



**CRYPTO ASSETS:
REGULATORY CHOICES
FOR CONSUMER AND
INVESTOR PROTECTION**

**POLICY
BRIEF
7**

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Abstract

With more than a few booms, crashes, and speculative bubbles, the inherent risks of the burgeoning crypto industry are now well acknowledged. Effective regulation, especially in areas of investor protection, can help build trust in markets like India, which are leading the global adoption race. This paper draws on the international policy roadmap recommended by the International Monetary Fund (IMF) and the Financial Stability Board (FSB) for crypto asset regulation. While tracing the taxonomical inconsistencies around crypto assets, this paper discusses the regulatory responses of different countries towards mitigating risks from crypto, particularly those facing investor protection. We present a comparative assessment of self-regulation and government intervention for investor protection. Based on cross-sectoral case studies, we conclude that industry self-regulation is inadequate to ensure investor protection in the long run. The government needs to leverage international experience and work towards harmonized global regulation. While close industry collaboration is necessary to help the market evolve, it cannot substitute sharp government oversight.

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Crypto Assets: Regulatory Choices for Consumer and Investor Protection

1. Blockchains and Crypto

Blockchains are a state-of-the-art digital innovation driven by peer-to-peer networks. These networks form a labyrinth of interlinked nodes that aim for the continuous exchange of information.¹ Blockchains enable the existence of cryptocurrencies—a medium of exchange that is created and stored electronically using cryptographic techniques.² Satoshi Nakamoto conceived the idea of a cryptographically protected token, i.e., bitcoins, to be offered as an incentive to computation specialists and the community of verifiers on the blockchain. This enabled a safe, secure, and efficient system of payments and day-to-day transactions. Today, a wider gamut of tokens functions as cryptocurrencies. As of November 2023, there were 10,748 cryptocurrencies in existence, of which 8,848 were active.³ There are over 500 million cryptocurrency users across the globe, including investors and consumers of crypto assets.⁴

The current scale and speed at which blockchains operate have also evolved from the initial models. Earlier versions employed ‘proof-of-work’ protocols⁵ that relied on energy-intensive mining processes; in 2013, the community switched to alternative models based on ‘proof-of-stake’

protocols⁶ that facilitated faster consensus and less energy use, and scaled up smart-contract-based transactions.⁷ Newer protocols that seek to rapidly scale up blockchain transactions and improve the throughput further have since come into existence. These include ‘zero-knowledge-proof’, ‘proof-of-knowledge’, and ‘proof-of-history’, among others. Solana blockchain, for example, operates on a combination of ‘proof-of-history’ and ‘delegated proof-of-stake’ protocols, wherein the algorithm time-stamps each block to maintain additional levels of security for the blockchain.⁸

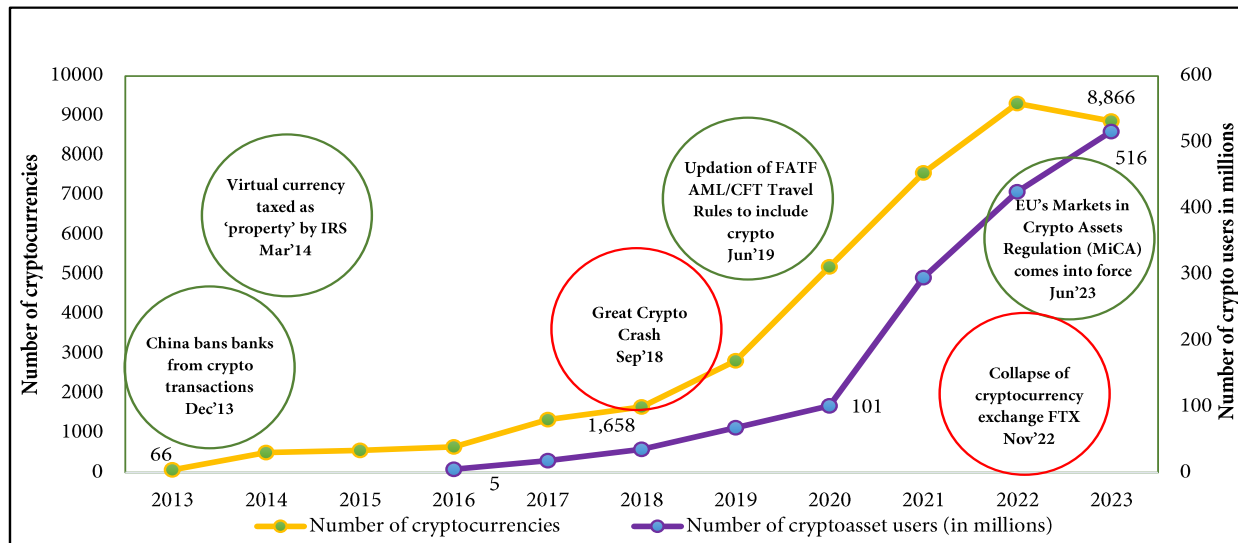
The rise of the crypto industry, especially in recent years, has been a roller-coaster, dotted with a series of scams, the collapse of cryptocurrency exchanges, and a commensurate regulatory clampdown in the form of taxation, restrictions, or outright bans (see Figure 1). India’s G20 presidency stressed on the importance of international cooperation in regulating crypto currencies.⁹ Additionally, international bodies such as the International Monetary Fund (IMF), the Bank for International Settlements (BIS), and the Financial Stability Board (FSB) have come together to make recommendations on the way forward.¹⁰ This paper builds on papers presented at the G20. By doing so, this paper aims to discuss the risks and regulatory responses highlighted

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- 1 Appukuttan Nair, D. (2019). The bitcoin innovation, crypto currencies and the Leviathan. *Innovation and Development*, 9(1), 85–103. <https://doi.org/10.1080/2157930X.2018.1502249>
 - 2 PwC. (n.d). Making sense of bitcoin, cryptocurrency and blockchain. Retrieved January 22, 2024, from <https://www.pwc.com/us/en/industries/financial-services/fintech/bitcoin-blockchain-cryptocurrency.html>
 - 3 Howarth, J. (2023, November 3). How many cryptocurrencies are there in 2024? Exploding Topics. Retrieved January 12, 2024 from <https://explodingtopics.com/blog/number-of-cryptocurrencies>
 - 4 de Best, R. (2023, December 6). Estimate of the monthly number of cryptocurrency users worldwide 2016-2023. Statista. Retrieved January 3, 2024 from <https://www.statista.com/statistics/1202503/global-cryptocurrency-user-base/>
 - 5 ‘Proof-of-work’ is a consensus mechanism wherein miners from all around the world compete with each other to be the first to solve a math challenge in order to be able to update the blockchain with the most recent verified transactions.
 - 6 ‘Proof-of-stake’ mechanism requires miners to skate (lock up) their share of crypto-tokens in a smart contract on the blockchain to be able to validate new transactions and earn a reward.
 - 7 Roberto, J. (2018, June 7). Understanding proof of stake: The nothing at stake theory. Medium. Retrieved January 3, 2024, from <https://medium.com/coinmonks/understanding-proof-of-stake-the-nothing-at-stake-theory-1f0d71bc027>
 - 8 Adams, A., & Tambe, N. (2024, January 10). What is Solana? How does it work? Forbes Advisor. Retrieved January 16, 2024, from <https://www.forbes.com/advisor/investing/cryptocurrency/what-is-solana/#:~:text=Solana's%20Delegated%20Proof%20of%20Stake&text=Delegated%20proof%20of%20stake%20is,using%20a%20system%20of%20validators>
 - 9 Press Information Bureau. (2023, September 25). G20 series #101; India’s G20 presidency. <https://static.pib.gov.in/WriteReadData/specificdocs/documents/2023/sep/doc2023925255601.pdf>
 - 10 Ministry of External Affairs, Government of India. (2023, September 9). G20 New Delhi Leaders’ Declaration. Retrieved January 23, 2024, from https://www.mea.gov.in/bilateral-documents.htm?dtl/37084/G20_New_Delhi_Leaders_Declaration

in emerging policy literature, with a focus on consumer and investor protection.¹¹ The rest of the paper is organized as follows. Section 2 focuses on the taxonomy of crypto assets and why its effective regulation is essential. Section 3 highlights the rationale for the regulation of crypto assets, the inherent structural risks to consumers, and existing global regulatory

frameworks in place for consumer protection. Section 4 discusses the current crypto-regulatory landscape in India. Section 5 analyses the adequacy of self-regulation in ensuring crypto investor protection and proposes policy recommendations for a regulatory framework aimed at investor protection in India.

