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A LEGAL PERSPECTIVE ON CURRENT ICO REGULATORY TRENDS WORLDWIDE

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Abstract. In recent years, traditional approaches to the development of regulatory frameworks have faced significant challenges in addressing the dynamic nature of emerging technologies. As a result, new, more flexible typologies, often referred to as agile regulatory approaches, have begun to take shape. This article explores the evolving landscape of Initial Coin Offering (ICO) regulation, offering a critical overview of existing solutions in key jurisdictions such as the United States and the European Union. Both regions have adopted distinct regulatory approaches that reflect their differing legal and market environments. This article aims to contribute to the discourse on how regulatory systems can adapt to technological innovation while ensuring legal certainty, investor protection and market integrity.

Keywords: ICO, Sandboxes, Innovation Hubs, Self-Regulation, Co-Regulation.

Introduction

The legal regulation of Initial Coin Offerings (ICOs) continues to be a subject of significant academic and regulatory interest. As a decentralised and cross-border fundraising mechanism, ICOs allow entrepreneurs to attract capital by offering digital tokens to investors worldwide. This global reach, combined with the rapid development of blockchain technologies, has challenged traditional legal frameworks, which were not designed to accommodate such novel and borderless instruments. Despite the considerable growth of the crypto market, including during the COVID-19 pandemic, regulators still struggle to provide clear and comprehensive rules for this sector.

ICOs raise a variety of legal issues, including questions of investor protection, market integrity and legal certainty. The absence of a unified international approach has led to regulatory fragmentation, which complicates compliance for market participants and creates the risk of regulatory arbitrage. This fragmentation can also hinder innovation and reduce trust in blockchain-based financial instruments. At the same time, an overly rigid regulatory response may stifle the very innovation that drives this technological shift. Thus, striking the right balance between flexibility and control remains a key concern for policymakers (Dimitropoulos, 2020).

In this context, the aim of this study is to explore how agile, forward-looking regulatory approaches can support the development of a balanced and effective legal framework for ICOs – one that facilitates innovation while protecting key legal and economic interests. The analysis centres on the legal systems of the European Union (EU) and the United States (US), which serve as illustrative case studies due to their global influence, divergent regulatory strategies and evolving policy approaches.

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The main objectives of the work are to examine the existing legal regimes for ICOs in each jurisdiction, to evaluate how these frameworks respond to the unique challenges posed by blockchain-based financing and to assess the potential for international harmonisation in this field. Special attention is given to regulatory innovation and flexibility, including sandbox mechanisms, principles-based regulation and experimental models that may inform future global standards.

The central research question of this paper explores how agile regulatory approaches can play a pivotal role in shaping a coherent and effective legal framework for ICOs, both within individual jurisdictions and at the international level. To address this question, the study adopts a comparative legal methodology. By analysing similarities and differences between the US and EU approaches, it becomes possible to identify shared principles and structural elements that may serve as the foundation for a harmonised global regulatory strategy. The comparative method is not only descriptive but also instrumental in formulating normative recommendations for future regulatory design. AI-assisted technology was used in the preparation of this article for checking grammar and spelling.

The scope of this study is limited to legal aspects of ICOs in commercial and consumer law contexts. It deliberately excludes issues related to criminal law, anti-money laundering, taxation, antitrust and accounting. By narrowing the focus in this way, the research aims to provide a clear and detailed legal analysis that can inform broader debates around blockchain regulation.

1. Sandboxes and innovation hubs

Around the world, financial regulatory and supervisory authorities are seeking to participate in blockchain development. Considering that financial technologies aim to deploy innovation, ICO regulation should, first of all, ensure its existence (Karkkainen, 2006). In this regard, some jurisdictions do not wish to create binding legislation with general application and are instead attempting to launch two regulatory measures. Some have introduced special testing environments, referred to as ‘financial regulatory sandboxes’, in which fintech companies are exempted from some licensing requirements for a certain period of time. Others have established ‘innovation hubs’. In these ways, regulators try to create motivations for fintech companies to provide information about their industry as well as assistance on the applicability of existing legal rules.

1.1. Sandboxes

Regulatory sandboxing has emerged as an innovative mechanism designed to foster the development and integration of new financial technologies. It enables fintech companies to test innovative products and services while regulators work to adapt legal frameworks to these innovations. It presents a specially coordinated mode of working out and piloting solutions, including regulatory ones, to determine an effective model of interaction and building business processes in any new area. Such a definition of a new method of approbation and regulation of digital projects is given in the decision of the Supreme Eurasian Economic Council of October 11, 2017 No. 12 “On the Main Directions of Implementation of the Digital Agenda of the Eurasian Economic Union until 2025” (Supreme Eurasian Economic Council, 2017). A regulatory sandbox can also be defined as a set of rules that allows innovators to test their product or business model in an environment that temporarily exempts them from following some or all legal requirements in place. In exchange, these actors are often obliged to operate their business model in a restricted manner, for instance through a controlled number of clients or level of risk exposure, and under close regulatory supervision (Forshee, 2017; Finck, 2018).

Despite its growing adoption worldwide, regulatory sandboxing takes different forms across jurisdictions, with varying criteria and objectives. This section provides a comparative analysis of sandbox models in the EU and the US, highlighting differences in regulatory strategies, effectiveness and conditions for success.

