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Global Harmonization of Crypto-Asset Regulation: Balancing Innovation and Risk with India as a Case Study

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ABSTRACT

The swift emergence of crypto-assets and blockchain technology has revealed substantial deficiencies in conventional financial regulatory frameworks, necessitating an urgent equilibrium between innovation and robust risk management. This paper investigates the potential of a harmonised global regulatory framework to attain that equilibrium while addressing issues such as investor protection, market integrity, and systemic risk. It contends that while total regulatory uniformity across jurisdictions is impractical, a principles-based approach rooted in international coordination can facilitate functional harmonisation. The important components of such a framework include classifying crypto-assets by risk, maintaining technological neutrality, and ensuring interoperability between different regulatory regimes.

The paper further examines India's evolving regulatory approach to assess whether it reflects cautious innovation or regulatory uncertainty. India's current position, which includes taxing crypto-assets without official legal recognition and relying on temporary policy measures, indicates a risk-averse approach that aims to keep crypto-assets separate from the formal financial system rather than to integrate them. This approach protects against possible financial instability, but it also reduces legal clarity and could slow innovation. The study finds that clear domestic rules and coordinated global standards are both necessary for the crypto ecosystem to grow in a manner that is sound for risk management and regulatory certainty.

Keywords: *Crypto-assets, Blockchain Regulation, Global Harmonisation, Financial Regulation, Investor Protection, Regulatory Uncertainty.*

I. INTRODUCTION

The rapid development of blockchain technology and crypto-assets has upended established financial systems, casting doubt on the suitability of current legal frameworks across jurisdictions. Financial regulation used to rest on territorially bounded transactions, clearly

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identifiable intermediaries, and centralised institutions. Tools such as anti-money-laundering frameworks, banking regulations, and securities laws were founded on the premise that institutional oversight could monitor and regulate financial activity. The advent of decentralised technologies, beginning with cryptocurrencies like Bitcoin, has changed this paradigm by enabling anonymity, peer-to-peer transactions, and cross-border value transfer, revealing serious weaknesses in traditional regulatory frameworks.

India offers a particularly intricate and instructive case in this global context. India, which has always been cautious about financial innovation, has avoided outright banning crypto-assets while also refusing to give them full legal recognition. Rather, measures such as taxing cryptocurrency transactions and relying on general financial and anti-money-laundering laws characterise the current regulatory stance. In order to reduce systemic risks without fully incorporating crypto-assets into the official financial system, this approach represents a strategy of regulatory containment. That stance has, however, raised questions about inconsistent policy signals, legal ambiguity, and the possibility of discouraging investment and innovation in the digital-asset ecosystem. For India, whether it develops into a centre for digital financial innovation or remains limited by regulatory ambiguity will depend on how well its domestic regulatory approach aligns with emerging global norms while maintaining clarity and consistency. In light of this, this paper investigates whether global harmonisation can successfully strike a balance between innovation and risk management, and whether India's evolving regulatory strategy reflects cautious innovation or ongoing uncertainty.

A. Research Question

Can the global harmonisation of crypto-asset regulation achieve a balance between innovation and risk control, and how does India's evolving approach illustrate either cautious innovation or regulatory ambiguity? This breaks down into two clarifying questions: first, whether a global regulatory framework can balance innovation with risk control in crypto-assets; and second, whether India's crypto regulation reflects cautious innovation or regulatory ambiguity.

B. Research Methodology

This study adopts a qualitative, doctrinal research design, relying on secondary sources such as statutes, policy papers, and scholarly literature. It uses a comparative analysis of global regulatory frameworks, including the Markets in Crypto-Assets Regulation, to evaluate harmonisation, supported by a thematic analytical framework focused on risk, innovation, and legal clarity.

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C. Research Gap

The existing literature examines global frameworks such as the Markets in Crypto-Assets Regulation, and India's taxation under the Income-tax Act, 1961, separately, but lacks an integrated analysis. It does not assess whether harmonisation can balance innovation and risk, or whether India's approach reflects cautious innovation or regulatory ambiguity within a comparative global context.