Figure 1: Growth and Adoption of Cryptocurrencies



Note: Cryptocurrencies, which are a significant subset of crypto assets, are designed to function as a medium of exchange and have serious consequences for investor protection.

Source: Statista^{12,13,14}; Visualization by the authors

2. Taxonomy of Crypto Assets

As the community of bitcoin earners expanded and blockchain ‘mining’ and verification operations increased, the number of bitcoins increased in supply, creating a small community of users who used the coin as a means of payment or as currency. With the increase in the number of bitcoin users, it was estimated that the coin could become an effective alternative to fiat currencies. However, as they were programmed to taper off and terminate in supply by the year

2140,¹⁵ bitcoins did not gain traction as a means of payment¹⁶ nor did it meet the criterion of being a unit of account as envisaged by financial theorists and economists.¹⁷ In recent times, cryptocurrencies like Bitcoin and Ethereum have begun to be treated as utility tokens that are use-specific, non-transferable, and non-fungible.

A critical challenge with regard to the uptake of crypto assets and the protection of their investors and consumers is centered around prevailing taxonomical and regulatory inconsistencies.

¹¹ Consumer protection and investor protection are used interchangeably in this paper.

¹² Statista. (2022). Digital Economy Compass 2022. Retrieved January 9, 2023, from <https://www.statista.com/study/128160/digital-economy-compass-2022/>

¹³ de Best, R. (2023, December 6). Estimate of the monthly number of cryptocurrency users worldwide 2016-2023. Statista. <https://www.statista.com/statistics/1202503/global-cryptocurrency-user-base/>; accessed on January 3, 2024

¹⁴ de Best, R. (2024, January 9). Number of cryptocurrencies worldwide from 2013 to January 2024. Statista. <https://www.statista.com/statistics/863917/number-crypto-coins-tokens/>; accessed on January 12, 2024

¹⁵ Abrol, A. (2023, December 6). How many Bitcoins are there and how many are left to mine? Blockchain Council. <https://www.blockchain-council.org/cryptocurrency/how-many-bitcoins-are-left/>; accessed on January 10, 2024

¹⁶ Vigna P. (2021, February 9). Why Bitcoin hasn't gained traction as a form of payment. The Wall Street Journal. Retrieved January 11, 2024, from <https://www.wsj.com/articles/why-bitcoin-hasnt-gained-traction-as-a-form-of-payment-11612886974>

¹⁷ Fama, E. F. (1980). Banking in the theory of finance. *Journal of Monetary Economics*, 6(1), 39–57. Retrieved January 11, 2024 from [https://doi.org/10.1016/0304-3932\(80\)90017-3](https://doi.org/10.1016/0304-3932(80)90017-3).

With most countries yet to establish a definition for crypto assets, policy implications for taxation and consumer protection remain uncertain.¹⁸ In the absence of globally consistent definitions and the taxonomy of crypto assets, financial agencies such as the IMF have proposed classifications of crypto assets by factors such as asset type and asset function (see Appendix 1).

3. Regulation of Crypto Assets

While crypto assets do not yet constitute a significant part of the global financial system, their position as an alternative to fiat currency and the potential significant risk that they pose to

the financial system necessitates their regulation. The global reach of cryptocurrencies is perceived to challenge the fabric of the post-World War II monetary architecture, which is based on the US dollar as the reserve currency of the world.¹⁹ Other risks include threatening financial and monetary stability (domestic and global), undermining the ideals of equity and safety through speculation and price volatility, encouraging the flight of capital from developing countries to cause the indirect dollarisation of these economies, promoting shadow financial institutions, and providing a safe haven for money laundering, terrorist financing, and other socially undesirable activities, besides leading to revenue leakages.

BOX 1: Malfunctioning of Exchanges: The FTX Collapse of 2022

FTX or Futures Exchange was a cryptocurrency exchange firm that traded in crypto derivatives. FTX operations were conducted in the US, the Bahamas, Japan, Europe, Switzerland, and Hong Kong. By October 2021, FTX had raised \$25 billion in valuation through investments from Temasek, an investment firm owned by the Singaporean government, among others. FTX's valuation peaked at \$32 billion by January 2022.

On November 11, 2022, FTX announced the resignation of its CEO Sam Bankman-Fried. By November 17, 2022, FTX had officially collapsed along with its 101 debtors and went for bankruptcy funding. The fall of FTX, and ultimately of Bankman-Fried, can be traced to the liquidity crises faced by the FTT token. Bankman-Fried moved up to \$10 billion in FTX customer funds to his company Alameda, whose assets were primarily held in the FTT token. This, coupled with CZ's announcement of selling Binance's stake in FTT, led to increased customer withdrawals, culminating in the bankruptcy of the FTX Group. San Diego's Silvergate Capital, which managed FTX funds, also suffered collateral damage.²⁰

Following FTX's collapse, centralized crypto exchanges came forward to publish proofs of reserves and liabilities to ensure trust and transparency in the ecosystem by reassuring users that centralized exchanges held only assets they claimed to have custody of and are fully equipped to meet redemptions without fail.

The scams associated with opaque trading and investment policies of centralized exchanges (as in the case of FTX; see Box 1) and the derailment of algorithmic stable coins and speculative attacks on decentralised finance (DeFi) liquid pools (as with the Terra Blockchain Protocol;

see Box 2) have compounded the imperative for having guardrails in place to contain the adverse fallout of trade and the use of crypto assets. The crackdowns on errant, off-radar, and decentralized crypto exchanges in South Korea,²¹ US,²² and Taiwan²³ are examples.

18 World Economic Forum. (2021). Cryptocurrencies: A guide to getting started. Global Future Council on Cryptocurrencies. Retrieved January 19, 2024, from https://www3.weforum.org/docs/WEF_Getting_Started_Cryptocurrency_2021.pdf

19 World Economic Forum. (2022). The macroeconomic impact of cryptocurrencies and stablecoins. Retrieved July 4, 2023, from <https://www.weforum.org/whitepapers/the-macroeconomic-impact-of-cryptocurrency-and-stablecoins/>

20 Davis, D. (2023, June 2). What Happened To FTX? The Crypto Exchange Fund's Collapse Explained. Forbes. Retrieved from <https://www.forbes.com/sites/darreonnadavis/2023/06/02/what-happened-to-ftx-the-crypto-exchange-funds-collapse-explained/>

21 Kirui, J. (2024, February 13). Seoul cracks down on crypto industry: To close non-compliant exchanges. Finance Magnates. Retrieved April 13, 2024, from <https://www.financemagnates.com/cryptocurrency/seoul-cracks-down-on-crypto-industry-to-close-unfit-exchanges/>

22 Yaffe-Bellany, D. (2023, June 7). Crypto firms start looking abroad as U.S. cracks down. The New York Times. Retrieved April 13, 2024, <https://www.nytimes.com/2023/06/07/technology/crypto-firms-start-looking-abroad-as-us-cracks-down.html>

23 Kirui, J. (2023, September 26). Taiwan's crypto clampdown: Bans unregistered foreign crypto exchanges. Finance Magnates. Retrieved June 6, 2024, from <https://www.financemagnates.com/cryptocurrency/taiwans-crypto-clampdown-bans-unregistered-foreign-crypto-exchanges/>

BOX 2: Slippery Stablecoins

The Terra Blockchain protocol and payment platform relied on four elements:

- The algorithmic stablecoin UST with \$18 billion market capitalization, pegged different to fiat currencies, giving rise to fiat-based stablecoins, such as Terra USD and Terra EUR
- The Luna Token, wherein speculators and arbitrage seekers were allowed to trade \$1 worth of LUNA for 1 UST, and vice-versa, regardless of LUNA and UST prices, to counter the volatility of UST
- The DeFi system or the Anchor protocol, a lending and borrowing protocol used by UST holders as a high-interest savings account based on the Curve Liquidity Pool. Before the Terra project's collapse, Anchor attracted the 75% of UST circulating supply, offering 20% annual percentage yield (APY) for depositors.
- The Luna Foundation Guard (LFG), which was established and lodged with money obtained from UST sales, to be used as reserves to stabilise the price of UST in case of an emergency.

