

Blockchain-Based Governance of Financial Markets

Examining the SEC's Approach to Building Trust in Centralized and Decentralized Crypto Exchanges

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Abstract *Crypto assets have emerged as a driving force in the modern financial economy. Contrary to their original conception as a means of payment, they are now predominantly held as investment instruments by retail investors worldwide. This growing market is fueled by decentralized platforms that enable the exchange of crypto assets. This development raises fundamental questions about the standards these platforms must meet to be considered trustworthy and how retail investors can evaluate that trustworthiness. Regulatory frameworks play a central role in addressing these challenges. This article analyzes the approach taken by the U.S. Securities and Exchange Commission under Chair Gary Gensler toward the regulation of decentralized exchanges. It concludes by offering regulatory guidelines aimed at shaping the ongoing legislative discussions in both chambers of the U.S. Congress on how to make decentralized exchanges more trustworthy.*

Over the past decade, the market for crypto assets has experienced exponential growth. As of 2024, the global market capitalization of crypto assets fluctuated around \$3 trillion, up from a few billion dollars in the early 2010s (Westbrook 2024). This development is not only driven by speculative interest but also by the emergence of a liquid and increasingly complex secondary market for crypto assets. At the center of this market stand crypto exchanges, which serve as both cornerstones and gatekeepers of the infrastructure that enables the exchange of digital assets.

However, the crypto exchange landscape has been riddled with scandals, collapses, and misappropriations. The downfall of the crypto exchange FTX serving as a particularly stark example (Huang, Osipovich and Kowsmann 2022). These developments have brought to the fore a fundamental question: When can crypto issuers and crypto investors trust the systems that facilitate the issuance and trading of crypto assets?

The legal environment, defined not merely by formal rules but also by the credibility and consistency of their enforcement, is critical in fostering such trust. A ro-

bust regulatory framework mitigates risks of expropriation, fraud, and manipulation by issuers, thereby increasing investor willingness to commit capital (La Porta et al. 1997). In the secondary market, regulatory oversight of crypto exchanges can enhance transparency, integrity, and investor protection—key elements of a trustworthy infrastructure for financial marketplaces. As such, regulation has the potential to foster trust in systems that underpin digital asset markets.

Yet, regulation is not an end in itself. Trust-enhancing regulation must serve broader public interest goals. A trustworthy digital financial system must not only be normatively desirable in terms of outcomes (e.g. investor protection and capital formation), but also understandable and controllable. The normative orientation of financial regulation is thus twofold: It must promote the formation of capital and protect investors, while also ensuring that systems can be understood and evaluated.

This paper examines how the U.S. Securities and Exchange Commission (SEC) seeks to build the outlined elements of trust in the secondary markets for crypto assets. The SEC's approach has been described as “regulation by enforcement” and is characterized by applying existing regulatory frameworks to both centralized and decentralized exchanges (Kazimirov 2024).

To this end, former SEC Chair Gary Gensler had repeatedly urged digital asset exchanges to “come in and register” (Lutz 2022). These statements sent shockwaves through the crypto industry. However, they did not have the desired effect – digital asset exchanges did not register as national securities exchanges under the Securities Exchange Act of 1934. In response, the SEC pursued aggressive enforcement actions, notably against Coinbase Global, Inc. (Coinbase), one of the largest centralized exchanges in the U.S. The agency accused Coinbase of operating an unregistered securities exchange (SEC 2023). Coinbase had gone public with SEC approval just two years prior (Coinbase 2021b).

The SEC also targeted decentralized exchanges (DEXs). It proposed an amendment to the definition of “securities exchange” under the 1934 Act, seemingly aimed at encompassing decentralized trading platforms (88 Fed. Reg. 29,448, May 5, 2023). Further, the SEC issued a Wells notice to the developers of the Uniswap protocol, signaling potential violations of securities laws (Adams 2024).

The SEC's actions suggest it operates under two key premises: (1) both centralized and decentralized crypto exchanges qualify as securities exchanges under the 1934 Act, and (2) compliance with the existing regulatory framework for traditional exchanges is feasible and desirable for crypto exchanges, because it contributes to the trustworthiness of the system. This paper critically examines the second premise.

