2026: THE YEAR OF TOKENIZED STOCKS

TOKENIZATION MODELS, REGULATORY LANDSCAPE, AND BUSINESS OPPORTUNITIES

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2026

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FOREWORD

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The tokenization of stocks represents the next logical evolution of capital markets. For decades, global equity markets have relied on fragmented, closed ledgers and manual reconciliation across layers of intermediaries. Tokenization modernizes this foundation by introducing a unified, programmable ownership record that aligns with modern markets.

Securitization began as an experiment in applying blockchain technology to regulated financial assets. Over time, it has evolved into institutional-grade infrastructure, now used by some of the world's largest asset managers, exchanges, and financial institutions. What we are seeing today is a practical upgrade to market plumbing, similar to the transition from paper certificates to electronic trading.

Tokenized stocks enable markets to operate around direct, verifiable ownership rather than disconnected ledgers and entitlements. By reducing settlement times, limiting reconciliation risk and removing artificial constraints on when assets can move, tokenization improves efficiency without changing the nature of the equities. Shares remain shares, only the infrastructure around them changes.

For the first time, native tokenization allows regulated stocks to exist both within traditional brokerage systems and directly on public blockchain networks. Under this model, investors are not buying a proxy, derivative, or tracking instrument. They are holding the same legally recognized shares, with ownership recorded on the issuer's official register. This distinction is critical for maintaining investor protections while expanding access.

Not all tokenization models achieve this. Some approaches rely on synthetic structures, where a third party issues a token that references a stock, *without* the issuer's involvement. These products may offer price exposure, but they often strip away shareholder rights, introduce counterparty risk, and create fragmented markets where multiple tokens represent the same underlying asset. As regulators have made clear, simply wrapping a stock in a token does not make it compliant or equivalent to ownership.

Native tokenization is different. The issuer-led model is grounded in existing securities laws. In this model, the token is the share: legally issued by the company, governed by disclosure requirements, overseen by registered transfer agents, and traded through regulated venues. This preserves legal clarity while enabling peer-to-peer transfer, self-custody and automated compliance within the framework investors already trust.

Beyond ownership, tokenization modernizes the mechanics of capital markets themselves. Settlement can move from days to seconds, reducing counterparty and operational risk.

Compliance rules can be embedded directly into the asset, with eligibility, reporting, and restrictions enforced programmatically. Markets are no longer constrained by geography or trading hours, allowing capital to flow continuously.

Tokenization of all assets is already underway and will continue to transform finance. Leading asset issuers are recognizing the potential to expand their investor base and reduce friction across the entire stack. Regulators are developing frameworks that enable tokenization to thrive without compromising investor protection or integrity. We must hold ourselves and all market participants to the same rigorous standards of the SEC to protect investors and institutions alike.

Some of the largest financial institutions are bringing their expertise to tokenization as partners, welcoming the technological advancement rather than barring it. While many hurdles remain regarding regulatory alignment and implementation, the early success of tokenization has demonstrated both its necessity and practicality. With this in mind, we are at the very dawn of a new era in capital markets, defined by true ownership, composability, and transparency. The future is bright; the world will be tokenized, and you can own a piece of it anytime, anywhere.

1.
2026: THE YEAR OF TOKENIZED STOCKS

1.1
The Acceleration of Cryptocurrency Adoption by Traditional Finance

Key Legislative And Regulatory Actions In U.S. Digital Assets :: FOUR PILLARS

Source: Four Pillars (@100y_eth)

Name	Date	Authority	Description
Strategic Bitcoin Reserve	2025.03	The White House	- The government will retain the Bitcoin it already holds as a national reserve asset rather than selling it.
U.S. Digital Asset Stockpile	2025.03	The White House	- Other crypto assets besides Bitcoin (e.g., ETH, XRP, SOL) will be managed separately as part of the U.S. digital asset holdings.
GENIUS Act	2025.07	U.S. Congress	- Establishes the first comprehensive federal regulatory framework for payment stablecoins, requiring issuers to back stablecoins 1:1 with U.S. dollars or low-risk assets and obtain federal licenses.
Anti-CBDC Surveillance State Act	2025.03-	U.S. Congress	- A legislative bill designed to prohibit a retail CBDC and block direct individual access to Fed-issued digital currency, aimed at preventing financial surveillance and protecting privacy. - Still in legislative process
Crypto Market Structure Bill	2025.05-	U.S. Congress	- A legislative effort to establish a comprehensive federal regulatory framework for cryptocurrencies, including oversight of trading, exchanges and defining regulatory roles (e.g., CFTC/SEC). - Still in legislative process
Project Crypto	2025.07-	SEC	- Refers to internal regulatory efforts (especially within the SEC) to modernize U.S. securities rules and accommodate blockchain-based financial market structures. - This is more a regulatory initiative than a named statute.
Crypto Sprint	2025.08	CFTC	- An initiative to provide regulatory clarity and advance digital asset market rules, including enabling listed spot crypto contracts and other digital asset trading initiatives.