The EU has taken a proactive approach towards regulatory sandboxing, with an emphasis on harmonisation and cross-border cooperation. The European Commission, in collaboration with the

European Blockchain Partnership (EBP), introduced the concept of a pan-European regulatory sandbox for blockchain technologies. This initiative, launched in 2023, aims to provide a framework for testing decentralised solutions and identifying regulatory barriers across EU member states. The regulatory sandbox is part of the European Commission's broader efforts to create a unified digital economy, particularly focusing on the integration of blockchain technologies into the public sector via the European Blockchain Services Infrastructure (EBSI).

This sandbox allows companies to test blockchain-based applications under regulatory oversight, ensuring legal compliance while encouraging innovation. Unlike national approaches that are often limited to specific technologies, the EU's sandbox supports a broad range of blockchain applications, from digital identity solutions to tokenised assets, and seeks to address legal uncertainties across jurisdictions (European Commission, 2021). The success of the EU model will depend on the flexibility of its framework and its ability to adapt to the rapidly evolving nature of blockchain technologies. Notably, the EU's sandbox aims to run from 2023 to 2026, selecting 20 projects annually to participate, which highlights its scalable, cross-border approach.

In contrast, Malta's regulatory sandbox focuses more narrowly on technology-specific applications. Established in 2018 by the Malta Digital Innovation Authority (MDIA), the MDIA Technology Accreditation Sandbox (TAS) provides a controlled environment for fintech projects, particularly those still in the development stage. It serves as a testing ground for startups and smaller players who are developing innovative technologies and seeking regulatory approval. The MDIA-TAS operates under a set of specific criteria, requiring participants to demonstrate a substantive connection to Malta, either by developing or operating their Innovative Technology Arrangements (ITAs) within the country.

While Malta's sandbox model is highly focused on blockchain and fintech innovations, its relatively small scale allows for more tailored regulatory oversight and a close working relationship between regulators and innovators. The sandbox's success is contingent on its ability to balance innovation with consumer protection and public trust. Malta's approach is unique in that it allows participants to grow their projects in line with officially recognised technology assurance standards, providing a solid foundation for regulatory certainty (Malta Digital Innovation Authority, 2021). However, Malta's sandbox is geographically limited, which may constrain its global competitiveness in the fintech space.

In the US, the regulatory sandbox landscape is vastly different. While there is no federal regulatory sandbox, several states have pioneered their own models. Arizona, for instance, became the first US state to establish a state-level regulatory sandbox for fintech companies with the passage of H.B. 2434 in 2018. This state-level sandbox allows innovators to test financial products and services without being subject to licensing requirements for up to 2 years, with a limit of 10,000 customers before the company must obtain formal licensure (Stanley, 2018).

The Arizona model exemplifies a more decentralised and flexible approach to regulatory sandboxing, where states are empowered to create tailored solutions based on local needs and market conditions. However, this fragmented regulatory environment presents challenges, as fintech firms may face differing requirements depending on the state in which they operate. Critics argue that the lack of a unified federal approach in the US creates legal uncertainties, making it harder for innovators to scale their businesses nationally. Additionally, there is resistance to federal involvement in sandboxing, as some regulators believe that innovation should not be hindered by federal oversight (Peirce, 2019; Pedersen, 2019).

Thus, while Arizona's sandbox has proven effective in facilitating innovation, its state-specific nature limits its broader applicability across the US, creating regulatory inconsistency.

To enhance comparative clarity, Table 1 presents the main differences in the scope, flexibility, duration and eligibility criteria across selected sandbox frameworks. This comparative overview highlights how sandbox initiatives vary significantly in terms of regulatory design and strategic focus.

Table 1 Comparative overview of sandbox models

Jurisdiction	Scope	Regulatory flexibility	Duration	Eligibility
EU	Blockchain (broad)	High	2023–2026	Pan-European, 20 projects/year
Malta	Blockchain/fintech (narrow)	Moderate	Project-specific	Substantive link to Malta
US (federal)	No unified sandbox	Low (fragmented, advisory only)	N/A	No federal-level eligibility framework
Arizona (state)	Fintech	High (state-level discretion)	Up to 2 years	Maximum 10,000 users; state jurisdiction required

While regulatory sandboxes offer significant benefits in terms of fostering innovation, their effectiveness depends on several factors, including the flexibility of regulatory frameworks, the clarity of rules and the capacity of regulators to monitor and assess risk. In the EU, the pan-European sandbox approach is beneficial for fostering cross-border innovation, providing a regulatory framework that can accommodate various jurisdictions. However, its success will hinge on the ability of EU member states to cooperate and adapt their regulatory environments to blockchain-specific challenges.

Malta's approach is more narrowly focused but offers tailored regulatory oversight for fintech and blockchain projects. This model works well for smaller companies seeking a clear and structured path to regulatory compliance, but may not be as adaptable or scalable as the EU's broader approach.

In the US, the state-based model, while providing greater flexibility at the local level, risks creating a fragmented regulatory environment that may undermine the development of a coherent national framework for fintech innovation. The absence of a federal sandbox limits the capacity of the US to offer a consistent and unified regulatory solution for businesses that wish to scale across state lines.