In April 2022, LUNA's price came under pressure, leading UST holders to redeem their UST positions. UST was burnt, and LUNA was minted and sold on the market, leading to further decline in LUNA's price, pushing more UST holders to sell their UST. Meanwhile, private-market actors short-sold Bitcoin (BTC) with the final aim of spreading panic in the market. On May 7, 2022, the Curve-3pool liquidity pool suffered a liquidity pool attack, which caused the first UST de-pegging. Terra owners announced the launch of a new liquidity pool (4pool) together with DeFi majors Frax Finance and Redacted Cartel.²⁴

On May 8, 2022, LFG intervened to restore the UST peg, but persistent selling pressure caused UST's second de-pegging. Despite additional reserve sales on May 10, efforts to defend the peg failed. Social media speculation suggested that attackers could have coerced LFG to sell BTC reserves, further destabilizing UST and leading to Terra's collapse. The Terra case underscores the susceptibility of stablecoins, particularly algorithmic ones, and DeFi pools to coordinated market attacks, emphasizing the importance of regulatory oversight, as highlighted in the ECB Occasional Paper (2020).²⁵

3.1 Structural Risk Framework

The pseudonymous and borderless nature of crypto assets presents a range of risks to the global economy, stemming from the inherently technological and economic particularities of cryptocurrencies.²⁶ According to the IMF,²⁷ the risks associated with crypto assets result in

macroeconomic sensitivities and undermine the effectiveness of monetary policy, capital flow volatility, financial stability, and market integrity. Consumers of crypto assets are also exposed to a multitude of risks stemming from price volatility, the absence of specific depositor protection, privacy risks associated with pseudonymity, and risks of market manipulation, to name a few.

“Markets in crypto-assets are global and thus inherently cross-border. Therefore, the Union should continue to support international efforts to promote convergence in the treatment of crypto-assets and crypto-asset services through international organisations or bodies such as the Financial Stability Board, the Basel Committee on Banking Supervision and the Financial Action Task Force.”

- Markets in Crypto-Assets Regulation (MiCA) of the European Union²⁸

24 Briola, A., Vidal-Tomás, D., Wang, Y & Aste, T. (2022). Anatomy of a Stablecoin's failure: The Terra-Luna case. *Finance Research Letters*. 51. 103358. 10.1016/j.frl.2022.103358. Retrieved from <https://www.sciencedirect.com/science/article/abs/pii/S1544612322005359>

25 ECB Crypto-Assets Task Force. (2020, September). Stablecoins: Implications for monetary policy, financial stability, market infrastructure and payments, and banking supervision in the euro area. Occasional Paper Series 247, European Central Bank. Retrieved from <https://www.ecb.europa.eu/pub/pdf/scpops/ecb.op247~fe3df92991.en.pdf>

26 World Economic Forum. (2021). Navigating cryptocurrency regulation: An industry perspective on the insights and tools needed to shape balanced crypto regulation. Global Future Council on Cryptocurrencies. Retrieved January 25, 2024, from https://www3.weforum.org/docs/WEF_Navigating_Cryptocurrency_Regulation_2021.pdf

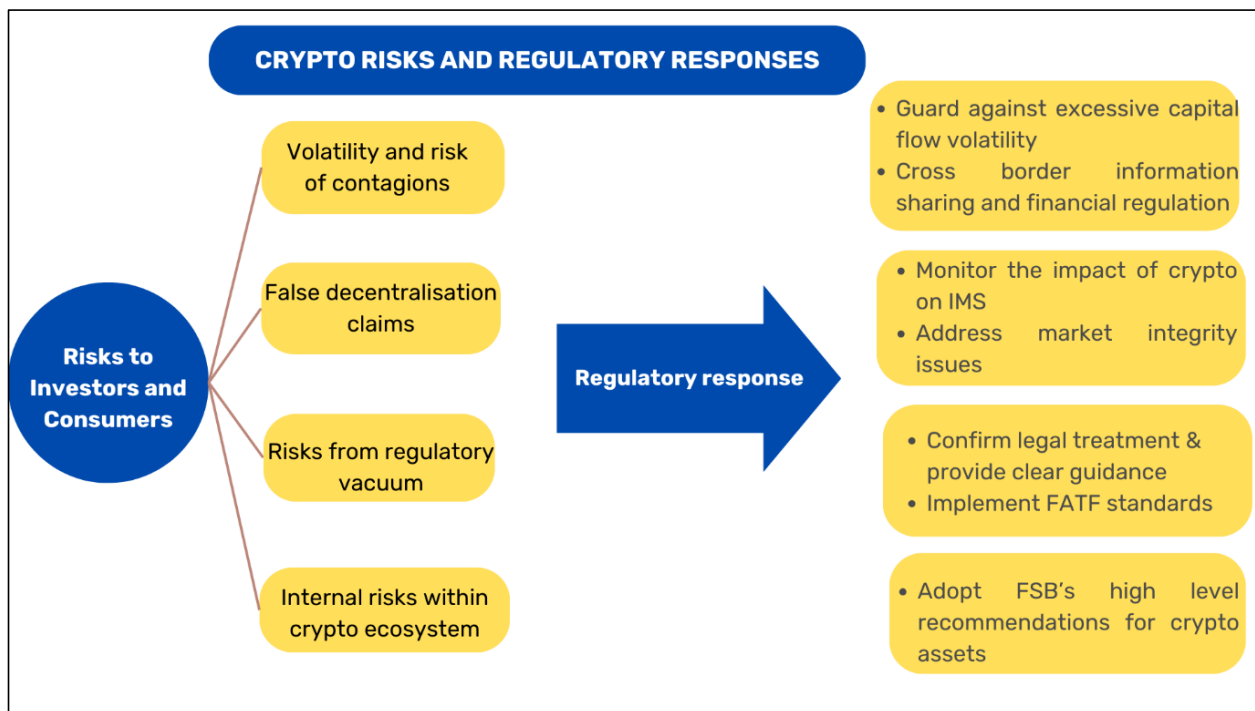
27 International Monetary Fund. (2023). Elements of effective policies for crypto assets. <https://www.imf.org/en/Publications/Policy-Papers/Issues/2023/02/23/Elements-of-Effective-Policies-for-Crypto-Assets-530092?cid=pr-com-PPEA2023004>; accessed on 24 July 2023.