The year 2025 was an extremely encouraging one for the cryptocurrency industry, as it shed the stigma of its past and experienced active institutional adoption.

The Trump administration repeatedly emphasized that the United States should become the capital of cryptocurrency and rolled out a variety of initiatives to elevate the cryptocurrency and blockchain industry to a national strategic priority. For example, through an executive order in March, it established the "Strategic Bitcoin Reserve" and the "U.S. Digital Asset Stockpile," both composed of Bitcoin and other cryptocurrencies seized by the Treasury Department. In addition, the "President's Working Group on Digital Asset Markets," which was officially established through an executive order in January, published an in-depth 166-page report containing regulatory recommendations in July.

The administration's strong stance on the cryptocurrency industry was quickly conveyed to regulatory agencies as well. The SEC announced new regulatory framework initiatives such as Project Crypto, while the CFTC introduced Crypto Sprint.

In 2025, the U.S. Congress also produced a number of notable achievements. The GENIUS Act, the first piece of legislation aimed at regulating stablecoins at the federal level, was introduced in the Senate and ultimately signed by the President. Meanwhile, the CLARITY Act, which seeks to clarify market structure and supervisory authority across the entire cryptocurrency sector, and the Anti-CBDC Surveillance State Act, which prohibits CBDCs, both passed the House of Representatives.

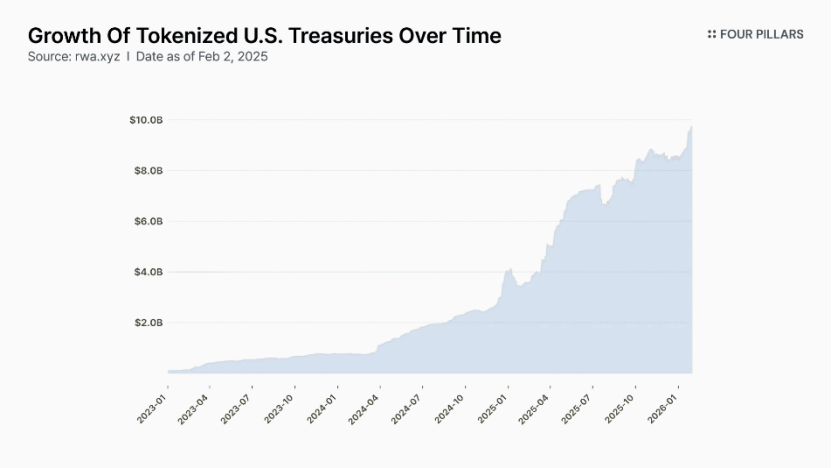
These consistent yet rapid actions by the U.S. administration, regulatory bodies, and Congress led to greater regulatory clarity for cryptocurrencies. That clarity naturally resulted in increased cryptocurrency adoption by industry players. Across sectors such as big tech, banking, asset management, fintech, and retail, a large number of Web2 players have recognized the potential of cryptocurrency and blockchain as the financial technologies of the future and have recently been quick to adopt features such as stablecoins and AI agent payments.

If the Crypto Market Structure Bill, also known as the CLARITY Act, which is currently the subject of the most active discussion, is passed as well, the adoption of cryptocurrency by traditional finance will accelerate at a pace far greater than it is today.

1.2
Stablecoins, U.S. Treasuries, and Then Tokenized Stocks

As blockchain is fundamentally a technology designed for finance, financial use cases experienced unprecedented growth in 2025.

The first is stablecoins. In 2025, stablecoins achieved remarkable results across all dimensions, including regulation, real world usage, and onchain activity. The market capitalization of stablecoins has now reached approximately $300B, and following the passage of the GENIUS Act, a large number of traditional financial institutions and corporations have begun directly participating in the issuance and distribution of stablecoins.



The second is the tokenization of U.S. Treasuries among RWAs. As stablecoin issuance grew rapidly, investors naturally began seeking investment opportunities that could generate stable returns using stablecoins, and the tokenization of short term U.S. Treasuries perfectly met that demand. The size of the tokenized U.S. Treasury market has increased by more than approximately 120% year to date, and tokens backed by Treasuries such as BUIDL and USTB have become core yield engines utilized by numerous DeFi protocols within the onchain ecosystem.