While the global implementation of regulatory sandboxes illustrates diverse strategies tailored to local contexts, it also invites reflection on their overall impact. Therefore, a closer look at the inherent advantages and limitations of this model is warranted. Needless to say, regulatory sandboxing comes with its own set of benefits and drawbacks.

First, introducing a sandbox environment promotes the message of a strong, open policy of a regulator to fintech companies, thus proclaiming the jurisdiction as friendly for the development of ICO projects and attracting potential investors. Second, a regulatory sandbox enables reductions in legal uncertainty and the risk of violating legislation and licensing requirements. Third, it allows regulators to buy time to continue observing and learning from the technology. This time provides an opportunity for interaction between innovators and the regulators (Finck, 2018). In other words, on the one hand, it allows regulators to make observations before establishing binding rules and, on the other hand, it provides enhanced legal certainty to ICO participants. The clear advantage of sandboxing is that it provides a way for regulators and innovative firms to communicate. This could be described as a meeting between firms and regulators that enables the sharing of knowledge (GFIN, 2019). Through a sandbox regime, a regulator can learn about industry best practices (Buckley, Arner, Veidt, & Zetzsche, 2020). During this testing process, a specific regulatory rule can be evaluated and discussed. The sandbox becomes the last stage in the regulatory definition of a business model, which begins with an informal guide on regulatory uncertainties and ends with a test determining whether the model requires a change in existing regulation.

One of the disadvantages of sandboxes is their lack of transparency. Equality is another problem; this is because in a sandbox setting, some economic operators benefit from advantages not available to others. The selectivity of admission to a sandbox also highlights the challenges for these schemes to be technology- and business model-neutral. While some sandboxes allow unlimited participants (provided they meet the eligibility criteria), others have limited capacity, meaning there is competition for spaces. Many sandboxes are also either aimed at existing regulated businesses or require authorisation to participate, meaning that reasonably high barriers to entry still exist for small startups. It should also be noted that sandboxes are likely to be most effective in countries with a large number of fintech firms (such as the United Kingdom (UK), Hong Kong, Australia and Singapore) and less effective in low- and middle-income countries where there is a lack of innovative companies. In the latter case, sandboxes would not appear to be an optimal solution to promote the growth of local firms nor to attract foreign companies. Additionally, regulatory sandboxes require large financial investments, and even new legislation, but some jurisdictions do not have such resources. Moreover, there are insufficient data available to determine the transition back from the privileged to the general regime. For instance, consumers who began using a service before the provider entered the sandbox may have assumed that their interactions were governed by a general regulatory framework. Once the provider enters the sandbox, however, those consumer relationships may no longer be subject to the same protections, creating uncertainty and potential risk. What is more important, blockchain is a transborder phenomenon, but today's regulatory sandboxes are limited to a single jurisdiction.

The fact that sandboxes are limited to a single jurisdiction and do not accommodate the global reach inherent in the technology is a major disadvantage. This is because regulation must take into account the need for a global regulatory framework. The global marketplace requires consideration of broad principles and an oversight framework that is applicable to all systems. For this reason, a useful intermediate step could be the creation of a multijurisdictional sandbox that is able to provide investors with relevant information and protections. This global sandbox should focus more on the commonly shared goals and principles of regulation and less on the specific jurisdictional issues. It could foster the establishment of harmonised regulations around the world.

However, differences in the priorities and cultures of each country would immediately create difficulties in establishing a global sandbox. That is why coordination and information sharing must be a priority among markets and regulators. It could help to develop general principles and promote understanding of regulatory differences that currently exist across countries. Moreover, the use of such a multilayered approach (Akdeniz, 1997), including public and private bodies, that goes beyond the nation-state level, should force reflections on the rights of individual consumers, an issue often overlooked both by regulators and the industry. If the consumer feels safe, the global industry will grow, so it is in its best interests to pay attention to and independently and responsibly regulate e-commerce, making it the most appropriate form of e-commerce governance today. Using it responsibly would create a strong global community.

1.2. Innovation hubs

Innovation hubs are generally established through soft law instruments or internal agency policies and do not require amendments to national legislation. They function primarily as advisory centres that help firms navigate regulatory obligations without providing legal waivers. By contrast, regulatory sandboxes necessitate a legal framework or regulatory discretion to temporarily waive or modify certain legal requirements (Buckley, Arner, Veidt & Zetzsche, 2020). This legal distinction means that sandboxes typically operate in jurisdictions with either broad regulatory mandates or legislative support enabling experimental governance.

For example, in the EU, most member states have implemented innovation hubs, and a growing number have also established regulatory sandboxes. According to the Joint European Supervisory Authorities Report (2023), as of 2023, 41 innovation hubs and 14 regulatory sandboxes were active across 27 EU and European Economic Area countries (European Supervisory Authorities, 2023). These facilities are

underpinned by EU-wide efforts such as the Digital Finance Package and the upcoming Markets in Crypto-Assets (MiCA) Regulation, which provide a harmonised legal backdrop for digital finance testing.

In the US, regulatory innovation has followed a different path. While no federal sandbox exists (Allen, 2019), state-level initiatives such as Arizona's sandbox (Stanley, 2018) operate under dedicated state statutes (H.B. 2434), allowing for temporary exemptions from licensing and supervisory norms. Federally, the Securities and Exchange Commission (SEC) established the Strategic Hub for Innovation and Financial Technology (FinHub) without requiring Congressional authorisation. FinHub acts as a central resource for regulatory engagement but does not offer legal safe harbours (SEC, n.d.).