D. Literature Review

Existing research on crypto-asset regulation reflects an ongoing effort to balance technological progress with legal clarity. Early studies focused mainly on how decentralised systems disrupt traditional financial models that rely on intermediaries. Over time, research began to centre on regulatory classification and governance, and scholars now support a functional approach that differentiates between types of crypto-assets based on their economic roles. This shift reflects a growing understanding that a one-size-fits-all legal framework does not work for such a varied asset class.

Comparative studies examine how different regions have responded. Well-structured regulatory models, such as the Markets in Crypto-Assets Regulation, are often praised for improving legal clarity and protecting investors, while enforcement-driven systems, especially in the United States, are criticised for creating confusion. Research on emerging economies such as India shows a cautious yet disjointed approach, mixing tax measures under the Income-tax Act, 1961 with the absence of comprehensive regulation. Despite these findings, a notable gap exists in understanding whether global harmonisation can effectively balance innovation with risk management; much of the literature focuses on either strict regulation or freedom for innovation but seldom combines both. This study aims to fill that gap by examining harmonisation as a middle ground while situating India's regulatory path in the wider global context.

II. UNDERSTANDING THE BASICS

Global harmonisation. Global harmonisation means aligning laws and regulations across different countries so that they follow common principles and standards, even where the exact rules are not identical. It helps reduce conflicts between jurisdictions and ensures consistency in how cross-border activities are regulated. For example, if countries adopt similar rules for Bitcoin and other crypto-assets (such as common standards for taxation and anti-money laundering), it becomes easier to trade and regulate them globally without legal confusion.

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Crypto-assets. Crypto-assets are digital assets that use cryptography and blockchain technology to secure transactions, control creation, and verify ownership without relying on a central authority. They exist purely in digital form and can represent value, ownership rights, or access to services. Bitcoin, for example, is a crypto-asset that allows people to send money directly to one another online without using a bank.

Blockchains. A blockchain is a distributed digital record system in which information is stored in linked blocks across multiple computers, making it secure, transparent, and resistant to tampering. Each new piece of data is added as a "block" and permanently connected to the previous ones in a chronological chain. One way to picture it is a shared spreadsheet recording land-ownership details, where every update is time-stamped, cannot be deleted, and is visible to all authorised users, without relying on a single authority.

III. DEFINITION AND NATURE OF CRYPTO-ASSETS

In India, although there is no comprehensive regulatory definition, the Income-tax Act, 1961 (as amended by the Finance Act, 2022) introduces the concept of a *Virtual Digital Asset*. The Finance Act, 2022 inserted clause (47A) into Section 2 of the Act,[1] defining a "Virtual Digital Asset" (VDA) as:

> (a) any information or code or number or token (not being Indian currency or foreign currency), generated through cryptographic means or otherwise, by whatever name called, providing a digital representation of value exchanged with or without consideration, with the promise or representation of having inherent value, or functioning as a store of value or a unit of account, including its use in any financial transaction or investment but not limited to an investment scheme, and which can be transferred, stored or traded electronically; (b) a non-fungible token or any other token of similar nature, by whatever name called; and (c) any other digital asset as the Central Government may, by notification in the Official Gazette, specify.

Tax on the transfer of VDAs. Section 115BBH of the Income-tax Act, 1961[2] governs the taxation of income from the transfer of virtual digital assets. Under sub-section (1), where the total income of an assessee includes income from the transfer of a virtual digital asset, the income-tax payable is the aggregate of the tax on such income computed at the rate of thirty per cent, and the tax with which the assessee would otherwise have been chargeable on the balance of total income. Under sub-section (2), no deduction in respect of any expenditure (other than

[1] The Income-tax Act, 1961, § 2(47A) (India) (inserted by the Finance Act, 2022).

[2] The Income-tax Act, 1961, § 115BBH (India) (inserted by the Finance Act, 2022).

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the cost of acquisition) or allowance or set-off of any loss is allowed,[3] and no loss from the transfer of a virtual digital asset may be set off against any other income or carried forward to succeeding assessment years.[4] Under sub-section (3), the word "transfer" as defined in clause (47) of Section 2 applies to any virtual digital asset, whether or not it is a capital asset.