Then, within this massive trend of integration between traditional finance and onchain systems, what will be the key theme to emerge in 2026?

> *Following stablecoins and U.S. Treasuries, the keyword that will undoubtedly attract attention in 2026 is tokenized stocks.*

The total size of the global stock market is approximately $140T, and when including shares of private companies, the scale is significantly larger. Of this, the U.S. stock market accounts for approximately $72T, representing more than half of the global total. However, the size of the tokenized stocks market is still less than $1B. Considering that major figures such as BlackRock CEO Larry Fink and SEC Chair Paul Atkins have continuously emphasized the importance of tokenizing all assets, including equities, the upside potential of tokenized stocks is enormous.

But wait, why has the tokenized stocks market not grown as rapidly as the tokenized U.S. Treasury market so far? In the case of U.S. Treasuries, the characteristics of the assets and their yields are relatively standardized, making onchain liquidity and tokenization management easier and enabling rapid growth. In contrast, stocks have more diverse asset characteristics, a wider variety of associated rights, and building liquidity on a per stock basis is far from easy.

In addition, issues such as oracle challenges during off market hours and the existence of multiple tokenization approaches have kept the tokenized stocks sector relatively small so far. These topics will be examined in greater detail later on.

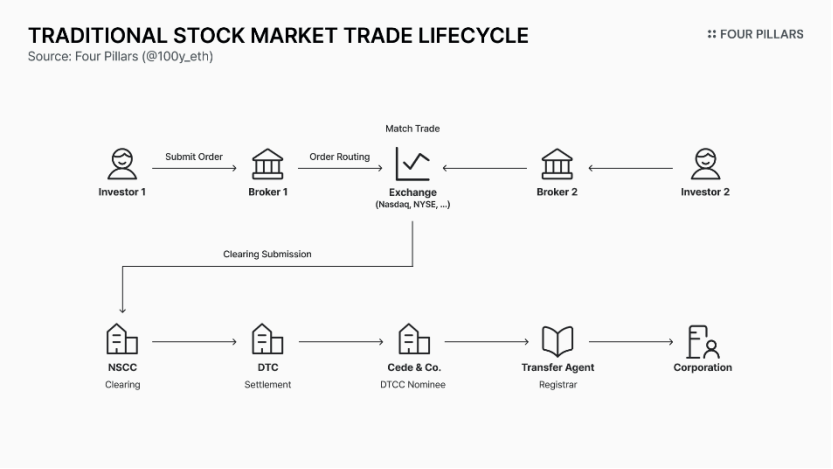
1.3
Problems of the Traditional Stock Market

1.3.1 Why Tokenization Is Gaining Attention

In September 2025, Nasdaq submitted a proposed rule change to the SEC that would allow stocks and ETPs to be traded in the form of blockchain based tokenized securities. DTCC has continuously conducted various experiments, including tokenizing securities such as stocks onchain, using them as collateral, and testing settlement efficiency. Robinhood views tokenized stocks as a core part of its future vision and is already providing tokenized stock services to users in the EU.

It is no coincidence that not only Web3 protocols, but also traditional financial infrastructure providers and fintech companies, view tokenized stocks as highly important. This is because the infrastructure of the traditional stock market is inefficient and leaves significant room for improvement.

1.3.2 How the Traditional Stock Market Operates



The actual process by which stocks are bought and sold in today's stock market typically proceeds as follows:

1. An investor places a buy or sell order through a broker, such as Fidelity Investments or Robinhood.
2. The broker receives the order, conducts internal verification and review, and then forwards the order to an exchange, such as Nasdaq or the NYSE.
3. The order is entered into the exchange's order book, and when matching buy and

sell orders are found, the trade is executed. Immediately upon execution, a confirmation message is sent to both the investor and the broker.

4. The exchange collects all executed trade information and sends it to a clearinghouse, such as the NSCC.
5. The clearinghouse calculates how many shares and how much money must be exchanged between brokers.
6. Once clearing is completed, the settlement institution, such as the DTC, transfers the actual cash and shares between brokers.
7. Finally, the transfer agent updates the official record of the legal owners.

The shareholder register is not managed directly by the company itself, but is typically maintained by a transfer agent. In other words, the company's official master shareholder register managed by the transfer agent is what governs actual ownership of shares. However, most U.S. stocks are not recorded under the names of individual investors, and the company's official shareholder register usually lists only a single name, Cede & Co.