28 Regulation (Eu) 2023/1114 of the European Parliament and of the Council. (2023, June 9). <https://eur-lex.europa.eu/legal-content/EN/TXT/PDF/?uri=CELEX:32023R1114>

Addressing the need for crypto regulation at the global level, the 2023 G20 Leaders' Declaration welcomed the IMF-FSB Synthesis Paper, along with the BIS report on the "Crypto Ecosystem: Key Elements and Risks", to help lay down a roadmap for a coordinated and comprehensive policy and

regulatory framework. Figure 2 represents the structural risk and regulatory response template, drawing from recommendations from the aforementioned papers. Table 1A in Appendix 1 represents a risk template by asset type, as presented in a recent IMF working paper.²⁹

Figure 2: Structural Risks and Regulatory Response



Sources: IMF-FSB 2023³⁰ and BIS 2023³¹; Visualization by authors

3.2 Cross-Country Overview of Crypto Regulation for Investor Protection

Given the associated systemic risks and recent global developments, such as the collapse of crypto exchanges and cyber hacks, investor protection regulations are crucial to protect consumer interests and to ensure transparent and fair service levels.³² The crypto industry, however, is of the view that most of the regulatory actions against exchanges have been unfair, having been based on isolated cases of malfunctioning crypto

assets and exchanges. This section discusses the nature of diverse regulatory approaches that countries around the world have adopted to address investor protection. For instance, China has a stringent regulatory approach aimed at protecting its financial system in the form of outright bans on cryptocurrency trading and initial coin offerings (ICOs).³³ Meanwhile, countries like Malta and Switzerland have opted for more crypto-friendly regulatory frameworks and clear guidelines to attract crypto businesses and investors.³⁴

29 Hacibedel, B & Perez-Saiz, H. (2023, September 29). Assessing Macrofinancial Risks from Crypto Assets. IMF Working Paper.; <https://www.imf.org/en/Publications/WP/Issues/2023/09/30/Assessing-Macrofinancial-Risks-from-Crypto-Assets-539473>; accessed on January 25, 2024

30 International Monetary Fund & Financial Stability Board. (2023). IMF-FSB synthesis paper: Policies for crypto-assets. Retrieved December 11, 2023, from <https://www.fsb.org/2023/09/imf-fsb-synthesis-paper-policies-for-crypto-assets/>

31 Bank for International Settlements. (2023). The crypto ecosystem: Key elements and risks. Retrieved December 11, 2023, from <https://www.bis.org/publ/othp72.htm>

32 World Economic Forum. (2021). Navigating cryptocurrency regulation: An industry perspective on the insights and tools needed to shape balanced crypto regulation. Global Future Council on Cryptocurrencies. Retrieved January 25, 2024, from https://www3.weforum.org/docs/WEF_Navigating_Cryptocurrency_Regulation_2021.pdf

33 The People's Bank of China. (2017, September 8). Public notice of the PBC, CAC, MIIT, SAIC, CBRC, CSRC and CIRC on preventing risks of fundraising through coin offering. <http://www.pbc.gov.cn/english/130721/3377816/index.html>

34 Wolfson, R. (2018, July 5). Maltese parliament passes laws that set regulatory framework for blockchain, cryptocurrency and DLT. Forbes. Retrieved June 11, 2024, from <https://www.forbes.com/sites/rachelwolfson/2018/07/05/maltese-parliament-passes-laws-that-set-regulatory-framework-for-blockchain-cryptocurrency-and-dlt/>

Countries can be grouped into three broad categories based on their crypto-regulatory approaches. The first set of countries comprises jurisdictions that approach crypto-regulation with adapted legislation, i.e., countries that have amended their existing laws to integrate crypto assets into their regulatory frameworks. Examples include Hong Kong, with its regulatory requirements for knowledge assessments of investors by virtual trading platform operators,³⁵ and Germany, with its mandatory licensing with the German Federal Financial Supervisory Authority (BaFin).³⁶

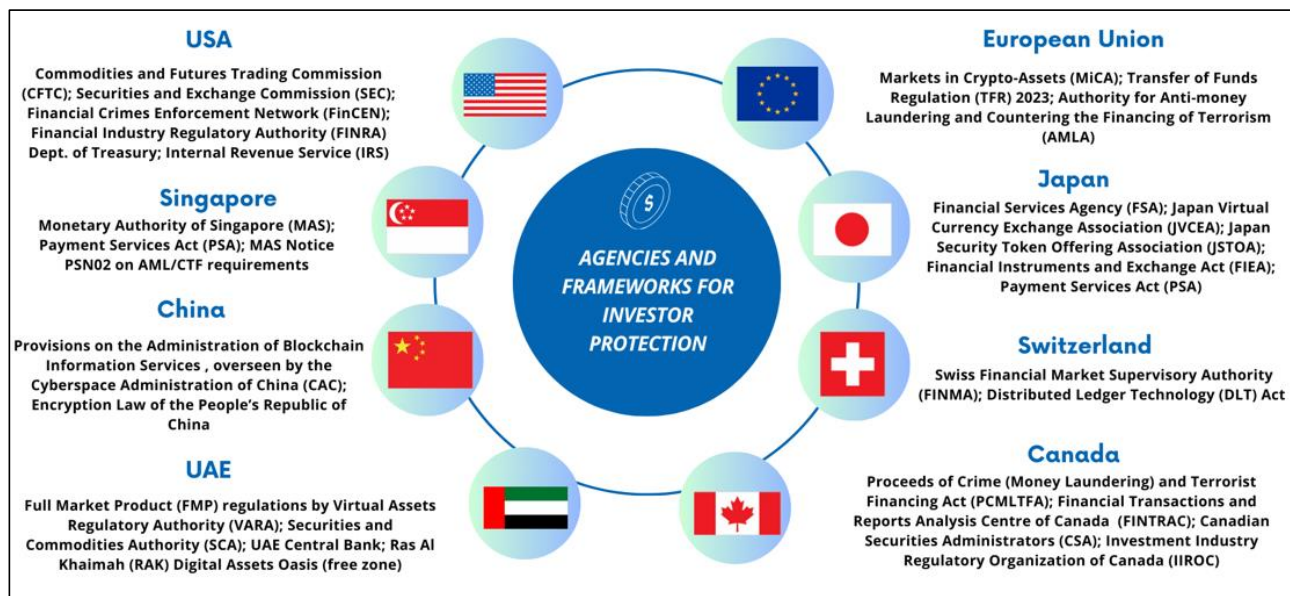
The second set of countries includes those that have implemented crypto-specific legislations, such as Malta, which passed three laws in 2018.³⁷ Other examples include the European Union, with crypto regulation in the form of the Markets in Crypto-Assets Regulation (MiCA),³⁸ and El Salvador, with its Bitcoin Law of 2021.³⁹

The third set of countries refers to those with a regulatory ban on crypto assets, such as China and Bangladesh, which have banned all cryptocurrency transactions in their jurisdictions.^{40,41}

These diverse approaches highlight the fundamental global challenge of balancing innovation with investor protection and emphasize the need for harmonized global regulation and cooperation to effectively address the borderless nature of crypto assets. The comparative analysis of self-regulation and government intervention and the most effective strategies for safeguarding investor interests in this dynamic market will be further discussed in Section 5.

Figure 3 offers an overview of various regulatory agencies and frameworks in place globally for consumer and investor protection (see Appendix 1 for a detailed discussion).

Figure 3: Cross-Country Overview of Crypto Regulation for Investor Protection



Sources: *Global Blockchain Business Council*⁴² and *Freeman Law*⁴³; Visualization by authors

35 Securities and Futures Commission. (2023, May 23). Consultation conclusions on the proposed regulatory requirements for virtual asset trading platform operators licensed by the Securities and Futures Commission. Retrieved June 11, 2024, from <https://apps.sfc.hk/edistributionWeb/api/consultation/conclusion?lang=EN&refNo=23CP1#page=31>

36 BaFin. (2023, March 30). Guidelines on applications for authorisation for crypto custody business. Retrieved June 11, 2024, from https://www.bafin.de/SharedDocs/Veroeffentlichungen/EN/Merkblatt/BA/mb_Hinweise_zum_Erlaubnisantrag_fuer_das_Kryptoverwahrgeschaef_en.html

37 Regulated United Europe. (n.d.). Cryptocurrency regulation in Malta. Retrieved June 11, 2024, from <https://rue.ee/crypto-regulations/malta/>

38 Regulation (EU) 2023/1114 of the European Parliament and of the Council. (2023, June 9). <https://eur-lex.europa.eu/legal-content/EN/TXT/PDF/?uri=CELEX:32023R1114>