Establishing a system as trustworthy requires, first and foremost, an understanding of how that system functions. Accordingly, the first part of this paper provides a functional overview of how assets are traded in both traditional financial

markets and crypto-asset markets, using Coinbase – a centralized exchange – and Uniswap – a decentralized exchange – as case studies (A). A closer look at both forms of crypto exchanges reveals that the systems used to facilitate the exchange of assets are far less opaque than commonly assumed. They draw on concepts already employed in traditional financial markets.

Based on these observations, we outline focus points of the regulatory framework applicable to traditional exchanges and assess its compatibility with centralized and decentralized crypto exchanges. We argue that compliance with the current regulatory scheme is neither feasible nor desirable for both types of crypto exchanges (B). Gensler's call for registration rings hollow. The SEC's current approach does little to enhance the trustworthiness of crypto market infrastructure, as the application of current regulations fails to realize the overarching policy objectives of capital formation and investor protection.

In Part C, we conclude by advocating for a tailored regulatory framework for crypto-asset markets. We propose a set of regulatory guardrails, designed to promote transparency, reliability, and investor trust, while aligning with broader public interest goals. These focus areas, we argue, are essential for rendering crypto asset exchanges more trustworthy.

1. Contrasting Traditional Markets for Equity Securities and Markets for Crypto Assets

1.1. Traditional Markets for Equity Securities

In the era when equity securities were primarily traded on the physical floors of stock exchanges, the process of purchasing equity securities typically followed a series of predefined steps. A retail investor wishing to acquire a security would initiate the transaction by engaging a broker-dealer – an intermediary with specialized knowledge of securities transactions. The broker-dealer, as a member of a securities exchange, would operate within the rules and regulations governing that exchange, which prescribed which securities could be traded and the procedures for matching buy and sell orders (Harris 2002: 34).

Upon receiving the investor's order, the broker-dealer would take it to the exchange, where it would be matched with a corresponding sell order from another broker-dealer representing a different investor. The details of the transaction would be reported to the exchange's associated clearinghouse. The clearinghouse would act as the counterparty to both sides of the transaction, absorbing the risk of default by the trading brokers (Armour et al. 2016: 16). The entire clearing process typically took several days to complete, after which the transaction would be considered fully settled and both brokers would report back to their respective clients.

This simplified explanation serves to highlight the numerous intermediaries involved in the traditional equity market, even for what might appear to be a straightforward exchange of stock for fiat currency. While the technology and infrastructure of modern markets have evolved significantly and trading is hardly conducted on physical trading floors, the fundamental roles of these intermediaries – broker-dealers, exchanges, and clearing agencies – have remained constant.

1.2. Decentralized and Centralized Exchanges for Crypto Assets

A central promise of applying blockchain technology to financial markets, is its potential to eliminate the outlined intermediaries by replacing them with automated computer code (Johnson 2023; Lee 2016). This is achieved through a set of code referred to as a smart contract, which execute specific actions when predefined conditions are met. The term has often puzzled lawyers but has nothing to do with contract law. Instead, the name alludes to the concept of a set of rules (akin to contractual provisions) being executed automatically – hence, “smart.” Often compared to vending machines, smart contracts automatically process transactions based on user inputs, triggering a predetermined outcome (Shahin 2025).

Applied to financial markets, smart contracts can facilitate direct asset exchanges. For example, a user looking to swap asset X for asset Y interacts with a smart contract, which verifies whether the transaction can be executed according to its predetermined rules for facilitating asset exchanges. If the conditions are met, the contract completes the exchange without taking custody of the assets, effectively removing the need for a broker-dealer, centralized exchange, or clearinghouse. The benefits of replacing intermediaries with code are apparent. Smart contracts reduce the risk of mismanagement, conflict of interest, or unauthorized trade execution, since smart contracts operate based on transparent, pre-defined rules. Additionally, eliminating intermediaries has the potential to lower transaction costs for users and speed up the timeline of the transaction (Lee 2016).

The potential of blockchain technology for transforming financial marketplaces has garnered significant attention. However, to date, blockchain technology is scarcely used in markets trading traditional equity securities. Instead, blockchain-based trading systems are more commonly applied to trading blockchain-based assets.

Blockchain-based assets are traded on both centralized and decentralized exchanges, both of which have faced regulatory scrutiny. This section of the paper examines how these platforms facilitate the exchange of crypto assets and how their methods differ from those used in traditional financial markets. It is on this basis that the compatibility of regulatory requirements for traditional financial markets can be assessed for blockchain-powered markets.

