US Securities Regulation and Decentralized Exchanges

米国の証券規制と分散型取引所

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Abstract

Decentralized exchanges are blockchain based digital finance platforms that allow for automated peer to peer trades of digital currencies without the presence of a central trade clearing entity. As of August 2021, the decentralized exchange market grew to about $1 trillion USD[1]. A financial market of such scale requires a regulatory framework that safeguards consumer interests and manages underlying systemic risks. The U.S. Securities Exchange Commission (SEC) has been on the forefront of designing regulations for the digital crypto landscape. This paper looks at the U.S. SEC approach to regulating U.S. based decentralized exchanges and digital finance products. Specifically, the paper applies qualitative analysis to assess the U.S. SEC regulatory approach to Uniswap Labs, the company that developed Uniswap, the biggest decentralized exchange in the world. The paper concludes that U.S. SEC consideration of Securities Exchange Act regulations may have long term implications for U.S. based decentralized exchanges. Since U.S. trade laws have significant influence on international trade, the U.S. SEC approach may also have significant implications for the global decentralized digital finance community.

***Key Words*:** Decentralized Exchanges (DEX), U.S. Securities Regulation, Uniswap.

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[1] https://coinmarketcap.com/rankings/exchanges/dex/

1. Introduction:

Since the advent of Bitcoin and digital ledger technology (blockchain) in 2008, decentralized digital finance (DeFi) has steadily gained prominence. Decentralized exchanges (DEX) are a recent innovation in this space.

Earlier forms of financial technology (fintech) include digital currencies based on cryptographic codes (cryptocurrencies) such as Bitcoin and Ethereum (Nakamoto, 2008; Buterin, 2014). With increased public and private sector interest in digital ledger technology over the last decade, DeFi products have flourished. 2016 witnessed crypto innovations, including several new digital cryptocurrencies (altcoins) offered through funding requests and initial 'coin' offerings (ICOs). With new digital cryptocurrencies emerging in the crypto market, several digital crypto exchanges have developed. While majority offer cryptocurrency exchanges in a centralized form (centralized exchanges; e.g. Korbit[2]), others offer cryptocurrency exchanges in a decentralized manner (decentralized exchanges; e.g. Bisq[3]). With an increased interest from retail and institutional investors in digital crypto markets, traditional financial institutions have also engaged in DeFi. For instance, Chicago Board of Exchange (CBoE) and Chicago Mercantile Exchange (CME) offer Bitcoin futures contracts on their respective platforms[4] [5]. DeFi market has also steadily grown in size. As of August 2021, market for digital crypto assets is worth approximately $1.6 trillion USD[6]. A financial market of such scale requires a regulatory framework that safeguards consumer interests and manages market risk.

Governments have taken varied regulatory approach to cryptocurrencies and crypto markets[7]. As older forms of DeFi products such as Bitcoin first emerged in the U.S., financial regulatory oversight bodies such as U.S. Securities Exchange Commission (U.S. SEC) have been on the forefront of creating a regulatory framework for cryptocurrency markets. U.S. SEC treats digital assets as a security. Since 2013, the U.S. SEC has been active in regulating U.S. based DeFi markets for fraudulent behavior, misrepresentation, unregistered sales of securities and theft[8]. As DeFi markets and DEX further innovate, it is important for regulatory bodies to promote innovation while balancing consumer protection and regulatory requirements.