IV. CASE LAWS

Internet and Mobile Association of India v. Reserve Bank of India. The issue was whether the RBI's 2018 circular, which barred regulated banks from providing services to crypto businesses, was a lawful and proportionate restriction.[5] The Supreme Court struck down the circular as disproportionate, holding that the RBI could regulate virtual currencies but that a complete banking ban was excessive when crypto trading was not illegal under any statute.

Manu Prashant Wig v. Union of India. The issue was whether the Supreme Court should direct the government to frame a full regulatory framework for cryptocurrency trading and mining.[6] The Court refused to entertain the petition, observing that framing crypto policy is a matter for the legislature and the executive, not for judicial direction under Article 32.

Rhutikumari v. Zanmai Labs Pvt. Ltd. The issue was whether cryptocurrency held on an exchange can be treated as property under Indian law following a cyber-attack and a dispute over control of the assets.[7] The Madras High Court recognised cryptocurrency[8] as property, capable of being owned and held in trust, thereby strengthening investor protection and fiduciary responsibility.

V. TYPES OF CRYPTO-ASSETS

Crypto-assets are commonly classified by their economic function and regulatory treatment. **Payment tokens** function as a medium of exchange or store of value and are used for transactions similar to traditional currency; they are not backed by any sovereign authority and raise concerns regarding monetary stability and financial regulation. **Utility tokens** provide access to a product or service within a blockchain ecosystem and are used in decentralised

[3] No deduction for any expense except the cost of acquisition is allowed, and losses from virtual digital assets cannot be set off against other income or carried forward: Income-tax Act, 1961, § 115BBH(2) (India).

[4] Section 115BBH(2) permits only the cost of acquisition to be deducted from income on the transfer of a virtual digital asset; no other expenditure or loss may reduce the taxable gain.

[5] *Internet & Mobile Ass'n of India v. Reserve Bank of India*, (2020) 10 S.C.C. 274 (India).

[6] *Manu Prashant Wig v. Union of India,* Writ Petition (Criminal) No. 541 of 2023 (S.C. 2023) (public interest litigation seeking a comprehensive crypto regulatory framework, dismissed).

[7] *Rhutikumari v. Zanmai Labs Pvt. Ltd.*, (Mad. H.C. Oct. 24, 2025) (India).

[8] Cryptocurrency, MERRIAM-WEBSTER DICTIONARY (a digital currency recorded on a decentralised blockchain and secured by cryptography).

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applications; they are not primarily intended as investment instruments, although regulatory ambiguity arises when they are traded speculatively. **Security tokens** represent ownership rights, profit-sharing, or investment interests, are similar to shares, bonds, or debentures, are likely to fall under securities-regulation frameworks, and require compliance with investor-protection laws. **Stablecoins** are designed to maintain a stable value by being pegged, aiming to reduce the price volatility associated with other crypto-assets; they are widely used for trading, remittances, and decentralised finance, and raise regulatory concerns relating to reserve management, consumer protection, and financial stability.

Importance of classification. This categorisation supports a risk-based regulatory approach, enabling regulators to apply appropriate legal frameworks based on the function rather than the form of the asset. Beyond functional classification, these crypto-assets vary in risk exposure, governance structures,[9] and regulatory oversight. Payment tokens often attract the attention of central banks because of their potential effects on monetary sovereignty. Utility tokens are commonly used in token-based fundraising (initial coin offerings), which raises issues of investor misrepresentation. Security tokens facilitate the tokenisation of tangible assets such as equity or real estate, enhancing liquidity but requiring stringent compliance. Further, the Prevention of Money-Laundering Act, 2002, under which virtual digital asset transactions were brought within the ambit of financial monitoring in 2023,[10] recognises their potential risks in illicit financial activities. At the global level, the Markets in Crypto-Assets Regulation defines crypto-assets as digital representations of value or rights transferable using distributed-ledger technology.[11]

Traditional financial regulation faces significant challenges in accommodating crypto-assets because of their fundamentally different structure. The issues involve decentralisation, jurisdictional conflicts, the lack of clear classification, rapid technological evolution, enforcement challenges, and regulatory fragmentation.