1.2.1. Centralized Crypto Exchanges: Coinbase

Coinbase facilitates the exchange of crypto assets through a centralized process. Customers create an account on the platform and deposit either fiat currency or crypto assets. To place a buy order, they must have sufficient funds to cover the transaction value plus any fees, while a sell order requires that the corresponding crypto assets be available in their account. This structure means that Coinbase takes custody of its customers' assets (Coinbase n.d.-c).

Trades on Coinbase occur through an order book system, where buy and sell orders are matched using an automated matching engine. Customers submit their orders without knowing the identity of their counterparties. The matching engine operates on a price-time priority rule, categorizing orders as either maker or taker. A maker order is a limit order that cannot be immediately matched and remains in the order book, contributing to market liquidity. A taker order, by contrast, is a marketable order that can immediately be paired with an existing maker order at the best available price. If a taker order is only partially filled, it continues matching with subsequent maker orders until it is fully executed, or no further matches are available (Coinbase n.d.-b). Coinbase incentivizes customers to provide liquidity to the market, by rewarding customers that post orders that later become maker orders (Coinbase n.d.-a).

Once a trade is executed, settlement occurs automatically through debits and credits to customer accounts. However, ownership changes are recorded solely on Coinbase's internal ledger, rather than on the blockchain. Transactions are processed off-chain, meaning no updates are made to the blockchain associated with the traded asset (SEC v. Coinbase, No. 23-cv-06438, S.D.N.Y. 2023).

This centralized model diverges significantly from the framework envisioned by blockchain technology and smart contracts. Aside from the crypto assets being traded, blockchain technology itself plays little role in Coinbase's operations. Rather than eliminating intermediaries, Coinbase consolidates their functions into a single entity, effectively acting as a broker-dealer, exchange, and clearinghouse. The centralized model effectively creates a single point of failure and does not leverage the advantages of blockchain technology and smart contracts.

1.2.2. Decentralized Exchanges: Uniswap

The Uniswap protocol facilitates the exchange of crypto assets native to the Ethereum blockchain. It allows users to swap a predefined set of tokens against each other. It employs automated market maker technology to facilitate the trading of digital assets. Instead of matching buy and sell orders submitted by users, automated market maker technology facilitates the creation of pools of crypto assets. These liquidity pools are smart contracts that hold balances of two unique tokens and enforce rules around depositing and withdrawing them.

The exchange rate within a liquidity pool is adjusted based on the ratio of tokens in the pool. The protocol follows a mathematical pricing formula that ensures that the product of token reserves remains constant (Uniswap 2021). As traders swap one token for another, the relative supply shifts, causing the price to adjust. If a token becomes scarce in the pool, its price increases relative to the other token. A highly liquid pool experiences less price impact from individual trades than a less liquid pool (*ibid.*).

Users that provided liquidity to the pool, do not withdraw the exact tokens they initially deposited. Instead, they receive a proportional share of the pool's total assets at the time of withdrawal. This exposes them to a phenomenon described as impermanent loss, which occurs when the relative price of the two tokens changes, after they have deposited liquidity. Because the protocol automatically rebalances token holdings, liquidity providers may end up with a greater proportion of the asset that has decreased in value. This loss is only realized if they withdraw at a point where the price divergence still exists, making it impermanent (Gemini n.d.-a).

The protocol does not take custody of the assets that swappers use (Lin 2019). To persist with our vending machine analogy, initiating a swap via Uniswap is like inserting a dollar bill into a vending machine and selecting a product. The machine will only accept the bill if it can dispense the requested product.

In theory, anyone with the technical knowledge can interact with the protocol – no intermediary is needed. However, most users do not have the required technical expertise. Instead, they access the protocol via applications that offer a more intuitive user experience. Uniswap developers offer an application that allows users to interact with the deployed protocol.

Effectively, the outlined process replaces the intermediaries in traditional financial markets with a set of fixed rules implemented through computer code. However, in most cases, an intermediary remains involved in the form of the application used to access the protocol.

2. The Regulatory Challenges of Traditional Frameworks in the Context of Crypto Assets

We examine the regulatory framework applicable to traditional securities exchanges and argue that the regime introduced by the 1934 Act is fundamentally based on intermediation, making it conceptually incompatible with decentralized exchanges and decentralized assets (I.).

