regulations based on guidance by various agencies. Certain tokens are considered as securities. Virtual currencies are also regulated as commodities. Regulations also vary across states. The Digital Tokens Act, 2021 and the Digital Commodity Exchange Act, 2020 could significantly alter crypto-asset regulation if passed.

UK	Legal; not accepted as legal tender.	Compliance is required under existing money laundering regulations.	Multiple taxes are applicable depending on the nature of the transaction.	Provides a comprehensive definition of crypto-assets; classifies them as regulated or unregulated. All businesses dealing with crypto-assets (both regulated and unregulated) are to be registered with the FCA. The sale of derivatives and exchange-traded notes (ETNs) is banned.
Japan	Legal; not accepted as legal tender.	Compliance required under the Act on Prevention of Transfer of Criminal Proceeds, 2007.	Gains generated are treated as miscellaneous income or business income and taxed accordingly.	Provides a comprehensive definition of crypto-assets. Crypto-exchanges are regulated under the PSA while ICOs, STOs, and crypto-asset derivatives transactions under the FIEA.
Venezuela	Legal; not accepted as legal tender.	The guidelines for the manual on internal control regarding prevention	Any individual or entity that carries out transactions in crypto-assets must make their	The Constitutional Decree on Crypto-assets and

		of money laundering and financing of terrorism, and The Guide for the prevention of laundering of crypto-assets, financing terrorism and "know your customer" policies exist but their legal status is unclear.	requisite tax payments using crypto-assets Crypto-specific changes were also made to the country's VAT structure.	the Sovereign Cryptocurrency Petro, 2018, legalised crypto-asset trading and also established Venezuela's own cryptocurrency, Petro, backed by its mineral and oil reserves. Constitutional Decree on the Integral System of Crypto-assets, 2019, established the Superintendency of Cryptoactivities and Related Activities, and defines crypto-assets and provides guidelines as well as punishments.
South Africa	Legal; not accepted as legal tender	AML regulations in line with the recommendations of the Financial Action Task Force (FATF)	Income and Capital gains taxes are applicable	Crypto Assets Regulatory Working Group (CARWG) published a position paper in June 2021 with recommendations on how to develop the regulatory

				framework for cryptocurrencies.
Singapore	Legal; not accepted as legal tender.	Compliance is required under the Payment Services Act, 2019.	Existing taxation rules are applicable on any income generated.	Regulated by the Monetary Authority of Singapore (MAS). Provides a comprehensive definition of digital tokens. Securities and Futures Act applicable to public offerings of tokens, derivatives, etc.
Indonesia	Legal; not accepted as legal tender.	Compliance required with BAPPEBTI regulations.	Income tax on profits gained from private crypto-assets	Regulated by the Indonesian Commodity Futures Trading Regulatory Agency (BAPPEBTI), which provides a list of approved crypto-assets. Provides a comprehensive definition of crypto-assets, which are considered as commodities. Derivative transactions and cryptocurrency exchanges are also regulated by BAPPEBTI.

Switzerland	Legal; not accepted as legal tender.	Compliance required with existing anti-money laundering regulations.	Existing taxation rules (such as on wealth tax) are applicable on any income generated.	Defines virtual currencies and classifies them as payment tokens, utility tokens, and asset tokens. Securities laws are applicable on certain tokens.
China	Prohibition on all cryptocurrency-related activities.			

(Source: Authors Compilation, 15th December, 2021)

08 RECOMMENDATIONS

Having analysed the various use cases, benefits, limitations and international perspectives on private crypto-asset regulation, we now turn towards our recommendations for policymakers. We divide these recommendations into two types: Immediate measures and long term measures.

8.1) IMMEDIATE/SHORT TERM MEASURES

These are measures that the government can take in the absence of any dedicated crypto-asset specific legislation.