39 Trigueros-Argüello, A., & Chorro de Trigueros, M. (2021, November 30). Bitcoin as legal tender in El Salvador: The first fifty days. *Georgetown Journal of International Affairs*. <https://gjia.georgetown.edu/2021/11/30/bitcoin-as-legal-tender-in-el-salvador-the-first-fifty-days/>

40 The People's Bank of China. (n.d.). Notice on further preventing and resolving the risks of virtual currency trading and speculation. Retrieved June 11, 2024, from <http://www.pbc.gov.cn/en/3688110/3688172/4157443/4353814/index.html>

41 Harmachi, A. R. (2017, December 27). Bangladesh bank warns against transaction in 'illegal' Bitcoin, other cryptocurrencies. *Bdnews24.com*. Retrieved June 11, 2024, from <https://perma.cc/2APB-ZSZV>

42 Global Blockchain Business Council. <https://gbbcouncil.org/gsmi/>

43 Freeman Law. <https://freemanlaw.com/>

4. Crypto Regulation in India

India has neither declared cryptocurrencies as legal tender nor does it propose to do so. The country's view on crypto has moved from an outright ban to intended regulation, with a decision to impose tax on cryptocurrency transaction (broadly defined as virtual digital assets; see Box 3) and calling for international cooperation through the G20 platform. Meanwhile, exchanges are flourishing. Data from March 2024 shows that the top three Indian crypto exchanges, WazirX, CoinDCX, and Zebpay, collectively surpassed \$584 million trading volumes in March 2024, compared to \$189.91 million at the end of February 2024.⁴⁴ A 2023 assessment by CoinSwitch⁴⁵ revealed that there are over 15 million crypto users in India, with 75% representing invested users below the age of 35 years and 9% constituted by women. A meme coin⁴⁶ called Doge Coin (DOGE) emerged as the most popular crypto asset, claiming 11.1% of the market share, followed by Bitcoin (BTC) with 8.5%, Ethereum (ETH) with 6.4%, Shiba Inu (SHIB) with 5.7%, and Cardano (ADA) with 5.1% of the invested value. The study also reported that, with a 633% rise in 12 months, Solana (SOL) emerged as the best performing asset in Indian crypto investors' portfolio.⁴⁷

In India, cryptocurrencies and other assets are grouped under virtual digital assets (VDAs) and are defined in Section 2(47) of the Income Tax Act of the Union Budget 2022-23 as follows:^{48,49}

- Any information or code or number or token (not being Indian currency or foreign currency) which meets certain conditions
- Non-fungible token (NFT) or any other

token of similar nature, by whatever name called

- Any other digital asset, as the government may specify by notification

The policymaking on crypto assets in India is primarily undertaken by the Ministry of Finance, including the Department of Revenue and Central Board of Direct Taxation (CBDT), along with the Reserve Bank of India. The Ministry of Finance through its notification dated 7 March 2023, brought every entity involved in the transaction of VDAs, including that of exchanges, custodians, and wallet providers, within the ambit of the Prevention of Money Laundering Act, 2002 (PMLA) and PMLA Rules, 2005.⁵⁰ As trading in cryptocurrencies, stablecoins and security tokens pick up, resulting in VDAs being treated and taxed as commodities or goods and crypto tokens being scrutinized for their resemblance to securities, the GST Council and the Securities and Exchange Board of India (SEBI), respectively, are also likely to play important roles.

India does not have an overarching legislation covering the regulation of VDAs. The proposed Cryptocurrency and Regulation of Official Digital Currency Bill of 2021, which is yet to be introduced in the Parliament, seeks to prohibit all private cryptocurrencies in India while allowing for certain exceptions that promote the technology of cryptocurrency. The Bill also aims to create a framework for digital currency that will be issued by the RBI.

Indian industries have been committed to self-regulation towards consumer protection. Bharat Web3 Association (BWA), an industry body comprising infrastructure providers, virtual digital

44 Ghosh, D. (2024, March 29). Top Indian crypto exchanges see a 207% surge in trading volumes in March as Bitcoin soars. Retrieved April 12, 2024, from <https://www.moneycontrol.com/news/technology/top-indian-crypto-exchanges-see-a-207-surge-in-trading-volumes-in-march-as-bitcoin-soars-12542271.html>

45 CoinSwitch. (2023). India Portfolio 2023: How India invests in Crypto. Retrieved January 19, 2024, from <https://coinswitch.co/switch/crypto/india-crypto-adoption-2023/>

46 Meme coin has origins tied to internet memes.

47 CoinSwitch. (2023). India Portfolio 2023: How India invests in Crypto. Retrieved January 19, 2024, from <https://coinswitch.co/switch/crypto/india-crypto-adoption-2023/>

48 Ministry of Finance. Government of India. (2022). Budget 2022-23. <https://www.indiabudget.gov.in/budget2022-23/index.php>

49 KPMG. (2022, July 11). India: Guidance on definition of virtual digital asset subject to new tax regime. Retrieved July 21, 2023, from <https://kpmg.com/us/en/home/insights/2022/07/tnf-india-guidance-on-definition-of-virtual-digital-asset-subject-to-new-tax-regime.html>

50 Anand, N., Agrawala, P., & Das, D. (2024). Blockchain & cryptocurrency laws and regulations 2024|India. Global Legal Insights. Retrieved April 16, 2024, from <https://www.globallegalinsights.com/practice-areas/blockchain-laws-and-regulations/india>

asset exchanges, and virtual gaming platforms, recently developed a set of consumer protection guidelines for its member firms, drawing from best practices nationally and internationally, such as the Consumer Protection Act of India and the Markets in Crypto-Assets Act (MiCA) of the European Union.⁵¹ Aimed at ensuring ethical and responsible consumer redressal mechanisms

within the Web3 ecosystem, the BWA's self-regulation guidelines advocate for consumer protection measures such as transparency and disclosure, suitability, fair and honest dealing, complaints handling and grievance redressal, data privacy and security, responsible advertising, and regulatory compliance.⁵²

BOX 3: Definition of Virtual Digital Assets in India

Given the magnitude and frequency of transactions in VDAs, the Union Budget of 2022-23 through the Finance Act (2022) proposed a tax regime for income from the transfer of VDAs, with the following provisions:

- Any income from transfer of any VDA shall be taxed at the rate of 30%
- A 1% deduction of tax deducted at source (TDS) on the buyer's payment if it crosses the threshold limit
- Except for cost of acquisition, no deduction would be permitted while reporting earnings from the transfer of virtual assets
- Loss from transfer of VDA cannot be set off against any other income
- Gift of VDA is also proposed to be taxed in the hands of the recipient

According to the Act, VDAs are defined under Section 2(47A) of the Income Tax Act 1961, as shown in Figure 7. Further notifications by the Central Board of Direct Taxes (CBDT) in 2022 prescribed a list of assets excluded from the definition of VDAs and defined non-fungible tokens.

5. Investor Protection for Crypto Assets in India

Self-regulation by industry and the use of self-regulatory organizations (SROs) can offer many advantages such as familiarity with market complexity and member organizations, resulting in compliance through self-policing. As defined by the SRO Consultative Committee Report of the International Organization of Securities Commissions (IOSCO), titled "Model for Effective Self-Regulation", self-regulation typically involves a "unique combination of private interests with government oversight" and is an

"effective and efficient form of regulation for the complex, dynamic and ever-changing financial services industry".⁵³ Given its effectiveness as a regulatory technique, countries like Japan and South Korea have pioneered self-regulation in crypto-exchanges.⁵⁴ However, whether the self-regulation of crypto assets by industry bodies alone is adequate to ensure consumer protection without government regulation requires closer examination. The following table presents a comparative analysis of the regulatory techniques of industry self-regulation and government regulation.