We then broaden our examination to include centralized exchanges and argue that, while their structure may seem more compatible with existing regulations, the nature of the assets traded poses significant challenges. As a result, compliance with various regulatory provisions is either infeasible for both types of crypto exchanges

or undesirable, as it would fail to achieve the overarching policy objectives and therefore not contribute to the trustworthiness of the system (II.). We believe our findings underscore the need for new regulation that considers the decentralized nature of crypto assets.

2.1. The Regulatory Mismatch Between Traditional Exchanges and Decentralized Exchanges

The regulatory framework governing securities exchanges is deeply rooted in the structure of equity markets, as they existed at the time of the 1934 Act. The Act was designed for a marketplace composed of broker-dealers, issuers, and exchanges. Every participant was envisioned as a centralized, tangible entity subject to a specific set of rules and regulations.

The 1934 Act envisions exchanges as mutual or cooperative entities composed of members who transact in securities. Early exchanges were established by stockbrokers seeking a dedicated marketplace – not to attract outside traders, but to facilitate transactions among themselves (Soderquist and Gabaldon 2014: 112). The New York Stock Exchange (NYSE), for instance, initially operated out of a rented room at 40 Wall Street, where brokers convened twice daily to trade a limited list of 30 stocks and bonds (NYSE 2025). Under this traditional model, brokers simultaneously served as the primary customers, owners, and managers of the exchange (Fleckner 2006). Reflecting this framework, the 1934 Act defines stock exchanges as organizations composed exclusively of broker-dealer members. Section 6(c) of the Act stipulates that only registered broker-dealers may be admitted as exchange members. This envisioned close connection between exchanges and their members is further reinforced by Section 6(b)(1), which obligates exchanges to enforce compliance with the 1934 Act and all related regulations by its members.

Similarly, the act presupposes a centralized product, issued by an identifiable issuer. Section 12(a) of the 1934 Act prohibits transactions on an exchange in a security that is not registered with the SEC. The registration process, outlined in Section 12(b), requires issuers to provide substantial information about both the issuer and the security to be traded. Additionally, Section 13(a) mandates that issuers of registered securities submit ongoing disclosures, including annual reports (Form 10-K), quarterly reports (Form 10-Q), and current reports (Form 8-K) for material events. The Act thus assumes a centralized product listed on an exchange, with a clear issuer responsible for ongoing regulatory compliance.

This structure makes sense within traditional markets, where intermediaries serve as essential gatekeepers subject to their own regulatory obligations. Crypto markets, however, operate under an entirely different paradigm. Traditional broker-dealers are largely absent, replaced instead by retail investors transacting directly on

exchanges. Similarly, the role of the issuer – central to traditional securities markets – is often filled by decentralized protocols with no identifiable controlling entity.

As outlined, the 1934 Act presupposes the existence of intermediaries, making its application to decentralized exchanges and crypto assets conceptually problematic. A crypto exchange that becomes a registered exchange under the 1934 Act would have no assets to trade, given the fact that hardly any crypto assets are registered with the SEC (Committee on Capital Markets Regulation 2023). Crypto exchanges will be hard-pressed to locate Satoshi Nakamoto and require ongoing disclosures about Bitcoin. The outlined membership limitation for broker-dealers on exchanges presents a similar problem. Broker-dealers are required to register with the SEC under Section 15(a) of the 1934 Act. The SEC's rules impose specific requirements on broker-dealers operating in the cryptocurrency space, including the restriction that they can only engage in business activities related to registered crypto assets (SEC 2021). This means that broker-dealers are prohibited from handling unregistered crypto assets, which could include commodities like Bitcoin. This makes operating as a broker-dealer unattractive, especially given the uncertain regulatory classification of crypto assets as securities. When the foundational elements of intermediation are missing, the traditional regulatory framework struggles to adapt. The 1934 Act was built for a world of intermediation, whereas crypto markets are premised on disintermediation (Coinbase 2021a).

This regulatory disconnect is evident in the SEC's enforcement actions. The SEC seems to allege that Uniswap simultaneously operates as an unregistered broker-dealer, exchange, and clearing agency (Uniswap 2024). However, this approach fails to acknowledge that decentralized exchanges do not merely assume the roles of traditional intermediaries. Rather than acting as direct substitutes for broker-dealers or clearinghouses, decentralized exchanges facilitate transactions in a manner that often eliminates the need for such intermediaries altogether. In a world where trades are settled automatically by computer code, it makes little sense to require crypto exchanges to register as clearing houses and follow the regulatory regime imposed on them. The definition of a clearing house under the 1934 Act is provided in Section 3(a)(23) and appears broad enough to encompass instantaneous settlement. The SEC's approach – imposing legacy regulations designed for a fundamentally different market structure – raises serious concerns. Forcing the remaining intermediaries to comply with all regulatory obligations previously assigned to multiple intermediaries, is neither feasible nor effective.