8.1.1) AVOID A BAN ON PRIVATE CRYPTO-ASSETS

Given the many limitations posed by crypto-assets, one of the proposed solutions has been to adopt a complete ban on all such assets as well as all related activities, including mining. However, while a blanket ban may seem like an appealing solution superficially, it presents multiple key issues. First, criminalisation of crypto-assets and crypto-asset-related activities would fail to eradicate the use of such assets but could have the unintended consequence of creating an underground black market – thereby further entrenching the links between these assets and illegal activity. Second, a complete ban

of crypto-assets poses the risk of losing any potential future innovation that may arise from the development of the technology. Keeping these points in mind, we suggest that rather than adopting a blanket ban, governments permit crypto-asset and mining activities within a very limited and highly regulated context, while, at the same time, pushing for multilateral unity on reducing and limiting the environmental impact of these technologies.

8.1.2) RECOMMEND THAT CERTAIN BODIES USE THEIR POWERS TO FORMULATE INTERIM OVERSIGHT

During the interim period prior to the adoption of dedicated crypto-asset legislation, steps could be taken to classify crypto-assets under the existing financial framework, such as:

i. Formally reiterating the fact that crypto-assets are not considered as legal tender within India.

ii. Crypto-assets could be brought under the definition of one of the existing financial instruments, and the regulations governing such instruments would govern both crypto-exchanges as well as vendors who accept payments in crypto-assets. The main purpose of doing so would be to give

existing financial regulators jurisdiction over crypto-assets – so that they can be regulated and supervised in a manner that harnesses their potential while limiting the risks to the economy as well as consumers. Some of the most accessible approaches are illustrated below:

● Under Section 2(ac)(D) of the SCRA, the central government has the power to notify any instrument as a 'derivative' for the purposes of the SCRA. Crypto-assets may be notified as derivatives, granting the SEBI jurisdiction over them, which can, till it issues detailed regulations specific to crypto-assets, make its existing KYC/AML regulations applicable to crypto-exchanges as an interim measure.

● The SEBI could take the stand that crypto-assets satisfy the requirements of Section 11AA of the Securities Exchange Board of India Act, 1992, and, therefore, qualify as collective investment schemes. The issuer of the crypto-assets would then have to comply with the requirements of the SEBI (Collective Investment Scheme) Regulations, 1999.

● Under Section 43-U(a) of the RBI Act, 1934, the RBI has the power to notify any instrument as a derivative. The RBI has a similar power to notify any instrument as a derivative under Section 2(1)(b) of the Payment and Settlement Systems Act, 2007. Crypto-assets may be notified as derivatives under either of these two legislations, thereby giving the RBI jurisdiction over crypto-assets, which can, till it issues detailed regulations governing crypto-asset transactions, make its existing KYC/AML regulations applicable to crypto-exchanges as an interim measure.

● The RBI can also assume jurisdiction over crypto-assets by recognising crypto-assets as a payment system under the Payment and Settlement Systems Act, 2007, and issue directions under Sections 10 and 18 of the Act, as was done in the case of prepaid payment instruments (PPIs). This approach carries with it the advantage of allowing the RBI to create an entirely independent regulatory framework for crypto-assets. The RBI could also notify crypto-assets as Prepaid Payment Instruments to assume jurisdiction over them. Alternatively it can assume jurisdiction based on the reasoning given by the Supreme Court[464] that RBI could assume jurisdiction over anything that poses a risk to the financial system of the country even if it is not a part of the credit system or payment system.

8.2) LONG TERM MEASURES

These measures rely on creating dedicated legislation that will set up private crypto-asset regulation in India for the future.