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[2] Korbit. Source: https://exchange.korbit.co.kr/terms/terms-and-conditions/

[3] Bisq Network. Source: https://bisq.network

[4] CBOE Filing for Bitcoin Futures Exchange. Source: https://cdn.cboe.com/resources/regulation/rule_filings/approved/2017/SR-CFE-2017-020.pdf

[5] CME Bitcoin Futures. Source: https://www.cmegroup.com/markets/cryptocurrencies/bitcoin/bitcoin.html#

[6] US SEC Chair, Gary Gensler. Source: https://www.sec.gov/news/public-statement/gensler-aspen-security-forum-2021-08-03

[7] U.S. Library of Congress: Regulation of Cryptocurreny around the world. Source: https://blogs.loc.gov/law/2018/07/our-new-reports-on-regulation-of-cryptocurrency-around-the-world/

[8] U.S. SEC Cyber Enforcement Actions. Digital Assets and Initial Coin Offerings. Source: https://www.sec.gov/spotlight/cybersecurity-enforcement-actions

2. Decentralized Exchange (DEX)

Decentralized exchange (DEX) is a blockchain based digital platform wherein digital cryptocurrencies are exchanged between users on a one-on-one bases in an automated manner without the presence of a central custodial entity. Transactions on DEX are conducted on blockchains like Ethereum through 'smart contracts'.[9] Transaction trade and settlement on DEX is automated. When embedded trade conditions in the algorithm are met, transactions self-execute with relevant currencies exchanged automatically to transacting users. Unlike traditional exchange trades, there are no open orders i.e. a transaction only happens if the underlying conditions are met. DEX transactions are validated by decentralized exchange community users (miners) that are paid a transaction fee ('gas fee') in the form of redeemable tokens. Unlike traditional exchanges, DEX does not provide custody services to its users. DEX members have individual digital software or hardware wallets that store their digital currencies. These wallets can be connected to the DEX smart contract algorithm through users' private keys whenever users wish to exchange currencies or provide liquidity for crypto exchange transactions. While some DEX provide trade price matching services, others (Automated Market Makers (AMM)) like Uniswap[10] simply make information on price orders available to its users, and members transact if and when they choose to. AMMs like Uniswap are deemed lucrative by its users as they offer the opportunity to gain passive tokens[11] by making available their digital currencies in 'Liquidity pools'. Liquidity pools on DEX have become popular in the last two years as they allow for reduction in transaction validation fee (mining fee) on the main cryptocurrency blockchain (like Ethereum) by simply bringing together buyers and sellers of underlying digital cryptocurrencies in liquidity pools. AMMs like Uniswap do not have a central governing body; instead, governing decisions are conducted through token votes used by network users. Thus, AMMs like Uniswap have become increasingly popular over the last two years due to opportunities for lower transaction fees and passive income through liquidity pools.

3. Uniswap decentralized exchange and Uniswap Labs LLC.

The term Uniswap encapsulates many decentralized actors. While Uniswap is a decentralized autonomous protocol that provides coin and token exchanges (decentralized exchange), it was founded and launched by Uniswap Labs LLC, a New York based company that built the protocol. Uniswap's current organization is strongly influenced by Uniswap Governance Forum, Uniswap DAO (decentralized organization), that consists of members that own Uniswap's governing token 'UNI', with an associated UNI treasury fund that can influence Uniswap's corporate structure and also allow UNI token holders that can allocate funds for activities that benefit

[9] Ethereum's solidity language-based ecosystem has allowed for the development of automated contracts, 'smart contracts' (Buterin, 2014), which in turn has laid the groundwork for decentralized protocols that allow automated digital token exchanges on decentralized exchanges.

[10] Uniswap V3 Core. Whitepaper. Source: https://uniswap.org/whitepaper-v3.pdf

[11] Token is a cryptocurrency or digital cryptographic block that represents an asset. In AMMs, tokens are AMM network tokens that can be redeemed for digital currencies used for exchange on the network like Bitcoin and Ethereum.

Uniswap. For example, a recent grant proposal for a $20 million USD DeFi Education Fund for Harvard Law's Blockchain and Fintech Initiative was voted and approved by majority of Uniswap's UNI token holders, in the Uniswap DAO Discord[12]. As of August 2021, Uniswap's market capitalization stands at over $10 billion USD[13]. To ensure investor protection and market systemic risks, SEC has approached Uniswap Labs in regards to potential implications from U.S. Securities Exchange Act of 1933, and anti-money laundering and know-your-customer (AML-KYC) regulations.