2.2. Crypto Assets and the Infeasibility of Full Regulatory Compliance

SEC and congressional regulation have profoundly shaped the current market structure for equity securities. We seek to highlight the fundamental conceptual differences between traditional financial markets and crypto asset markets by demon-

strating that many of the policy objectives underlying existing rules and regulations and implemented to foster trust in financial markets cannot be effectively achieved when applied to decentralized and centralized crypto exchanges.

For instance, the rules established under Regulation National Market System (NMS), designed to create a consolidated market for securities and ensure investors execute trades at the best possible price, are ill-suited for crypto markets (2.2.1). Similarly, SEC requirements aimed at preventing fraudulent and manipulative practices, as mandated by Section 6(b)(5) of the 1934 Act, cannot be reasonably applied to markets for crypto assets (2.2.2).

2.2.1. The National Market Place for Equity Securities

Traditionally, exchanges competed for the listing of securities, but are not for trading in the same stock. A stock would only trade on the exchange it was listed on. The NYSE and National Association of Securities Dealers Automated Quotations (NASDAQ) held a near monopoly in the trading of stocks they listed (Coffee, Sale and Whitehead 2020: 654). This has changed. Regulatory intervention has led to the development of a national marketplace for equity securities listed on national securities exchanges. The emergence of this market structure can be traced back to the addition of Section 11A to the 1934 Act which gave the SEC the task of facilitating the creation of a national market system (detailed examination in Fox et al. 2018). The SEC has implemented various measures to develop the marketplace envisioned by Section 11A. Today, the national market system operates primarily under Regulation NMS and the Unlisted Trading Privileges Act.

Section 12(a) of the 1934 Act prohibits brokers and dealers from executing transactions in any security on an exchange, unless that security is registered on that specific exchange. In principle, this means a stock can only be traded on the exchange it is listed on (Beny 2002). However, Section 12(f) initially empowered the SEC to grant unlisted trading privileges for a stock listed on another registered exchange. The Unlisted Trading Privileges Act of 1994 amended Section 12(f), broadly permitting exchanges to trade stocks listed on different registered exchanges without requiring SEC approval.

The fact that a stock can trade on different exchanges, can lead to a fragmentation of the market for the individual stock. Different exchanges operating independently from each other, can offer different prices and liquidity dispersions for the same security. Congress aimed to consolidate the market by adding Section 11A to the 1934 Act. Section 11(a)(1)(C) of the 1934 Act emphasizes the public interest in ensuring fair competition among exchange, investor access to securities quotations and transaction data, and the ability of brokers to execute orders in the best available market. Essentially, this provision suggests that a broker handling a customer's buy or sell order, should have visibility into price quotations across all markets where the stock is traded and route the order to the venue offering the best price.

Under SEC Rule 602(a), exchanges must collect and process data on the best bid, best offer, and aggregate quotation size for each security traded on their platforms. Rule 603(b) then requires exchanges to collaborate under a national market system plan to consolidate this information across all exchanges. The data collected on the individual exchanges is consolidated by a Securities Information Processor (SIP) in accordance with Rule 603(b)(3). The SIP then disseminates this data to market participants. The highest and lowest offer disseminated by the SIP are known as the National Best Bid (NBB) and National Best Offer (NBO), collectively referred to as the National Best Bid and Offer (NBBO) under Rule 600(b)(60). To ensure access to a complete view of the market when trading decisions are made, Rule 603(c)(1) prohibits SIPs from providing a display of information on quotations, without also providing a consolidated display of information.

Under the Order Protection Rule (Rule 611), introduced in 2005, exchanges must ensure that trades are not executed below the NBBO at the time an order is submitted. This rule is commonly referred to as the “trade-through” rule because it aims to prevent transactions from being executed at a price worse than the NBBO – in other words, from ignoring or “trading through” the bid designated as the NBBO.

Effectively, the rules promulgated under Section 11A of the 1934 Act have transformed the US market for listed equity securities into one consolidated limit order book (Coffee, Sale and Whitehead 2020: 662).