51 Bharat Web3 Association. (2023). Consumer Protection Guidelines for the Web3 Sector. <https://bharatweb3association.com/>

52 Bharat Web3 Association. (2023). Consumer Protection Guidelines for the Web3 Sector. <https://bharatweb3association.com/>

53 International Organization of Securities Commissions (IOSCO). (May 2000). Model for effective self-regulation. <https://www.iosco.org/library/pubdocs/pdf/IOSCOPD110.pdf>

54 Sharma, R. (June 29, 2022). Should cryptocurrency exchanges self-regulate? Investopedia. Retrieved April 10, 2024, from <https://www.investopedia.com/news/should-cryptocurrency-exchanges-selfregulate-themselves/>

Table 1: Comparison Between Self-Regulation and Government Regulation

Feature	Self-Regulation	Government Regulation
Adaptability	More adaptive to emerging trends by leveraging industry experience than formal bureaucratic routes	Can be more rigid and less adaptive to ever-changing market trends
Harmonization	Greater scope for industry collaboration and sharing of best practices	Can lead to harmonized standards and interoperability with global multi-stakeholder collaboration
Compliance	Lack of statutory authority to oversee and impose penalties can result in weak compliance	Can demand greater compliance and accountability due to legal sanction
Fighting Financial Fraud	Lack of uniform global standards can aggravate transnational financial crimes	Gaps in enforcement and inconsistent legislations across jurisdictions may lead to regulatory evasion and arbitrage
Investor Confidence	Conflicts of interest with industry profits and overall regulatory vacuum can erode investor confidence	Regulatory certainty and consistency contribute to market integrity and builds investor confidence

The inadequacy of self-regulatory frameworks for investor protection is evident in times of crisis. Examples include the microfinance crisis in India and the opioid epidemic in the pharmaceutical industry.

The Andhra Pradesh microfinance crisis of 2010 revealed crucial deficiencies in the functioning of the self-regulatory framework. Despite the existence of industry associations such as Sa-Dhan and Microfinance Institutions Network (MFIN), which were established in 1999 and 2009, respectively,⁵⁵ there were numerous reports of coercive recovery practices and high-interest rates, leading to severe borrower distress and loss of public trust.⁵⁶ While self-regulation is better placed to enable market responsiveness, its efficiency is compromised by inherent conflicts of interest and a lack of statutory enforcement power. Over 80 suicides, alleged to be linked to defaults on micro-loans, were cited by the state government as the basis for intervening. Consequently, the Andhra Pradesh Microfinance Institutions (Regulation of Money Lending)

Ordinance, 2010 (later passed as an Act), was passed to address oversupply and protect citizens from coercive recovery practices.⁵⁷ However, the regulation adversely impacted the microfinance sector, with lending and recovery essentially coming to a halt and culminating in a crisis.⁵⁸

On the other hand, the crisis provided a much-needed impetus for the RBI to develop policy reforms in the microfinance sector. In addition to laying the foundation for a modern microfinance sector in India, the advantages of an SRO were formally recognized by the RBI-constituted sub-committee headed by YH Malegam in its 2011 report.⁵⁹ The committee directed that, while the primary responsibility for compliance must rest with the MFI itself, industry associations must also assume greater responsibility in ensuring compliance.⁶⁰ Additionally, the association will have a code of conduct in accordance with the Client Protection Code, as stipulated by the regulator.⁶¹ The peer-driven model is thus acknowledged to enable a culture of compliance through market familiarity, mutual oversight, and

55 Saxena, S. (2014). The 2010 microfinance crisis in Andhra Pradesh, India and its implications for microfinance in India. *Reconsidering Development*, 3(1). <http://pubs.lib.umn.edu/reconsidering/vol3/iss1/1>

56 Kaur, P., & Dey, S. (2013). Andhra Pradesh microfinance crisis and its repercussions on microfinancing activities in India. *Global Journal of Management and Business Studies*. https://www.ripublication.com/gjms_spl/gjmsv3n7_02.pdf

57 Biswas, S. (2010, December 16). India's micro-finance suicide epidemic. *BBC News*. Retrieved May 29, 2024, from <https://www.bbc.com/news/world-south-asia-11997571>

58 Biswas, S. (2010, December 16). India's micro-finance suicide epidemic. *BBC News*. Retrieved May 29, 2024, from <https://www.bbc.com/news/world-south-asia-11997571>

59 Reserve Bank of India. (2011, January 19). Report of the Sub-Committee of the Central Board of Directors of Reserve Bank of India to study issues and concerns in the MFI sector. <https://www.rbi.org.in/Scripts/PublicationReportDetails.aspx?ID=608#L1>

60 Ibid

61 Reserve Bank of India. (2011, January 19). Report of the Sub-Committee of the Central Board of Directors of Reserve Bank of India to study issues and concerns in the MFI sector. <https://www.rbi.org.in/Scripts/PublicationReportDetails.aspx?ID=608#L1>

self-policing.⁶² The case of the Andhra Pradesh microfinance crisis therefore underscores the limitations of self-regulation in ensuring comprehensive consumer protection and calls for robust government oversight to complement self-regulatory efforts for a more holistic and enforceable regulatory framework.

Similarly, in the case of the pharmaceutical industry, self-regulation proved to be inadequate to protect consumer interest and safeguard public health. Several self-regulatory bodies such as the Pharmaceutical Research and Manufacturers of America (PhRMA)⁶³ and the Prescription Medicines Code of Practice Authority (PMCPA) of the UK, which administers the Association of the British Pharmaceutical Industry (ABPI) Code of Practice,⁶⁴ play an active role in the global pharmaceutical and biotechnology industry. However, reports of unethical practices, including misleading advertisements,⁶⁵ promotion and prescription of off-label drug uses,⁶⁶ and non-transparency of financial relationships between the industry and healthcare professionals⁶⁷ have prevailed. The opioid crisis in North America is a stark example of the consequences of inadequate (self)regulation of the pharmaceutical and healthcare industries, resulting in a profit-driven quadrupling of opioid prescription.^{68,69,70}

Resulting in widespread addiction and thousands of deaths, the crisis underscores the critical need for robust regulatory oversight to ensure public safety and industry accountability.

The crypto industry exhibits similar problematic practices that highlight the inadequacy of industry self-regulation. There have been reports of misleading and “irresponsible” advertisements that exaggerate potential returns and play down possible risks.^{71,72} Initial Coin Offerings (ICOs), for example, have often been marketed with promises of unrealistically high returns but have resulted in significant financial losses for investors when these projects fail to deliver.⁷³ Instances of coercive practices and market manipulation such as wash trading, wherein trading volumes are artificially inflated to attract investors, have been documented.^{74,75} Similar to the microfinance crisis and the opioid epidemic, these instances of misconduct, driven by profit motives and insufficient regulatory oversight, thus eroding investor confidence, demonstrate that industry self-regulation alone is not adequate to safeguard investor interests and argue in favour of robust government intervention.

Despite fostering significant advancements in standard-setting, ethical practices, and market