4. SEC treatment of Uniswap and Uniswap Labs LLC.

Regulating a decentralized AMM like Uniswap is complex. Under the U.S. Securities Exchange Act of 1933, exchanges are required to register their services and securities with SEC in order to help investors make informed decisions about purchase or sale of securities. An AMM DEX like Uniswap does not fit the description of a traditional exchange[14] as there is no central clearing body, and custodial services or trade matching function is not offered to users. Additionally, DEX transactions are automated and self-execute based on users' transaction conditions embedded in the DEX algorithm. Thus, there is no direct trade handling done by Uniswap. Moreover, it is unclear if UNI tokens can be deemed to be a security as Uniswap provides UNI tokens to users primarily for voting and governance purposes. Furthermore, unlike centralized organizations, various corporate functions in Uniswap are decentralized in a manner that makes it difficult to assign clear legal causation for a particular action under existing legal paradigms. Decentralized entities like Uniswap seem to consist of various community members, including autonomous members that participate in specific decisions or tasks and may one day cease to be part of that community; a part of the community may also simply cease to exist.

Still, from a legal perspective, Uniswap is more centralized because it was formed by a centralized company in 2018 with traditional venture funding for its launch. Thus, for the decentralized exchange, Uniswap, SEC has a clear legal point of contact, Uniswap Labs, in terms of who may be held responsible for the resulting actions on the decentralized exchange protocol. However, such clear legal responsibility may perhaps be more difficult to ascertain in the future as cryptoexchanges continue to move towards greater decentralization.

According to the SEC, it has the legal authority to regulate DeFi and thus DEX, because it considers most blockchain based cryptocurrencies and tokens to be a form of security[15]. While the SEC has historically declared that both Bitcoin and Ethereum are not securities, the same exception does not automatically extend

[12] https://www.theblockcrypto.com/post/111185/harvard-law-blockchain-initiative-uniswap-dao

[13] https://coinmarketcap.com/currencies/uniswap/

[14] US Securities Exchange Act of 1933. Section 3. Source: https://www.nyse.com/publicdocs/nyse/regulation/nyse/sea34.pdf

[15] https://www.sec.gov/files/dlt-framework.pdf

to other cryptocurrencies or tokens. The SEC believes that, depending on the individual circumstances, a particular coin or token may fall under the definition of a security and thus fall under its legal jurisdiction. For example, in his recent remarks before the Aspen Security Forum, the SEC chair, Gary Gensler, reiterated that the SEC views digital assets to be digitally scarce, speculative stores of value that lack sufficient investor protection. These assets are sold without a sufficiently thorough due diligence, which has resulted in misrepresentations and fraud. When these assets are promoted with the expectation that an asset owner may earn profits through the efforts of the "promotor or a third party", such transactions may establish an investment contract between the two parties and thus the resulting digital assets may be considered to be a security[16]. The SEC also has a strong incentive to view cryptocurrencies as securities, as their proliferation can significantly impact a country's national security, whether through money laundering, funding terrorism, drug trades, or ransomware attacks, and thus cause great harm to its U.S. investors. The SEC's Division of Enforcement's Cyber Unit thus specifically includes digital assets, initial coin offerings, and cryptocurrencies as an area of focus.[17] However, U.S. SEC's approach to ICO based blockchain assets as securities is not entirely without legal controversy. Although the SEC enjoys broad government support for its legal interpretations and civil actions against crypto actors, some U.S. state governments and federal agencies have taken a different or a less heavy handed approach to the industry. For example, the state of Wyoming has extended LLC (limited liability company) style legal protection to decentralized organizations, even when they may be entirely managed by autonomous smart contracts[18]. As the birthplace of the globally popular LLC regulations, Wyoming's entrepreneurial approach could perhaps one day replace the SEC's reactive approach to extend existing finance laws to decentralized and autonomous exchanges in DeFi.