The application of Regulation NMS to crypto exchanges presents challenges. It remains unclear whether exchanges would be required to aggregate and disseminate data on quotes and transactions for crypto assets traded on their platforms, treating them as NMS securities under Regulation NMS. Likewise, it is uncertain whether they would need to generate an NBBO and implement trade-through protections under Rule 611. From a policy standpoint, these requirements are designed for a consolidated market – something that does not exist for crypto assets. Given the low barriers to entry, the global nature of crypto trading, and its 24/7 operation, the creation of a consolidated market as envisioned by Section 11A of the 1934 Act for digital assets seems impossible. However, without a consolidated market, forcing the few registered national crypto exchanges to consolidate and disseminate their quotes would fail to provide investors with the desired comprehensive view of crypto asset prices and order execution at the best available price. Instead, it would impose excessive compliance costs on these exchanges and stifle innovation. Moreover, it would place U.S.-based crypto exchanges at a competitive disadvantage compared to offshore platforms that are not subject to similar regulatory burdens, potentially driving market activity abroad and weakening domestic oversight.

2.2.2. Prevention of Fraudulent or Manipulative Practices

Section 6(b)(5) of the 1934 Act mandates that the rules of a national securities exchange must be designed to prevent fraudulent and manipulative acts and practices,

promote just and equitable principles of trade, and protect investors and the public interest. The SEC has interpreted this provision to require exchanges to refrain from listing assets if there are significant concerns about potential fraudulent or manipulative practices in the market for those assets. Exchanges are responsible for implementing effective measures to detect and prevent manipulation (an overview of the SEC's line of argument can be found in Dombalagian 2024). For assets traded across multiple markets, these measures are typically enforced through surveillance-sharing agreements (SEC 2018). In the case of Bitcoin Exchange-Traded Products (ETF), the SEC had previously denied applications due to concerns about market manipulation and the lack of a comprehensive surveillance-sharing agreement with the major markets trading the underlying Bitcoin assets. The SEC has emphasized that, to comply with Section 6(b)(5), exchanges must demonstrate the ability to prevent fraudulent and manipulative practices. It argued that for Bitcoin such compliance would be impossible, due to its global, decentralized, and largely unregulated market structure. The SEC eventually approved spot bitcoin exchange-traded products, but only after a court vacated the SEC's denial of an application by Grayscale Investments, LLC, to convert its Bitcoin Trust into a Bitcoin ETF (SEC 2024).

Again, the application of Section 6(b)(5) to marketplaces for crypto assets presents significant challenges due to the fundamentally different market structure of digital assets compared to traditional securities. Most crypto assets trade in a fragmented, global, and largely unregulated environment. A regulated U.S. exchange listing a digital asset security that is also actively traded on unregulated platforms would lack comprehensive oversight of the full market activity for that asset. Without such oversight, the exchange would be unable to effectively detect and prevent manipulation, as required by Section 6(b)(5) of the 1934 Act. Given these structural differences, even if U.S. exchanges were prohibited from listing a particular digital asset security, that asset could still be widely traded on unregulated platforms. This undermines the SEC's ability to enforce fair and orderly market conditions, making strict compliance with Section 6(b)(5) impractical for crypto exchanges. The traditional regulatory framework assumes a level of control over trading venues that simply does not exist in crypto markets.

3. Regulatory Guardrails for Centralized and Decentralized Exchanges

This paper is not intended as an indictment of the SEC's crypto policy. We recognize that the agency's actions have been driven by a genuine effort to protect American investors and foster trust in crypto exchanges. Our criticism is instead directed at the legislative branch, which has long failed to establish a clear regulatory framework for the crypto industry. In the absence of congressional action, the SEC had little choice but to apply the existing regulatory system to crypto markets. However, U.S.

President Donald Trump has signaled a potential shift in this approach. Following Gary Gensler's resignation as SEC Chair, Trump appointed a successor more aligned with the crypto industry's interests, marking a departure from the prior administration's enforcement-heavy strategy (SEC 2025). As a result, the SEC has paused or dropped enforcement actions against major actors such as Coinbase and the developers of the Uniswap protocol. Looking ahead, President Trump has announced his intention to introduce legislation that would establish a clear, tailored regulatory framework for digital asset markets (Executive Order No. 14099, Jan. 23, 2025).