8.2.1) ADOPTING A SPECIFIC REGULATORY FRAMEWORK

Crypto-assets do not fit into any of the existing classifications of financial instruments. Since the characteristics of crypto-assets are novel and unique it would not be conducive to simply apply existing regulatory frameworks to crypto-assets. It is therefore clear that crypto-assets need to be regulated through a specific and standalone regulatory framework. Such a framework may be established either (i) by an independent legislation or (ii) by classifying crypto-assets as coming within an existing financial instrument such as security, derivative, payment system, currency,

etc. purely for the purposes of assigning jurisdiction to a regulatory authority whereafter the regulatory authority would issue new regulations governing crypto-assets. These regulations should be issued after consultations with all stakeholders including industry, investors, experts, etc. We offer below a few key issues that such a regulatory framework should incorporate for efficient supervision and regulation of crypto-assets.

8.2.2) TO IDENTIFY CLEAR DEFINITIONS

Before creating any regulatory framework, policymakers must first devise a comprehensive definition of crypto-assets. Any such definition can be framed in accordance with the following principles, followed by various jurisdictions and international agencies:

I. Crypto-assets

Policymakers must adopt a definition of 'crypto-assets' that includes a number of entities that have emerged within the crypto space, but which cannot be classified as 'currencies'. Several jurisdictions use of this approach when they describe 'crypto-assets' as entities that make use of DLTs. An important example of this is the Financial Conduct Authority (FCA) of the UK – which describes crypto-assets as "cryptographically secured digital representations of value or contractual rights that use some type of distributed ledger technology (DLT) and can be transferred, stored or traded electronically."[465] Other examples include countries such as Japan and Indonesia[466] and international agencies such as the OECD[467] and the IMF.[468]

II. Categorisation of different crypto-assets

Since the term crypto-assets is used as an umbrella term to refer to a variety of entities, it is essential to classify these entities based on their utility or intrinsic nature. The FCA approach in the UK is worth examining in this regard.[469] Various European financial authorities also rely on a similar classification.[470] The term 'token' refers to entities that make use of pre-existing blockchains as opposed to 'coins', which operate on their independent blockchain.[471] This approach, however, disregards this difference between coins and tokens and uses 'token' as an umbrella term

● Exchange or payment

Assets based on DLT that are generally used as a medium of exchange, or for investment purposes, and are not issued or regulated by any central authority. These include common 'cryptocurrencies' such as bitcoin, litecoin, etc. (most coins will be included in this definition).

● Investment or security

Assets based on DLT that provide rights such as ownership, repayment of a specific sum of money, or entitlement to a share in future profits, and can be considered equivalent to shares, bonds, or other securities.

● Utility

Assets based on DLT that provide the holder the right to redeem specified services or products (most tokens are included in this).

This classification is especially important in applying the right kind of regulations appropriate to the asset, as the same laws cannot be applied to all kinds of crypto-assets. For instance, it would not be feasible

to apply securities laws to all crypto-assets, as only a certain type of asset can be classified as a security. However, certain assets may fall into more than one category and need to be regulated accordingly.

III. Crypto-asset service providers

In line with the definition adopted by the EU in its draft regulations (MiCA),[472] we suggest that entities that undertake one or more of the following activities be defined as crypto-asset service providers:

● Possession and administration of crypto-assets for a third party.

● Operating a crypto-asset trading platform.

● Exchanging crypto-assets for legal tender.

● Exchanging crypto-assets for other crypto-assets.

● Carrying out crypto-asset orders on behalf of a third party.

● Receiving and transmitting orders for crypto-assets from a third party.

● Giving advice on crypto-assets.

At this point, it is also important to examine India's attempt to define 'cryptocurrencies' through the Banning of Cryptocurrency & Regulation of Official Digital Currency Bill, 2019. The bill defines cryptocurrency under Section 2(1)(a) thus:

"Cryptocurrency, by whatever name called, means any information or code or number or token not being part of any Official Digital Currency, generated through cryptographic means or otherwise, providing a digital representation of value which is exchanged with or without consideration, with the promise or representation of having inherent value in any business activity which may

involve risk of loss or an expectation of profits or income, or functions as a store of value or a unit of account and includes its use in any financial transaction or investment, but not limited to, investment schemes;" [473]

It is evident that this definition is extremely broad and can potentially include any commodity or item used in a financial transaction, regardless of whether it makes use of DLT. Moreover, it made no attempts to define different types of tokens, crypto-exchanges, or businesses. Therefore, these requirements need to be kept in mind specifically.