The fundamental objective of an innovation hub is to provide informal regulatory guidance and facilitate dialogue between supervisors and market participants. These hubs do not provide relief from legal obligations but aim to support compliance and foster innovation through transparency and predictability (European Supervisory Authorities, 2018). This makes them particularly suitable for jurisdictions with limited regulatory capacity or a high degree of legal rigidity.

Conversely, regulatory sandboxes provide a controlled environment in which firms can test innovative financial services under relaxed regulatory conditions, typically for a limited time and customer base. The sandbox approach is more resource-intensive, requiring regulators to conduct case-by-case assessments and implement risk-mitigation protocols. In countries with strong consumer protection mandates, such as Germany, where the Federal Financial Supervisory Authority (known as BaFin) has no statutory obligation to promote innovation, the sandbox model is seen as inconsistent with supervisory philosophy (European Supervisory Authorities, 2023).

A cross-country comparison reveals that innovation hubs are more prevalent and functionally scalable. For instance, Luxembourg's Digital Innovation Hub and Italy's EIT Digital Innovation Hub serve as national coordination platforms that connect startups with regulators, academia and industry stakeholders (European Commission, 2021). These models are effective in promoting cross-sectoral synergies without altering existing legal obligations.

In contrast, sandboxes are often limited to the fintech sector and are best suited to jurisdictions that prioritise regulatory experimentation. Malta's MDIA Technology Accreditation Sandbox is an example where digital asset services are tested in accordance with technology control guidelines established by law. This model is successful for microstates seeking to attract foreign investment but may not scale efficiently to larger jurisdictions due to institutional and legal constraints (Malta Digital Innovation Authority, 2021).

In the US, Arizona's sandbox allows companies to serve up to 10,000 customers over a 2-year testing period without formal licensure (Stanley, 2018). However, this benefit is offset by the sandbox's confinement to in-state operations, limiting its impact on national innovation. Meanwhile, SEC's FinHub engages in systematic dialogue with fintech firms but lacks the authority to issue exemptions, thereby limiting its functionality to an advisory role (SEC, n.d.).

One of the main criticisms of national-level innovation frameworks is their jurisdictional limitation. Legal uncertainty and regulatory fragmentation continue to hinder cross-border fintech development. In response, in 2023, the European Commission, together with the EBP, launched a pan-European blockchain regulatory sandbox, which enables regulators and innovators across the EU to cooperate under a unified experimental framework (European Commission, 2023).

In the global context, the UK Financial Conduct Authority (FCA) has proposed a 'global sandbox' initiative to facilitate regulatory harmonisation, particularly in the realm of blockchain and digital assets (Consumer Financial Protection Bureau, 2018). Such a platform would allow firms to test business models across multiple jurisdictions and enable regulators to coordinate regarding supervisory outcomes and risk assessments.

In conclusion, both innovation hubs and regulatory sandboxes contribute to fostering financial innovation, but their applicability depends on the regulatory, institutional and economic context. While innovation hubs offer a lower-risk, scalable and legally non-invasive tool for supporting fintech growth, sandboxes provide a powerful but resource-intensive platform for real-world testing under supervised exemptions. Jurisdictions with stronger regulatory mandates and institutional capacity (e.g. Malta and the UK) may benefit from sandboxes, while those with limited innovation ecosystems or rigid legal environments (e.g. Germany and Italy) may find hubs more suitable.

Most importantly, no domestic initiative, whether a hub or a sandbox, can address the challenges posed by the global nature of digital finance. Legal interoperability, consumer protection and cost efficiency require a coordinated international framework. Combining innovation hubs and sandboxes, supported by transnational cooperation and unified regulatory goals, offers the most promising route forward for fintech development and legal certainty.

2. Self-regulation and co-regulation

One of the core regulatory challenges in the context of ICOs stems from the pronounced information asymmetry between state authorities and market participants. In particular, regulatory bodies often lack sufficient technical expertise to fully understand the operational dynamics of blockchain-based fundraising mechanisms. This gap creates substantial difficulties in formulating precise and adaptive legal frameworks capable of addressing the unique risks and opportunities associated with ICOs. Private actors typically possess more granular knowledge of emerging technologies than public authorities (Carpenter & Moss, 2014), which places legislators at a structural disadvantage in rapidly evolving digital environments.

In light of this, the adoption of self-regulation and co-regulation models presents a compelling alternative to traditional command-and-control state regulation. While both frameworks aim to enhance regulatory responsiveness and legitimacy, they differ significantly in terms of institutional design and the role of public authorities. Self-regulation refers to rule-making and enforcement mechanisms initiated and maintained by private actors without direct state involvement. In contrast, co-regulation involves a collaborative process between industry stakeholders and public regulators, wherein normative standards are jointly developed, implemented and monitored (Magnuson, 2018).

These models offer several advantages in the context of decentralised technologies. First, they promote regulatory flexibility, allowing governance frameworks to evolve in tandem with technological progress. Second, they facilitate the aggregation and application of specialised knowledge from various market participants, thereby enhancing regulatory accuracy and efficiency. Third, they may serve as transitional instruments, granting governments the time necessary to develop a more informed and robust regulatory response (Blithe & Mattli, 2011).