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- 62 MFIN India. (2019, September 16). MFIN and Sa-Dhan collaborate to launch 'Code for Responsible Lending' for microfinance industry. https://mfindia.org/assets/upload_image/news/pdf/Press%20Release%20-%20MFIN%20and%20Sa-Dhan%20collaborate%20to%20launch%20%E2%80%98Code%20for%20Responsible%20Lending%E2%80%99%20for%20microfinance%20industry.pdf; accessed on May 24, 2024.
- 63 Kilcoyne, A., O'Connor, D., & Ambery, P. (2013, July 1). Pharmaceutical research and manufacturers of America. In Kilcoyne, A., et al. (Eds.), *Pharmaceutical medicine: Oxford specialist handbooks*. Oxford Academic. <https://doi.org/10.1093/med/9780199609147.003.0117>
- 64 Prescription Medicines Code of Practice Authority. <https://www.pmcpa.org.uk/>
- 65 Zetterqvist, A. V., & Mulinari, S. (2013). Misleading advertising for antidepressants in Sweden: A failure of pharmaceutical industry self-regulation. *PLoS ONE*, 8(5), e62609. <https://doi.org/10.1371/journal.pone.0062609>
- 66 Vilhelmsson, A., Davis, C., & Mulinari, S. (2016). Pharmaceutical industry off-label promotion and self-regulation: A document analysis of off-label promotion rulings by the United Kingdom Prescription Medicines Code of Practice Authority 2003-2012. *PLoS medicine*, 13(1), e1001945. <https://doi.org/10.1371/journal.pmed.1001945>
- 67 Mulinari, S., Martinon, L., Jachiet, P.A., & Ozieranski, P. (2021). Pharmaceutical industry self-regulation and non-transparency: Country and company level analysis of payments to healthcare professionals in seven European countries. *Health Policy*, 125(7), 915-922. <https://www.sciencedirect.com/science/article/pii/S0168851021001135>, accessed 27 May 2024.
- 68 Humphreys, K., Shover, C. L., Andrews, C. M., Bohnert, A. S. B., Brandeau, M. L., Caulkins, J. P., Chen, J. H., Cuéllar, M. F., Hurd, Y. L., Juurlink, D. N., Koh, H. K., Krebs, E. E., Lembke, A., Mackey, S. C., Larrimore Ouellette, L., Suffoletto, B., & Timko, C. (2022). Responding to the opioid crisis in North America and beyond: Recommendations of the Stanford-Lancet Commission. *Lancet*, 399(10324), 555-604. [https://doi.org/10.1016/S0140-6736\(21\)02252-2](https://doi.org/10.1016/S0140-6736(21)02252-2)
- 69 Feldscher, K. (2022, February 9). What led to the opioid crisis—and how to fix it. Harvard Chan School of Public Health. Retrieved May 31, 2024, from <https://www.hsph.harvard.edu/news/features/what-led-to-the-opioid-crisis-and-how-to-fix-it/>
- 70 Davis, C. S., & Carr, D. H. (2017). Self-regulating profession? Administrative discipline of “pill mill” physicians in Florida. *Substance Abuse*, 38(3), 265-268. <https://doi.org/10.1080/08897077.2017.1316812>
- 71 Kumar, A. (2021, December 3). Are advertisements put out by cryptocurrency exchanges misleading? *The Wire*. Retrieved June 6, 2024, from <https://thewire.in/media/are-advertisements-put-out-by-cryptocurrency-exchanges-misleading>
- 72 Nylan, L., & Versprille, A. (2022, December 6). Crypto pressure ratchets up as FTC probes several firms over ads. *Bloomberg*. Retrieved June 6, 2024, from <https://www.bloomberg.com/news/articles/2022-12-05/ftc-investigates-crypto-firms-over-misleading-advertising>
- 73 Lemmens, R. (2023, December 1). The rise and fall of ICOs: A saga of innovation, greed, and regulatory reckoning. *Fintech Unfiltered*. Retrieved June 6, 2024, from <https://www.linkedin.com/pulse/rise-fall-icos-saga-innovation-greed-regulatory-renier-lemmens-ymrle/>
- 74 Pennec, G. L., Fiedler, I., & Ante, L. (2021). Wash trading at cryptocurrency exchanges. *Finance Research Letters*, 101982. doi:10.1016/j.frl.2021.101982
- 75 Rajput, R., & Mittal, A. (2022, August 11). ED probing crypto exchanges for alleged laundering of over Rs 1,000 crore. *Economic Times*. Retrieved June 6, 2024, from <https://economictimes.indiatimes.com/tech/technology/ed-probing-crypto-exchanges-for-alleged-laundering-of-over-rs-1000-crore/articleshow/93486220.cms?from=mdr>

responsiveness, the efficiency of self-regulatory bodies is compromised by inherent conflicts of interest and a lack of statutory enforcement power. Government regulation, with its mandate for legal sanction, is critical to provide a comprehensive protective framework. Therefore, while industry expertise and self-regulation can play a supportive role, government authorities must have the primary responsibility for investor protection to ensure a secure and trustworthy investment environment.

Similarly, in the Indian context, self-regulation among industry bodies, despite its strengths and opportunities, may not be adequate to protect crypto investors. While there is merit in exploring pathways for collaboration and cooperation among industry bodies and official authorities, regulation without the active involvement of the RBI or SEBI cannot offer a whole-ecosystem perspective on investor protection. Given the deep entrenchment of industry norms and conflicts of interest, self-regulation within the industry body alone does not emerge as an effective substitute to regulatory intervention. However, a synergistic approach could leverage industry expertise while ensuring alignment with broader regulatory targets.

Active collaboration on advocacy is essential for public awareness campaigns to educate investors about the risks associated with crypto assets, highlighting the importance of due diligence, responsible investment practices, and the potential risks of market volatility. It is also important to emphasize that effective regulation need not hamper the profitability of crypto market. Regulatory certainty, by ensuring stronger investor, also improves customer confidence and allows for safe innovation. Hong Kong, while being considered as the most “crypto ready” location in 2023 by the World’s Crypto Readiness Report,⁷⁶ also has a parallel regulatory setup in place in the form of the Securities and Finance Commission (SFC). With its mandate to protect investors by imposing conditions on licences, including those related to risk management and AML/CFT measures, the example of Hong Kong

serves as a reminder that the market does not have to be open for it to be popular and profitable, it only has to be certain.

As a significant player in the burgeoning crypto landscape, India must proactively address concerns around investor protection by formulating a robust regulatory framework. Given the current global regulatory landscape, and drawing from the structural risk framework, it is imperative to prioritize regulatory clarity on key aspects of crypto regulation such as strong KYC norms and AML/CFT measures (building on the inclusion of VDAs within PMLA). Leveraging international cooperation like that of G20 facilitates staying abreast of evolving global standards in investor protection and identifying areas of convergence and divergence.

While SROs can certainly leverage their industry expertise, government oversight and monitoring are crucial for investor confidence. A pathway to regulatory evolution can therefore be a helpful glidepath for Indian investor protection framework, starting with self-regulation until the regulatory vacuum is filled, leading to sandboxing marked by a close collaboration between industry and government, culminating in a harmonized global regulation. Regular assessments and adaptations are ultimately the keys to ensuring the consistent relevance and resilience of the crypto-regulatory framework.

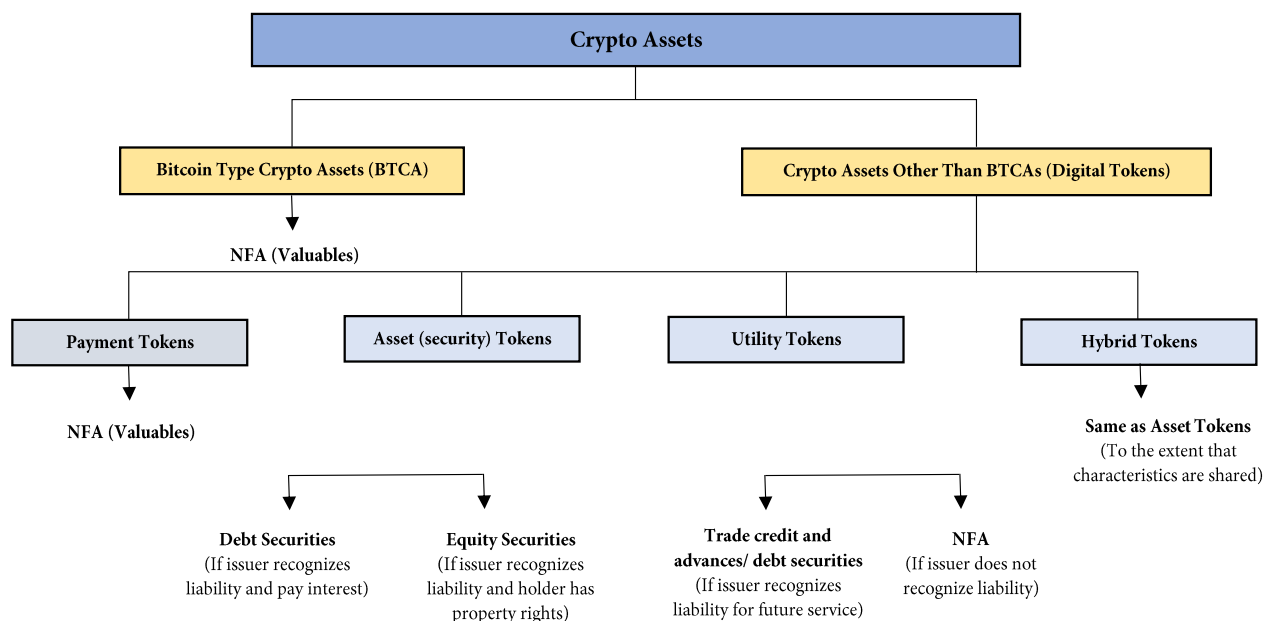
6. Conclusion

The limitations of self-regulation in the crypto asset industry, as evidenced by parallels in the microfinance and pharmaceutical sectors, emphasize the need for robust government intervention. A collaborative regulatory framework leveraging both industry expertise and stringent government oversight is critical to ensure comprehensive investor protection and market integrity. As India navigates this evolving landscape, prioritizing regulatory clarity, international cooperation, and adaptive oversight will be fundamental in fostering a secure and trustworthy investment environment.