8.2.3) LIMITING THE REGULATIONS TO CRYPTO-ASSETS, NOT THE UNDERLYING TECHNOLOGY

Drawing from the proposed regulations put forth by the European Commission, it is imperative that any attempt at regulating crypto-assets in India takes into consideration the distinction between the assets themselves and the technology underlying them. This would ensure that crypto-assets are not defined merely by the technology they currently use (i.e., DLT and blockchain), but by the purpose they serve – thereby future-proofing regulations to a degree.[474] This would also allow for continuous innovation using blockchain in a multitude of other fields without any regulatory hindrances. It must be noted that the Draft Banning of Cryptocurrency and Regulation of Official Digital Currency Bill, 2019, did contain such a distinction.

8.2.4) INTRODUCE A LICENSING AND REGISTRATION SYSTEM

A number of international jurisdictions have begun to adopt licensing systems for entities who undertake crypto-asset-related business activities.[475] These licenses ensure that the state can effectively monitor crypto-asset related activities. A similar system of licensing may be adopted along the following principles:

● Akin to the BitLicense[476] or to the EU's MiCA,[477] a licensing requirement may be introduced that would be applicable in cases of 'crypto-asset business activity'. Such activities would include:
º Transmission of crypto-assets or receiving crypto-assets for the purpose of transmission
º Crypto-asset storage or escrow services
º Buying, selling, or trading crypto-assets as a customer business
º Crypto-asset exchange services as a customer business
º Issuing or controlling crypto-assets

● Such a license should not be required for individuals who use crypto-assets for purely personal investment purposes and would also be unnecessary for businesses that accept payment through the use of crypto-assets.

● Mining new crypto-assets may be exempt from licensing. Moreover, the sale of mined crypto-assets – provided that it is a "private, non-commercial transaction" [478]– should not require a license. Similarly, the creation and dissemination of software or code used for crypto business activities should not require a license.

● Certain capital requirements may be applied as a pre-requisite for obtaining the license, thereby ensuring that the financial integrity of the license holder can be guaranteed. Such a requirement can be determined on the basis of the business model as well as the risk associated with the entity.

● This license can also include requirements in terms of cybersecurity. Entities engaged with crypto-asset-related business can be mandated to have clear and public cybersecurity policies, appoint a dedicated cyber security officer, and conduct cybersecurity audits at regular intervals.

● Special attention must also be paid to ensure that adequate provisions are introduced to ensure consumer protection. Entities must be required to clearly disclose the risks involved in crypto-asset activities, describe the terms and conditions, and provide comprehensive receipts and adequate grievance redressal mechanisms.

8.2.5) MAKE PROVISIONS FOR HANDLING ENVIRONMENTAL CONCERNS

As mentioned previously, crypto-assets and crypto-mining carry a tremendous environmental cost that must be accounted for by any proposed legal framework. Some of the ways in which these costs may be offset are:

I. Taxation
A Pigouvian tax could be introduced to offset the cost of the negative externalities created by crypto-asset transactions and mining. Pre-existing taxes on carbon, plastic, and addictive substances can be further studied to guide the implementation of such a tax for

crypto-assets. Furthermore, tax exemptions may be provided if an entity can prove that it is utilising renewable energy sources for their crypto-activities.

II.Mining limitations

Countries such as Venezuela have adopted policies that limit individuals from conducting crypto-asset mining in specified locations, so as to prevent disturbances in electrical supply in low-income areas.[479] Policymakers in India can take corresponding steps to ensure that the negative effects of increased electrical consumption from crypto-asset mining are not a burden for vulnerable sections of society. Perhaps a requirement may be introduced that mining operations above a particular size would have to either be conducted off grid through renewable energy sources or be connected to the grid but have a net zero electricity footprint using renewable energy through the use of smart meters.