Standard-setting organisations play a critical role in this context. By establishing voluntary codes of conduct, technical benchmarks and compliance protocols, such bodies contribute to a quasi-legal normative order that may guide industry behaviour in the absence of binding statutory rules. These standards can subsequently be recognised or incorporated into public law, thereby bridging the gap between informal market practices and formal regulatory structures.

Nonetheless, the reliance on self- and co-regulation is not without risks. Concerns have been raised about regulatory capture, the lack of enforcement mechanisms and limited accountability, especially in transnational contexts where legal harmonisation remains weak. Therefore, the effectiveness of such models depends on the presence of strong institutional oversight, transparency requirements and mechanisms for public interest representation.

While self- and co-regulatory approaches offer flexibility, they also present significant risks. Regarding regulatory capture, self-regulatory regimes can become prone to this in the absence of binding statutory obligations, where dominant industry players manipulate standards to entrench their competitive

position. Moreover, such frameworks may lack effective enforcement mechanisms, especially across borders, making it difficult to ensure uniform compliance or to sanction non-compliance effectively.

Another concern is the potential underrepresentation of public and consumer interests. Without formal accountability structures, self-regulatory bodies may not prioritise equity, consumer protection or inclusivity, especially in cases where technical complexity or financial interests prevail. Transparency can also suffer when governance practices are shaped by private actors with limited external scrutiny. Hence, without adequate public oversight, self-regulation risks becoming a vehicle for reinforcing the status quo rather than facilitating genuine innovation.

In summary, in the field of ICO governance, self-regulation and co-regulation offer adaptive and knowledge-intensive approaches to regulation. These models respond to the limitations of traditional public law by leveraging private expertise and promoting regulatory innovation, while preserving the potential for future statutory intervention. Their adoption may be particularly justified in complex, fast-moving sectors where conventional legislative instruments are too slow or inflexible to be effective.

2.1. Self-regulation

Blockchain technology, understood as a decentralised distributed ledger, challenges traditional legal paradigms grounded in centralised regulation. The rise of decentralised systems in domains historically subject to rigorous state control reveals a fundamental tension between centralised legal authority and decentralised mechanisms of self-regulation (Yankovsky, 2018). In this context, blockchain-based innovations – particularly ICOs – have triggered competition between legal regulation grounded in coercive enforcement and cryptographic self-governance embedded in protocol design.

This friction is particularly evident in the capacity of blockchain technologies to enable autonomous legal frameworks, wherein individuals can implement their own techno-legal rules through instruments such as smart contracts. These frameworks allow for decentralised adjudication and enforcement without reliance on third-party institutions, thereby enabling users to select regulatory systems that best reflect their individual preferences (Wright & De Filippi, 2015).

Self-regulation refers to the process through which private market actors govern their conduct via voluntary codes of practice, standards and internal compliance protocols. Often organised through trade associations or industry bodies, self-regulation leverages mechanisms such as peer review, reputational incentives and industry-specific knowledge (Hoofnagle, 2005; Gellman & Dixon, 2016). Although not a novel concept, its application to fintech and blockchain raises specific questions concerning the sector's willingness and capacity to design and maintain robust governance structures independently of the state.

Several conditions render self-regulation particularly suitable for the ICO ecosystem. First, the principle of decentralisation aligns normatively and functionally with self-regulatory governance. The values of financial sovereignty, inclusion and autonomy, which underpin many blockchain communities, promote voluntary compliance with sector-specific norms over centralised intervention. Second, due to the complex and evolving nature of blockchain technologies, industry participants possess superior technical expertise compared with traditional regulators. This asymmetry allows them to more effectively craft standards that are both technically feasible and context-sensitive, mitigating issues of legal obsolescence. Third, transparency is structurally embedded in many blockchain projects due to the open-source nature of the technology, which facilitates community-led auditing and self-policing.

An additional form of self-regulation emerges through 'on-chain governance', a system in which regulatory logic is embedded in code and enforced through consensus algorithms such as Proof of Stake (PoS) or Proof of Work (PoW). These mechanisms eliminate the need for external enforcement by ensuring that only those actors with verified computational or financial commitment to the network may validate transactions. Thus, blockchain networks can autonomously guarantee the execution of smart contracts, reduce counterparty risk and enforce compliance with protocol rules.

However, on-chain self-regulation has intrinsic limitations. It is only effective for transactions and processes entirely contained within the blockchain. Where smart contracts depend on off-chain data, such as shipment verification or product quality assessment, the system requires oracles or external data sources, which are inherently vulnerable to manipulation, error or malicious interference. This undermines the trustless and decentralised nature of the original framework.

Furthermore, self-regulation lacks formal mechanisms for dispute resolution and legal adjudication. To mitigate these weaknesses, incentive structures must be established to promote compliance and mutual oversight. One approach involves collective sanctions, which are regulatory responses applied to an entire sector in the event of misconduct by individual participants. For instance, regulators may increase oversight or tighten requirements for all crowdfunding platforms in response to an increase in defaults. Another strategy includes sector-wide insurance pools, where participating firms contribute to funds designed to compensate users in the event of systemic failure (Levinson, 2003).