76 Kereibayev, O. (2023, November 15). Crypto regulations in Hong Kong. The Sumsuiber. <https://sumsub.com/blog/hong-kongs-new-crypto-exchange-licensing-regime/>

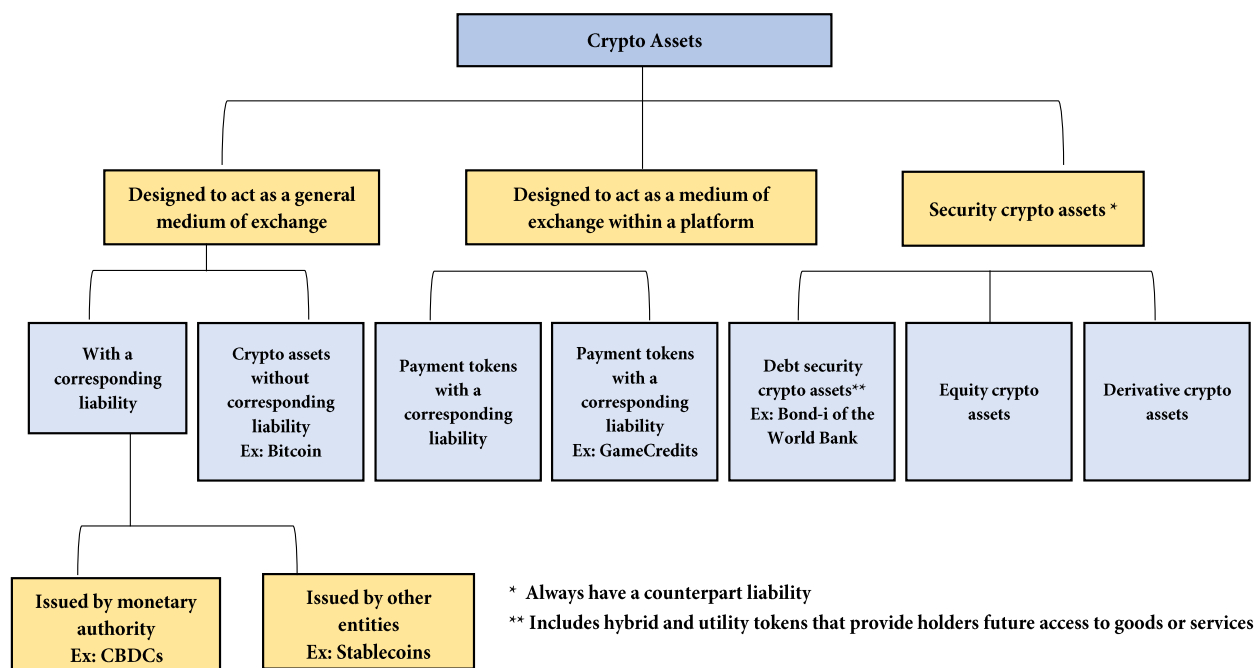
Appendix 1: Various Classifications of Crypto Assets

Figure 1A: IMF'S Classification of Crypto Assets



Source: IMF (2019)⁷⁷

Figure 1B: Function-Based Typology of Crypto Assets



Source: IMF 2022⁷⁸

77 Dinenzon, M., Josyula, V., Moreno-Ramirez, J.C., Dippelsman, R & Razin, T. (2019). Treatment of Crypto Assets in Macroeconomic Statistics. Statistics Department, International Monetary Fund. <https://www.imf.org/external/pubs/ft/bop/2019/pdf/Clarification0422.pdf>; accessed on January 25, 2024

78 Zwijnenburg, J., Derrick, A., Giron, C & Harutyunyan, A. (2022, January 31). The Recording of Crypto Assets in Macroeconomic Statistics. IMF Committee on Balance of Payments Statistics. Joint Financial and Payments Systems Task Team (FITT). Inter-secretariat Working Group on National Accounts. https://www.imf.org/external/pubs/ft/gfs/gfsac/pdf/Recording_Crypto_Assets_MacroStats_July_22.pdf; accessed on January 25, 2024

Table 1A: IMF’s Risk Template for Crypto Holders, by Crypto Asset Type

<i>Crypto asset</i>	<i>Credit risk</i>	<i>Market risk</i>	<i>Liquidity risk</i>	<i>Operational and cyber risks</i>
Unbacked tokens		x		x
Stable coins				x
With claims on issuer	x	x	x	x
Without claim on issuer		x	x	x
Utility and security tokens				x

Source: IMF 2023⁷⁹

Appendix 2: Cross-Country Overview of Regulations

Lack of consistent and comparable regulatory frameworks around the world, given the global and virtual nature of crypto assets, is a significant policy concern. Table 1 presents a four-fold classification of VDAs and summarizes various facets of crypto regulations around the world. Broadly, VDAs (including crypto currencies and a

range of tokens) can be classified in terms of their regulatory status as following: banned altogether (e.g., China, Bangladesh, Saudi Arabia); accepted as legal tender (El Salvador and Central African Republic); legal and permitted but regulated in use (e.g., Japan, US, EU); neither legal nor illegal (e.g., India).

Table 1: Template of Range of Crypto Assets and Regulatory Patterns Around the World

VDAs	Categories	Banned	Permitted with Restrictions	Unregulated and permitted	Selectively Regulated - Overall Left Undefined (India)
Cryptocurrency	Bitcoin, Ether (Monero et al.)	Bangladesh, Saudi Arabia, Afghanistan, Algeria, Morocco, Qatar, China	UAE, Japan, US, Canada, EU, South Korea, Indonesia, Switzerland, UK, China	El Salvador (Treated as legal tender)	Apart from subjecting crypto payment trials to the provisions of AMLA and requiring crypto trading exchanges to undertake KYC-related disclosure norms, India has declared crypto assets to be VDAs which, in turn, are subject to taxes with no set off for losses incurred. By declaring cryptocurrencies as VDAs, authorities have conveyed that they do not propose to declare these assets as legal tender.
Tokens	Utility tokens	Bangladesh, Saudi Arabia, Afghanistan, Algeria, Morocco, Qatar, China	Canada/ US	France, Australia, EU, Japan, Switzerland, EU	
	Security tokens	China, South Korea	USA, Japan, UK, South Korea, EU, Singapore	UAE, Thailand	
	Stable coins	-do-	US, Japan (Backed by fiat) Singapore (Backed by fiat)		
	NFTs	-do-	US, South Korea	Japan, UAE, Canada	
	Bridge Tokens XRP	-do-	All the above plus an additional 40 countries		

79 Hacibedel, B & Perez-Saiz, H. (2023, September 29). Assessing Macrofinancial Risks from Crypto Assets. IMF Working Paper.; <https://www.imf.org/en/Publications/WP/Issues/2023/09/30/Assessing-Macrofinancial-Risks-from-Crypto-Assets-539473>; accessed on January 25, 2024



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