8.2.6) CONSUMER PROTECTION MEASURES

Drawing from the regulations proposed in the EU,[480] any potential license system must place mandatory obligations on crypto-asset service providers to ensure that consumer rights are protected. Such measures could cover the following areas:

I. Obligation to act in good faith

Crypto-asset service providers must be obligated to operate honestly, fairly, and in the best interest of consumers.

II. Informing consumers and governing authorities

Crypto-asset service providers must be obligated to ensure that all information related to the crypto-asset/service is easily accessible to consumers in a simple and easy to understand format such as a whitepaper. The information provided must be accurate as well as consistently and routinely updated. This must be submitted at the time of seeking the license so that it can be vetted by the appropriate authorities. Furthermore, provisions regarding the service provider's liability to holders, with respect to the information in the whitepaper, must be clearly defined.

Information relating to conflicts of interest, the total number of crypto-assets issued, and other relevant information must also be made public periodically. Moreover, governing authorities must also be notified of changes in a service provider's management structure.

III. Marketing and advertising

All marketing and advertising done by crypto-asset service providers must be clearly identified as such. All information included in the advertisements must be in line with that provided in the service provider's whitepaper. All marketing must also clearly articulate the rights of the crypto-asset holders and any associated risks – including whether there is any right to redemption.

8.2.7) TAKING MEASURES TO LIMIT THE IMPACT OF VOLATILITY ON THE WIDER FINANCIAL MARKET

The volatility of crypto-assets presents a problem for lawmakers in terms of limiting its negative effects on the country's wider financial infrastructure. Moreover, with speculation rife within the crypto-market,

policymakers must be cognizant of the need to limit the potential negative effects of the crypto bubble bursting.

Governments traditionally have three clear approaches to addressing volatility in the case of traditional assets: getting involved in the buying and selling of the asset to manipulate the price, imposing regulatory requirements, and influencing supply by inflicting controls.[481] However, as crypto-assets are cross-national and decentralised, this prevents states from adequately employing any of the aforementioned measures.[482] Moreover, it is unclear how far any government regulation or action would actually impact the prices of crypto-assets in the long term.[483]

Taking into consideration the challenges in controlling the volatility of crypto-assets, the most effective way to tackle this issue may be to ensure that this volatility does not have a knock-on effect on the country's entire financial structure. To that end, policymakers may consider placing limitations on the extent to which financial institutions such as banks and non-banking financial companies are able to invest in crypto-assets as well as the extent to which they can hold crypto-assets as part of their reserves. Doing so would ensure that the volatility associated with crypto-assets would not have a significant or direct knock-on effect on the country's banking services. Moreover, the state may also consider limiting the trading volumes of customers, a proposition we explore in the next recommendation.

8.2.8) EXTENDING AML/CFT NORMS & EXCHANGE CONTROL REGULATIONS

One of the major concerns pertaining to the regular use of crypto-assets is the alleged ease with which it can be used in illegal activities, such as money-laundering and terror-financing. We suggest the following in this regard:

I. AML/CFT norms

In most jurisdictions, existing norms on money-laundering – as specified in various regulations and legislations – have been made applicable to crypto-assets through relevant amendments and notifications.[484] FATF guidance, in this regard, also points out that existing regulations should apply to all entities dealing in crypto-assets.[485] Therefore, in India too, bringing crypto-assets into the purview of regulators would ensure that relevant AML/CFT norms are made applicable to crypto-asset transactions.

II. Foreign exchange management

As evident from our earlier discussions, crypto-asset transactions have foreign exchange implications and might invite scrutiny under the FEMA. Therefore, we suggest that the application of FEMA be made explicit, and the RBI should be given supervisory jurisdiction insofar as compliance with FEMA is concerned.