Numerous practical initiatives already demonstrate the feasibility of self-regulation. Binance, one of the largest global cryptocurrency exchanges, has launched the Secure Asset Fund for Users (SAFU) to protect user assets against unforeseen technological failures (Binance Academy, n.d.). In the UK, the Eqwity platform has introduced a decentralised fundraising model via Security Token Offerings. The platform implements Know Your Founder (KYF) and Proof of Viability (PoV) procedures, ensuring due diligence both for project teams and investors. The ICO.E smart contract-based model allows investors to obtain voting rights and dividends, thereby increasing transparency and accountability.

Another example is CryptoUK, a trade association in the UK that promotes best practices through a self-regulatory Code of Conduct. Members commit to anti-money laundering standards, operational resilience and segregation of client funds in the event of insolvency (CryptoUK, n.d.). In Japan, the Financial Services Agency (FSA) officially recognises the Japan Virtual Currency Exchange Association (JVCEA) as a self-regulatory organisation. All crypto exchanges must register with the JVCEA and comply with its internal rules, which are closely monitored by the FSA (EXIA Digital Assets, n.d.). In the Philippines, the Cagayan Economic Zone Authority (CEZA) has developed regulatory guidelines for digital assets, delegating enforcement to the Asia Blockchain and Crypto Association (ABACA), a self-regulatory body that ensures industry compliance with offshore virtual currency exchange rules and regulations (Fintech News Singapore, 2018).

In the US, the Gemini Exchange proposed the Virtual Commodity Association (VCA), a self-regulatory initiative for virtual asset platforms, with members subject to internal rules and disciplinary measures.

It is important to note the divergence in self-regulatory philosophy between jurisdictions. In the US, a laissez-faire tradition supports limited state intervention and favours industry-led governance unless significant failures occur. In contrast, the EU exhibits a stronger tradition of state oversight, where regulatory frameworks are often proactive and guided by public interest concerns (Serbu, 2016). These differences are particularly salient in the area of privacy law: while the US treats privacy as a relative value subject to trade-offs, continental European jurisdictions such as Germany and France enshrine privacy as an inviolable fundamental right, justifying early adoption of statutory protections (Bignami, 2010).

In light of the high-risk nature of ICO investments, the rapid evolution of blockchain technologies and the current regulatory lag, self-regulation appears to be a pragmatic mechanism for promoting investor protection and industry integrity. Nonetheless, self-regulation should not be viewed as a substitute for formal legal frameworks but rather as a transitional regulatory technique. It functions most effectively when accompanied by credible government oversight capable of intervening in cases of systemic failure or misconduct. The role of public regulators should therefore include monitoring adherence to voluntary standards, evaluating investor protection mechanisms and providing enforcement where self-regulation proves insufficient (Oesterle, 2000).

2.2. Co-regulation

Although computer codes are inherently self-regulatory, their operation cannot be effectively ensured outside of a legal framework (Yermack, 2017). This is particularly relevant for blockchain technology, which is characterised by a high degree of decentralisation and technological volatility. These traits present significant challenges for regulation, as traditional legal frameworks often prove too rigid and slow to keep up with innovation. In this context, the co-regulatory model, in which public authorities and private actors collaborate in the creation and implementation of regulatory mechanisms, has gained traction as a potentially effective solution (Finck, 2017; Hoffmann-Riem, 2001). This model allows for the development of legal regimes that are adapted to specific technological conditions, while maintaining state control over their enforcement.

Co-regulation, as a legal concept, implies an interactive process between public and private entities in the creation of rules and the enforcement of laws. This interaction is based on dialogue and cooperation, rather than confrontation. Co-regulatory mechanisms are typically less prescriptive than traditional government regulations, which define specific actions to be taken. Instead, they focus on desired outcomes, providing participants with greater flexibility in determining the means to achieve these goals. Nevertheless, public authorities retain the power to supervise and enforce compliance with established norms, thus combining regulatory flexibility with guarantees of legal order and certainty.

A comparative analysis of the regulatory practices in the EU and the US reveals significant differences in the approach to co-regulating blockchain technologies, particularly in the context of ICOs. In the EU, a more institutionalised approach predominates, expressed through the creation of specialised supranational structures such as the European Blockchain Observatory and Forum, as well as the EBP. These initiatives aim to coordinate the efforts of member states, minimise fragmentation of the regulatory landscape and foster a unified digital policy. Within these frameworks, not only is there a focus on monitoring and analysing the development of blockchain technology but also on the development of normative principles designed to integrate blockchain solutions into the EU's legal system. A key component is the establishment of the EBSI, which aims to introduce blockchain technologies into cross-border public services while ensuring compliance with EU law and security standards.

Furthermore, the EU demonstrates a commitment to legal clarity through the forthcoming implementation of the MiCA Regulation, which is set to come into full effect in 2025. MiCA represents the first comprehensive regulatory framework for crypto-assets at a continental level, regulating the issuance, circulation and service provision related to crypto-assets across the EU. While the involvement of industry stakeholders in consultations and the drafting process is evident, the initiative retains a strong state-driven component, demonstrating a balanced co-regulatory approach where the private sector is integrated into regulatory frameworks without undermining public interests.