Cede & Co. is a special purpose entity that acts as the nominee of DTCC. While the legal ownership of shares remains under the name of Cede & Co., individual investors hold claims against Cede & Co. through their brokers, meaning they effectively hold ownership indirectly. This structure eliminates the need for the transfer agent to update the register for every transaction and allows stock settlement and transfers to be processed much more quickly.

1.3.3 Inefficiencies of the Traditional Stock Market

The ultimate goal of stock trading is to connect buyers and sellers of stocks and deliver cash and shares between them. However, as seen in the process above, numerous intermediaries such as brokerages, clearinghouses, and settlement institutions are involved, resulting in a highly complex system.

Even after a trade is executed, full settlement takes T+1 days in the United States and T+2 days in most other countries. Brokers, the NSCC, and the DTC all charge fees for their services. The final burden of these fees ultimately falls, directly or indirectly, on investors. In other words, complex processes create inefficiencies in both time and cost.

The reason today's traditional stock market processes are so complex is ultimately to minimize credit risk. In the past, when stocks were exchanged in the form of paper certificates, it was not possible to process settlement and clearing safely and quickly, and back office failures were frequent. At that time, there was no technology capable of handling direct ownership and direct settlement at scale, so an indirect ownership model based on central depositories was adopted. As a result, intermediaries such as brokers, clearinghouses, and settlement

institutions emerged, and a complex structure took shape.

In particular, as the number of intermediaries involved in stock trading increased, various laws and regulations such as SIPA, the Securities Acts Amendments of 1975, and the Securities Exchange Act of 1934 were introduced to control the risks of each intermediary. This ultimately led to the complete entrenchment of the complex structure of today's stock market.

1.4
Previous Attempts to Address Inefficiencies

The traditional stock market suffers from issues such as slow settlement times, limited trading hours, high fees, low accessibility to foreign stocks, and indirect ownership, largely due to infrastructure limitations. There have been many attempts so far to address these problems.

1.4.1 Settlement Time

Settlement is the process in which cash and stocks are actually exchanged and a stock trade is finalized. Because settlement involves multiple steps such as clearing, ownership transfer processing, cash settlement, and risk management, all handled by multiple intermediaries, settlement does not occur immediately after a trade is executed.

Long settlement times themselves are problematic because they can lead to issues such as one party failing to deliver cash or shares on time, or increased liquidity risk caused by restrictions on reinvestment or withdrawals during the delay period. For these reasons, stock markets around the world have continuously worked to reduce settlement times.

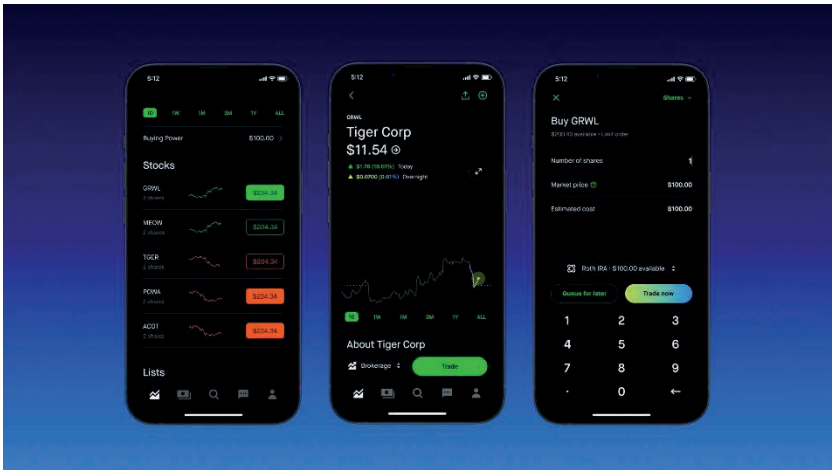
For example, in the U.S. stock market, when stocks were traded in the form of paper certificates, the T+5 settlement cycle was used due to the burden of physical document processing. This was shortened from T+5 to T+3 in 1995, from T+3 to T+2 in 2017, and from T+2 to T+1 in 2024, reflecting continuous improvements in settlement time. In addition to the United States, Canada and Mexico also transitioned to a T+1 settlement cycle at the same time, while Europe still operates on T+2 but is planning to move to T+1 with a target of 2027.

However, there is still a limitation in that no market currently offers true instant settlement, or T+0, as enabled by blockchain technology.