Proposing specific changes to FEMA to tackle crypto-assets would require a wider economic analysis that takes into consideration issues of monetary policy. Such an analysis is beyond the scope of our report, and we welcome the government to undertake such work. However, should the government seek to take immediate

measures to limit illicit foreign exchange transactions through crypto-assets, it may consider placing limits on the volume of retail transactions in crypto-assets. If such limits are considered excessive, monitoring and immediate disclosure requirements for retail crypto-asset transactions beyond a predetermined volume may be considered an alternative.

8.2.9) OVERSIGHT BODY

Ideally, the government might consider establishing a dedicated body to oversee and research changes in the crypto-marketplace and make appropriate suggestions to the concerned regulatory authorities. Such a body could comprise a variety of members, spanning a range of entities, including the Finance Ministry, MEITY, SEBI, Enforcement Directorate and the RBI. Recognising that the government does not have infinite resources and also to avoid multiplicity of regulators, regulatory oversight of crypto-assets could be undertaken by one of the existing independent financial regulators. The two regulators that would be most suited for the task are:

i. SEBI - Although the earliest crypto-assets started out as alternative currencies, later iterations such as NFTs, etc. are not limited to this function. Even with regard to the crypto-assets which have been designed to be used as currencies, most users currently use them as investments.[486] In this backdrop it would appear that SEBI should be the preferred agency to regulate and supervise crypto-assets since it has the experience and expertise to regulate investment instruments while at the same time protecting consumer interests.

ii. RBI - Since most crypto-assets have the potential to be used as currency and considering the distributed nature of the network that allows P2P transfer across national boundaries without any central authority, there are definitely exchange control implications to crypto-assets. The power of the RBI to deal with crypto-assets has also been recognised by the Supreme Court of India since the RBI is duty bound to address all issues that are perceived as potential risks to the monetary, currency, payment, credit and financial systems of the country.[487]

8.2.10) TAXATION

Although the government has taken a clear stand that any gains made through dealings in crypto-assets would be subject to taxation, there is a lack of clarity as to which specific provisions of the tax regime would be applicable to various aspects of crypto-asset dealings. In order to eliminate this uncertainty, the provisions in the Income Tax Act, 1961 as well as the CGST need to be amended to incorporate crypto-assets within the tax framework.

8.2.11) STABLECOIN SPECIFIC REGULATION

Stablecoins differ from other private crypto-assets in two clear ways. First, there exists a mechanism to ensure that the value of a stablecoin is maintained across time.[488] This mechanism can either ensure that the stablecoins issued are adequately backed by other financial or physical assets, or alternatively control the supply of stablecoins within the marketplace through the use of an algorithm.

Second, stablecoins fulfil a unique function within the crypto-marketplace. Stablecoins are used primarily as a means of exchange within the crypto-marketplace. In order to do so, a stablecoin transaction must achieve the following functions [489]

● The stablecoin issuer must be able to issue stablecoins, whose values are maintained.

● These stablecoins must be, in some form, redeemable by the consumer in exchange for either fiat currency or a physical or financial asset.

● Stablecoins must be easily transferable and have appropriate infrastructure in place to verify such transfers.

● A user interface whereby stablecoins can be stored or exchanged for fiat currency.

Given their unique role, a loss of confidence in stablecoins or an unexpected change in their value relative to what it is pegged to would pose a systematic problem to the entire crypto-marketplace.[490] This is particularly the case if the assets that back a stablecoin are not fiat currency, but rather are "non zero risk financial assets"[491] that are subject to the inherent risks associated with such assets. As such, stablecoins carry with them a significant inherent risk in terms of financial stability.