In contrast, the US approach to blockchain regulation remains more fragmented and reactive. While elements of co-regulation exist, they typically manifest through informal partnerships, such as the Blockchain Alliance, which brings together industry representatives and law enforcement agencies. This collaboration fosters information exchange, combats cybercrime and demonstrates the good faith of the blockchain industry. However, the lack of unified federal legislation governing crypto-assets and ICOs leads to significant legal uncertainty and varying practices at the state level. Different federal agencies, including the SEC, the Commodity Futures Trading Commission (CFTC) and the Financial Crimes Enforcement Network (FinCEN), classify crypto-assets differently and impose divergent requirements, which complicates the formation of a cohesive regulatory environment.

Unlike the EU, where coordination and harmonisation play a key role, the US continues to rely on an enforcement-driven approach, characterised by judicial precedents and sanctions. This model is less predictable for market participants, particularly in the context of ICOs, where the legal classification of tokens and applicable regulatory requirements are often determined retroactively, following

investigations or court rulings. This uncertainty diminishes incentives for innovation in the jurisdiction and has led many projects to relocate to more clearly defined regulatory environments, such as the EU.

In recent years, the US's regulatory stance on blockchain and cryptocurrencies has evolved significantly. During President Trump's first term (2017–2021), the administration adopted a light-touch, deregulatory approach, consistent with the broader 'America First' agenda. Emphasis was placed on reducing regulatory burdens to stimulate innovation and economic growth. This included a reluctance to impose strict regulations on emerging technologies such as blockchain. Nonetheless, the administration did maintain some degree of oversight to protect consumers and uphold financial stability, especially regarding the potential use of cryptocurrencies for illicit activities. The result was a fragmented regulatory environment, with various federal agencies – including the SEC, CFTC and FinCEN – issuing overlapping or even conflicting guidance, particularly concerning the classification of digital assets and their treatment under securities laws.

Although this approach encouraged some degree of innovation, it lacked a cohesive federal regulatory framework for blockchain technologies and ICOs. Regulation during Trump's first term was largely reactive and enforcement-driven, rather than being built on proactive legislative or policy initiatives. A shift was anticipated under the Biden administration, which signaled a more structured and coordinated regulatory strategy. However, with Trump's return to office in 2025, the direction of US digital asset policy is again undergoing change.

In his second term, President Trump has re-emphasized a business-friendly, pro-innovation regulatory model. Executive actions taken in early 2025 indicate a renewed push to streamline crypto oversight, reduce perceived regulatory overreach and support the growth of digital asset markets. However, pressures remain, both domestically and internationally, to balance innovation with accountability, particularly as blockchain technologies gain broader systemic relevance. The current landscape continues to reflect a tension between flexibility and legal certainty, with the US still working towards a comprehensive, unified regulatory framework.

Thus, this comparative analysis suggests that co-regulation in the EU offers a more mature and institutionally formalised model, integrated into a supranational legal order and ensuring high levels of legal certainty and coordination. By contrast, the US model, while incorporating elements of co-regulation, remains decentralised and enforcement-oriented, which undermines the effectiveness of co-regulation as a stable mechanism for ensuring the legal development of blockchain technologies. In the face of rapid technological advancement, institutionalised and strategically oriented co-regulation, such as that practiced in the EU, appears to be a more effective model for ensuring legal stability while supporting innovation.

Broadly speaking, co-regulation is far from a perfect solution to regulating ICOs. It appears to be rather an independent method of social regulation that can significantly improve the effectiveness of legal regulation. This is achieved by combining legal principles and norms and state control over their implementation with the broad discretion of professionals in a particular field. In addition, it seems that currently, co-regulation exhibits greater effectiveness than self-regulation. This is due to stricter observance of the norms and principles of law in co-regulation.

To illustrate the structural divergence in regulatory approaches, Table 2 compares co-regulatory and self-regulatory frameworks in the EU and the US. The comparison highlights differences in institutional setup, enforcement mechanisms, industry involvement and public oversight.

Table 2 Comparative characteristics of co- and self-regulation in the EU and the US

Aspect	EU	US
Dominant model	Co-regulation (with public–private cooperation)	A mixture of self-regulation and fragmented co-regulation
Institutional framework	Supranational bodies (e.g. European Blockchain Partnership, EBSI)	Multiple federal and state bodies (e.g. SEC, FinCEN, CFTC) with inconsistent coordination
Legal basis	Guided by EU law and formal consultation mechanisms (e.g. MiCA)	No unified federal law; reliance on agency interpretations and enforcement
Industry role	Industry participates in shaping standards through structured dialogues	Industry-led initiatives (e.g. Blockchain Alliance), often informal and reactive
Enforcement mechanism	Public enforcement via EU and national authorities, with formal compliance mechanisms	Primarily *post facto* enforcement by regulators; variable by state/federal level
Consumer protection	Central focus through harmonised regulation and oversight bodies	Varies widely; no consistent nationwide standard
Transparency and accountability	High: formalised reporting, oversight and democratic checks	Medium to low: depends on the agency or association
Adaptability	Slower, due to legal harmonisation, but predictable	Higher flexibility, but at the cost of regulatory uncertainty

Conclusions

In the face of rapidly advancing financial technologies, states are increasingly finding it difficult to keep pace with the development of blockchain technologies and their associated applications, such as ICOs. The regulatory framework for blockchain remains in its infancy in many jurisdictions, leaving key challenges such as scalability, security and mass adoption unresolved. Furthermore, the uncertainty surrounding regulation often leads to hesitation among businesses, delaying investment decisions and stifling innovation.