VI. Evolution of Crypto Regulation: A Global Perspective

A. Early Regulatory Vacuum and Initial Responses

Because traditional financial laws were not designed to handle decentralised, international

[9] Governance structures are the systems, rules, and mechanisms through which decisions are made, implemented, and monitored within an organisation, institution, or blockchain network.

[10] The Prevention of Money-Laundering Act, 2002 (India); virtual digital asset transactions were brought within its reporting framework by notification dated March 7, 2023.

[11] Regulation 2023/1114, of the European Parliament and of the Council of 31 May 2023 on Markets in Crypto-Assets (MiCA), 2023 O.J. (L 150) 40.

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digital assets, a large regulatory gap existed in the early phases of crypto-assets. Owing to concerns about fraud, anti-money-laundering frameworks, and financial instability, governments initially reacted with uncertainty, ranging from inaction to outright bans. Instead of developing specific regulations, early actions concentrated on applying existing laws, such as anti-money-laundering frameworks, to cryptocurrency activities. As adoption grew and the need for organised oversight became clear, regulators shifted from reactive enforcement to more proactive approaches aimed at striking a balance between innovation and risk management.

B. Comparative Overview

The European Union, structured regulation. The European Union has adopted a comprehensive and structured regulatory approach through the Markets in Crypto-Assets Regulation. This framework establishes clear definitions, licensing requirements, and compliance obligations for crypto-asset service providers, emphasising investor protection, market integrity, and financial stability while promoting innovation within a regulated environment. By adopting a uniform framework across member states, the EU aims to reduce regulatory fragmentation and create a predictable legal environment for crypto markets.

The United States, an enforcement-based model. The United States follows an enforcement-driven and fragmented approach, in which multiple agencies such as the SEC and the CFTC regulate crypto-assets under existing financial laws. Instead of a unified statute, regulators determine the legal status of crypto-assets through case-by-case enforcement, often classifying them as securities or commodities. This approach provides flexibility but creates legal uncertainty, as businesses must navigate overlapping regulatory frameworks and evolving interpretations without clear statutory guidance.

Other jurisdictions, mixed models. Other jurisdictions adopt hybrid or mixed models, combining permissive and restrictive elements. Countries such as Singapore and the UAE have introduced innovation-friendly frameworks that encourage fintech growth while maintaining strict compliance standards,[12] whereas nations such as China have imposed comprehensive bans on crypto trading and mining over concerns about financial stability and state control. Countries such as India adopt a cautious, evolving stance, allowing limited engagement through taxation and regulatory oversight without full legal recognition. These varied approaches highlight the

[12] The Prevention of Money-Laundering Act, 2002, §§ 12-13 (India) (record-keeping, customer due diligence, and reporting obligations).

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lack of global consensus and underscore the need for harmonised[13] yet flexible regulatory frameworks.

VII. PROBLEMS CAUSED BY FRAGMENTED REGULATION

When different countries maintain their own separate rules for crypto-assets, significant challenges arise for the digital financial world. One major problem is regulatory arbitrage, which occurs when businesses and investors move their activities to places where the rules are weaker or less clear in order to avoid stricter regulation. As a result, the rules that some countries work hard to enforce become less effective, and those countries can be placed at a disadvantage relative to those with looser regulation.

Another issue is the lack of legal clarity, which makes large investors and innovators hesitant to commit for the long term. If countries cannot agree on whether crypto-assets are securities, commodities, or something else entirely, businesses are left unsure which rules apply. This confusion raises legal risks and drives up costs for companies operating across borders, making it harder for crypto businesses to grow.