5. Implications of SEC regulatory approach to global DeFi community

While digital assets and DeFi products are treated differently by various government bodies, U.S. SEC's regulatory approach to digital assets is not in conflict with other governments across the world. For example, in its recent case against the online crypto lending platform, Bitconnect, U.S. SEC successfully collaborated with the Cayman Islands Monetary Authority, the Hong Kong Securities and Futures Commission, the Monetary Authority of Singapore, the Ontario Securities Commission, the Romanian Financial Supervisory Authority, and the Thailand Securities and Exchange Commission[19]. One may predict that as the industry matures, governments across the world may react with closer collaborations to persecute crimes and regulate the DeFi industry.

[16] https://www.sec.gov/news/public-statement/gensler-aspen-security-forum-2021-08-03#_ftn6

[17] https://www.sec.gov/spotlight/cybersecurity

[18] https://www.wyoleg.gov/Legislation/2021/SF0038

[19] https://www.sec.gov/news/press-release/2021-172

SEC plays a pivotal role in regulating American trade and finance laws. In turn, international trade contracts, including investment contracts, are influenced by these regulations. As is noted above, recent SEC regulatory actions against Bitconnect underline the broad influence that these regulations may have on the global DeFi industry. SEC itself has realized that it requires greater legal authority to regulate increasingly decentralized entities. In his recently publicized letter to a United States Senator, SEC Chair, Gensler, requested "guardrails for crypto trading, lending, decentralizing finance (DeFi) platforms" and "additional authorities to prevent transactions, products, and platforms from falling between regulatory cracks"[20] Thus it seems likely that U.S. regulations may react to greater decentralization with greater legal jurisdictions to ensure enforcement of existing laws. International law experts have anticipated and analyzed various policy frameworks that may inform enforcement actions similar to SEC. For example, Benetta Capiello, International Law Research Fellow from La Statale, explains that "in a blockchain "legal" system, developers act as the legislators, miners as those exploiting judiciary power, while users act as the executive power. Each category has its own interests, sometimes conflicting with the other categories: developers are free to be, or not to be, interested in the development of a blockchain. They gain if the blockchain works properly and in an effective way but if this is not the case, they can just disregard it. Users have an interest in the increase in the value of the cryptoassets traded in the blockchain."[21] Thus, a regulatory framework is needed to safeguard investors' interests while promoting innovation amongst developers.

6. Conclusion

As blockchain communities continue to decentralize, it becomes important to understand the decision-making space within a blockchain community in order to assign legal responsibility for particular actions. As shown in the paper, regulatory frameworks are currently being developed to anticipate decision-making within such structures to allow for sustained enforcement in the future. In particular, U.S. securities regulation of DeFi under SEC has shown the need for clear legal frameworks and 'guardrails' that can keep pace with the fast technological changes like decentralized exchanges in the DeFi markets. Tony Lai, founder of the Blockchain Group, at the influential Stanford's Center of Legal Informatics, presents eight principles that may help regulate DeFi products effectively: "(1) balance public interest and stimulate innovation (2) regulatory stability (3) engage early (4) have regulatory conversations (5) polycentric co-regulation (6) experimentation (7) focus on use cases not the tech, and (8) engage in transnational conversations" (Lai, 2021). In particular, regulatory actions that allow for the blockchain community to contribute to standards and best practices in safe and innovative spaces (as seen in case of Wyoming) may allow governments to adapt to the fast technological

[20] https://www.warren.senate.gov/newsroom/press-releases/warren-releases-response-from-sec-chair-gensler-affirming-need-to-regulate-cryptocurrency-exchanges-and-protect-investors-and-our-financial-system

[21] Capiello, Benedetta. "Blockchain Based Organizations and the Governance of On-chain and Off-chain Rules: Towards Autonomous (Legal) Orders?". *Blockchain, Law and Governance*. p. 23.

changes in DeFi industry in a manner that maintains regulatory stability and public interest while fostering industry innovation.

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