This fluctuating regulatory environment has produced a range of divergent approaches across jurisdictions, notably between the EU and the US, each adopting distinct strategies towards regulating blockchain technologies. In some jurisdictions, such as in the US, policy approaches have been reactive and fragmented, relying on *ad hoc* enforcement by agencies such as the SEC, CFTC and FinCEN, which have provided conflicting guidance on ICOs and cryptocurrency regulation. This lack of a unified federal regulatory framework has resulted in considerable uncertainty, leading businesses to struggle with inconsistent legal interpretations and an absence of clarity regarding long-term regulation. In contrast, the EU has pursued a more coordinated and institutionalised regulatory approach, integrating blockchain technology into a broader legal framework through the creation of structures such as the European Blockchain Observatory and Forum and the EBP. These initiatives seek to create a harmonised, cohesive regulatory environment for blockchain technologies across EU member states, fostering innovation while ensuring compliance with EU law.

The differences between these two jurisdictions are significant, with the EU taking a proactive stance in addressing the regulatory challenges of blockchain through the MiCA Regulation and initiatives such as the EBSI. The EU's approach emphasises coordination, clarity and a forward-looking regulatory stance, positioning itself as a global leader in blockchain regulation. In contrast, the US's fragmented approach, characterised by a reliance on enforcement-driven measures, lacks the clarity and predictability needed for businesses to make informed decisions about investments in blockchain and ICOs. The absence of comprehensive federal legislation has resulted in businesses navigating a patchwork of state-level regulations and federal guidance, creating a less stable regulatory environment.

This regulatory fragmentation in the US contrasts sharply with the EU's coordinated efforts, which seek to avoid regulatory arbitrage and provide a unified framework that minimises fragmentation within the EU Single Market. However, it is also important to recognise that while the EU's approach offers greater clarity and institutional support, it can be seen as more rigid and less flexible compared with the more dynamic and reactive US approach, which, despite its fragmentation, allows for more rapid adaptation to changing technological trends. Both approaches reflect different cultural and legal traditions in dealing with emerging technologies, with the EU favouring structured regulation and the US emphasising innovation with less regulatory intervention.

Nevertheless, the analysis suggests that neither the EU's regulatory coordination nor the US's reactive enforcement-driven model offers a complete solution to the challenges posed by blockchain technologies. While sandboxes, innovation hubs, self-regulation and co-regulation have proven useful in fostering experimentation and providing regulatory flexibility, they cannot be seen as a comprehensive solution to the legal complexities of blockchain technology. Instead, these tools should be viewed as complementary mechanisms in the process of developing a more structured and coherent legal framework for blockchain's future development (Ross, Buckley, Arner, Veidt, & Zetzsche, 2020).

Given these considerations, it is essential that regulatory approaches account for the specific technical characteristics of blockchain technologies. By doing so, they can provide clear guidance for the development of blockchain regulations while simultaneously stimulating ongoing discussions about the relationship between law and technological innovation. Such efforts will not only help shape the regulatory landscape for blockchain but also ensure that broader legal principles, such as investor protection and consumer rights, are preserved. In this regard, nation states, especially in the EU, remain central in any international governance or regulatory framework (Hirst & Thompson, 1995).

Incorporating best practices into regulatory frameworks can help regulators recognise how the technical capabilities of blockchain, such as immutability, transparency and decentralisation, can support innovative fundraising methods while safeguarding investor interests. These technological guarantees provide opportunities for converting existing regulatory requirements into technological solutions, effectively ensuring compliance through automated checks and balances. This approach could foster broader harmonisation of blockchain-related regulation, achieved through the adoption of these practices and their formal integration into laws and regulations (Collomb, De Filippi, & Sok, 2019).

In conclusion, while alternative regulatory approaches, such as regulatory sandboxes, innovation hubs, self-regulation and co-regulation, offer flexibility and responsiveness in the face of technological change, they must be located within well-structured legal frameworks to be truly effective. As discussed in Section 1.1, the EU's pan-European sandbox, which selects 20 projects annually from across member states, exemplifies how harmonised experimentation can reduce legal uncertainty while encouraging cross-border innovation. By contrast, the US model remains fragmented, with states such as Arizona implementing independent sandbox regimes that lack federal coordination, underscoring the risks of regulatory inconsistency and the urgent need for national and international alignment.

Moreover, as explored in the section on co- and self-regulation, Japan's recognition of the JVCEA as a self-regulatory organisation illustrates a pragmatic balance between industry expertise and public oversight – an approach not yet fully realised in the US, where industry-led initiatives often operate without formal accountability. The EU's MiCA framework also demonstrates a forward-looking commitment to legal certainty by establishing clear rules for token issuance, custody and market integrity – elements that remain inconsistently addressed in US law. Moving forwards, global coordination through multijurisdictional sandboxes, shared regulatory principles and hybrid governance models would appear to be essential for supporting responsible innovation while protecting market stability and consumer interests.

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