Fragmentation[14] also weakens investor protection and market integrity. In jurisdictions with minimal regulation, investors are more vulnerable to fraud, scams, and market manipulation, and the absence of uniform disclosure standards and accountability mechanisms allows bad actors to exploit regulatory gaps, leading to financial losses and an erosion of trust. Fragmented frameworks further complicate cross-border enforcement and supervision: because crypto transactions are inherently global and decentralised, national regulators often lack the jurisdiction or coordination necessary to investigate and prosecute illicit activities effectively. Finally, fragmented regulation hinders the development of a cohesive global market, as differing rules on taxation, licensing, and compliance create barriers to international trade and cooperation. Without harmonised standards, the potential of crypto-assets to facilitate efficient global financial systems remains constrained. These challenges collectively highlight the urgent need for a coordinated and principles-based global regulatory framework.

VIII. CAN GLOBAL HARMONISATION BALANCE INNOVATION AND RISK?

The global harmonisation of crypto-asset regulation can balance innovation and risk by ensuring legal certainty, strengthening investor protection, and maintaining market integrity. Excessive

[13] UNCITRAL, MODEL LAW ON ELECTRONIC COMMERCE (1996), U.N. Doc. A/51/17.

[14] FINANCIAL STABILITY BD., REGULATION, SUPERVISION AND OVERSIGHT OF CRYPTO-ASSET ACTIVITIES AND MARKETS: FINAL REPORT (July 17, 2023).

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harmonisation, however, may reduce regulatory flexibility and constrain innovation. A balanced approach requires a principles-based, technology-neutral framework supported by risk-based classification and interoperability, allowing jurisdictions to align on core standards while adapting to domestic regulatory and economic needs.

IX. India's regulatory approach: cautious innovation or regulatory ambiguity?

India's regulatory stance on crypto-assets reflects a gradual yet cautious evolution shaped by institutional and judicial developments. Initial restrictions imposed by the Reserve Bank of India sought to limit financial risks by restricting banking access for crypto entities. These were later overturned by the Supreme Court in *Internet and Mobile Association of India v. Reserve Bank of India*,[15] restoring operational space for the industry. The current taxation regime under the Income-tax Act, 1961, including the provisions on virtual digital assets, indicates cautious recognition without full regulatory clarity.

This approach signals cautious innovation through risk containment, yet it also leaves room for regulatory arbitrage owing to the absence of a comprehensive legal framework. The impact is mixed: while it prevents systemic instability, it creates uncertainty that affects start-ups, discourages long-term investment, and limits the development of a clear and predictable legal environment.

X. Conclusion

The analysis in this paper shows that the rapid rise of crypto-assets has revealed important gaps in traditional financial regulation, calling for a move toward more flexible and coordinated methods. The study points out that uneven global regulation creates problems such as regulatory arbitrage, legal uncertainty, weak investor protection, and enforcement difficulties, which harm the stability and growth of the crypto ecosystem. A comparison indicates that while structured models such as the Markets in Crypto-Assets Regulation offer clarity and consistency, enforcement-based or fragmented approaches lead to uncertainty and inefficiency.

In response to the first research question, the paper finds that global harmonisation can balance innovation with risk management, but only if it uses a principles-based, technology-neutral, and flexible framework rather than strict uniformity. This method allows jurisdictions to agree on essential standards, such as investor protection and market integrity, while still addressing local

[15] *Internet & Mobile Ass'n of India*, *supra* note 5.

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needs. As to the second research question, India's regulatory approach shows elements of cautious innovation, particularly in its efforts to manage systemic risks; however, the lack of a clear and complete legal framework produces regulatory ambiguity that could discourage investment and slow technological progress. In the end, while complete uniformity across jurisdictions is neither practical nor ideal, functional harmonisation is both possible and necessary. For India, the transition from a fragmented and uncertain regulatory environment to clear legal guidelines that align with global standards is crucial for unlocking the potential of the crypto economy while ensuring strong risk management.

This study submits that the regulation of crypto-assets is now a necessity rather than an option for maintaining financial stability and fostering innovation. A well-balanced, globally coordinated yet adaptable regulatory framework is within reach. India currently finds itself at a pivotal moment, and its transition to clear and organised regulation will ultimately shape its position in the changing digital economy.

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