Governments may be wary of the interplay between financial institutions and stablecoins.[492] Increased exposure of these institutions to stablecoins, especially in instances wherein they fulfil a number of different functions such as acting as a wallet provider or custodian of a stablecoin's assets, could cause these institutions to face market, credit or operational risks. A

loss of value of a stablecoin might also have negative confidence effects on financial institutions that are linked with it. [493]

Paramount to the smooth operation of stablecoins is the management of the purchase and sale of the reserve assets that back the stablecoin.[494] These assets must be liquidated as required at market rates to ensure that the value of the stablecoin is maintained as customers look to redeem their coins. Selling at below market rate, could result in the emergence of 'fire sales' of the asset resulting in a reduction of the value of the stablecoin.[495] Moreover, the sale of various assets backing the stablecoin could have detrimental effects on each of those assets' respective markets.

Finally, states must consider the possible negative effects that widespread adoption of stablecoins as a store of value could have on monetary policy. [496]

Given these risks, stablecoin regulation must be one of the primary considerations of any regulatory framework for private crypto-assets in India. Here, policymakers can draw upon recommendations and lessons from other countries as well as international bodies.

I. The Financial Stability Board
The Financial Stability Board, in its initial report on stablecoins as well as its progress report, has outlined a number of clear recommendations for governments that are attempting to regulate the use of stablecoins.[497] These recommendations include encouraging authorities to establish a clearly defined legal and regulatory framework for stablecoins that is in line with international standards, applying risk

management and AML measures onto stablecoins, adopting clear and transparent data protection and cybersecurity policies, etc. [498]

II. United States

In the United States, the president's working group on financial markets, the federal deposit insurance corporation and the comptroller of the currency produced a joint report on regulating stablecoins.[499] The report makes a number of key recommendations:

Mandating that only "insured depository institutions"[500] (which refers primarily to banks or savings associations)[501] are able to issue stablecoins. This would mean that any entity that looks to issue stablecoins would be subject to certain banking regulations and banking regulators.

Bringing custodial wallets under federal regulations as they play a key role in the operation of stablecoins. Wallets would be unable to lend customers stablecoins, and would be subject to appropriate risk management, capital and liquidity requirements.[502]

Ensuring that any entity that participates in the functioning of a stablecoin can be brought under the authority of the relevant regulatory body and will be required to meet any applicable risk management, AML or other regulatory standard.[503]

III. India

With reports of India adopting its own Central Bank backed Digital Currency (CBDC), arguments have been made that this E-rupee would fill in for the role that stablecoins currently perform - leading to them disappearing.[504]

While it is true that a CBDC would reduce the probability of a stablecoin becoming a widely used means of exchange domestically, it is unclear whether it would be able to displace stablecoins' role within the crypto-market. Moreover, a CBDC would not affect the potential adoption of a stablecoin as a store of value.

Keeping this in mind, it is imperative that any regulation of private crypto-assets in the Indian context must make specific note of the role that stablecoins play. The Indian government must, going forward, perform the following:

1. Adopt a specific regulatory structure for stablecoins
2. Introduce additional regulatory requirements on stablecoin issuers beyond what might be applicable to other private crypto-assets
3. Ensure that all entities participating in stablecoin transactions are subject to stablecoin specific regulatory standards
4. Limit the exposure of existing financial institutions to stablecoins by ensuring compliance with risk, capital liquidity and other such requirements.
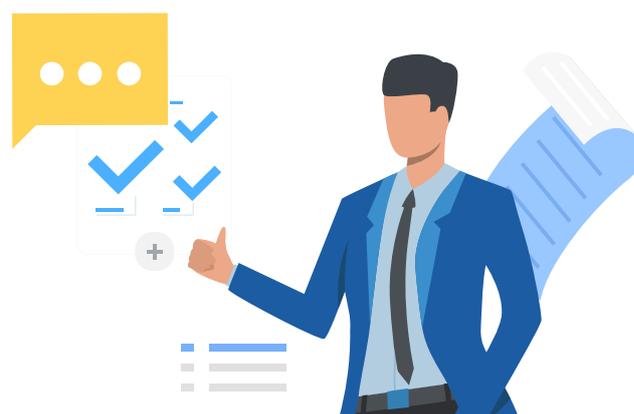
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