With this in mind, we aim to contribute to the ongoing discussion by proposing broad regulatory guardrails for both centralized and decentralized exchanges. Regulation that incorporates these guardrails is more likely to promote capital formation by enhancing legal certainty, while also strengthening investor protection. Tailored legislation that aligns with these overarching policy goals, can play a critical role in fostering the trustworthiness of crypto exchanges and the broader digital asset ecosystem.

First, crypto regulation in the U.S. should begin by resolving the ongoing debate over whether crypto assets are securities under the Howey Test. The Howey Test determines whether a transaction qualifies as an investment contract – and thus a security (Rosenberg 2020). Legislation should contain a technology-neutral definition of crypto assets and assign oversight of the entire crypto market to a single federal agency.

Second, the regulation of centralized exchanges must account for the fact that their business model fundamentally differs from that of traditional securities exchanges. Coinbase and other centralized crypto exchanges operate more like broker-dealer internalizers – they custody assets and manage a limit order book for their customers rather than merely facilitating trades between independent parties. Regulatory frameworks must reflect this distinction by prioritizing custody requirements and the safeguarding of customer funds. Centralized exchanges should be required to verify that they hold customer assets 1:1.

Third, sunlight is still the best disinfectant. The famous quote by U.S. Supreme Court Justice Louis Brandeis (Brandeis 1913), alluding to the value of disclosure as a regulatory instrument in securities markets, still holds true today. However, the current disclosure regime under the 1934 Act, focused on issuers providing disclosures, is ill-suited for crypto assets. Disclosure requirements for crypto assets need to be rethought. The decentralized and open-source nature of many crypto networks eliminates the traditional information asymmetry that underpins investing in corporate securities. For some crypto assets, disclosure may not be necessary at all. For others, where identifiable individuals or entities exert significant influence over the project, tailored disclosure obligations could be appropriate. In certain cases, exchanges themselves could be required to provide relevant disclosures about listed assets (Coinbase 2021).

Fourth, rather than attempting to restrict the development of decentralized exchanges, regulation should focus on the applications that enable investors to interact with these protocols (Jennings 2022).

Fifth, the liquidity of decentralized exchanges can facilitate the regulatory process. While decentralized protocols can be copied and redeployed to circumvent regulation, liquidity remains the defining competitive advantage. The securities market adage, “Liquidity begets liquidity,” applies to decentralized exchanges as well – established decentralized exchanges dominate because they offer deeper liquidity.

Sixth, developers who retain meaningful control over decentralized protocols, should be subject to regulatory oversight. The 2020 Uniswap-SushiSwap episode highlights that protocol developers often retain more control over deployed protocols than expected. SushiSwap, a copied version of the Uniswap protocol, attempted to lure away Uniswap’s liquidity by offering more attractive incentives to liquidity providers. In response, Uniswap implemented a reward system, distributing it strategically to liquidity providers and users (Gemini n.d.-b). This successful defense demonstrated that protocol developers can – in certain cases – influence protocols even after deployment.

Seventh, regulators should keep in mind that even when developers relinquish control over decentralized protocols, alternative avenues for fostering trust via regulation remain available. Decentralized exchanges often issue governance tokens, which enable network participants to take part in protocol decisions, for example, by allowing token holders to vote on proposed changes such as transaction fees or protocol upgrades. From a regulatory perspective seeking to build trust by focusing on identifying clearly accountable actors, this may seem counterproductive. The approach strengthens participatory structures, but also means that developers no longer retain meaningful control. This potentially removes them as the primary targets of regulatory accountability. However, governance tokens offer an alternative model for building trust – one grounded in the capability approach (cf. Kaminski, Düwell and Richter 2024). By distributing governance rights to token holders, the system enhances option values (by providing users with concrete means to influence the protocol) and legacy values (by enabling influence over the protocol’s long-term development). Governance tokens thus reflect a shift in responsibility in decentralized systems from a centralized authority to the structured distribution of agency to all users. This in itself may serve as an alternative focal point for regulatory engagement.

Finally, the federal supervisory agency should be responsible for establishing auditing standards for decentralized protocols. Decentralized exchanges could be evaluated based on security and other key factors, similar to how credit ratings are assigned in traditional financial regulation (Armour et al. 2016: 127). The agency should assess and grade protocols that reach certain thresholds indicating widespread use by the American public. Applications enabling users to interact with these protocols

should be required to display the assigned ratings, ensuring that users are informed of the protocol's security and reliability before engaging with it.

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