1.4.2 Trading Hours

Traditional stock markets such as Nasdaq and the NYSE have limited trading hours. This causes significant inconvenience, especially for investors in different time zones. To address this, ongoing efforts are being made at both the service level and the infrastructure level.

Service Level



Source: Robinhood

The first approach is extending trading hours at the service level. Services such as Robinhood and Interactive Brokers provide the ability to trade stocks 24 hours a day, five days a week. For example, during regular trading hours they use markets such as Nasdaq and the NYSE, while during extended hours they route orders to Blue Ocean ATS, where trades are executed.

However, these 24 hour trading services are only supported for certain stocks and ETFs and only through limit orders. During overnight hours, they suffer from unavoidable limitations such as lower liquidity and higher volatility compared to regular hours, as well as reduced transparency because trading occurs on ATS platforms.

Infrastructure Level

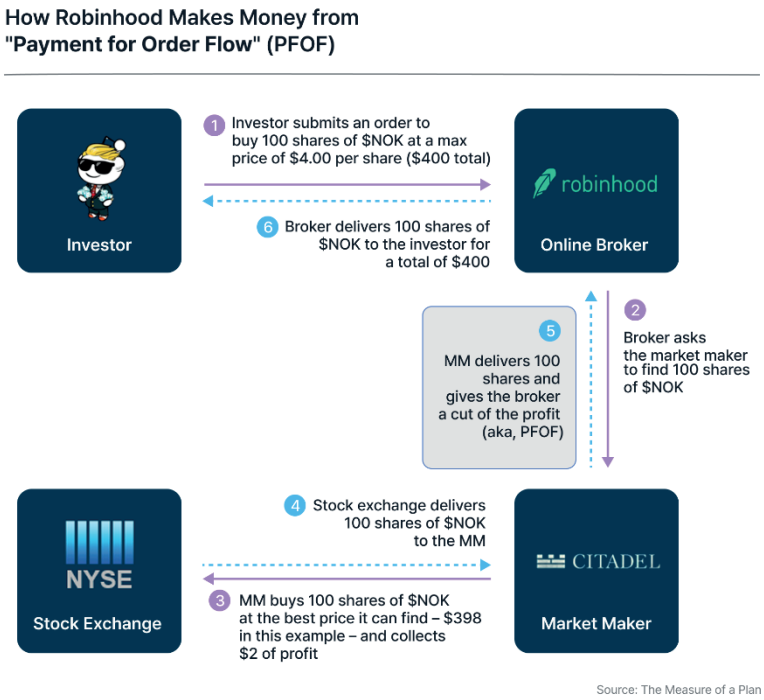
Source: DTCC

The second approach is extending trading hours at the infrastructure level. DTCC, Nasdaq, and CBOE announced that, subject to regulatory approval, they plan to enable 24/5 stock trading starting on June 28, 2026. Unlike existing services that process overnight trades through ATS platforms, DTCC aims to immediately guarantee central counterparty clearing, or CCP, even for overnight trading.

However, this does not provide 24/7 trading. Approximately one hour of downtime per day is still required for system maintenance, risk calculations, and position reconciliation. In addition, margin management and risk management become significantly more complex for brokerages and other financial institutions. The fundamental reason for these limitations is that 24 hour trading is being implemented on top of an already complex existing system.

1.4.3 Trading Fees

Because stock trading involves numerous intermediaries such as brokers and DTCC, fees incurred at each stage are ultimately passed on to investors as trading fees. For example, DTCC charges usage fees to securities firms and financial institutions that participate in its infrastructure under the guise of transaction and clearing fees and asset custody services. Securities firms and financial institutions then charge fees to investors.



Source: The Measure of a Plan

The most representative service that promotes fee reduction is Robinhood. Robinhood users can trade stocks without explicit commissions, but hidden fees exist. Robinhood does not process customer orders directly, instead routing them through Citadel. In the process of handling customer trades, Citadel profits from the bid ask spread and pays rebates to Robinhood in the form of PFOF, or Payment for Order Flow. In other words, commission free trading is an illusion.

There is also a way to reduce fees at the trading infrastructure level rather than the service level. Investors can register shares directly in their own names on the shareholder register without going through DTCC, meaning without being registered under Cede & Co. This is known as the Direct Registration System, or DRS. While registering through DRS results in lower fees compared to holding stocks through a broker, it is not commonly used due to differences in accessibility, convenience, and ease of trading from the individual investor's perspective.

1.4.4 Fundamental Inefficiencies Remain Unresolved

Although there have been many attempts to address the inefficiencies of the existing stock market, all of these efforts are merely stopgap measures built on top of the existing complex infrastructure and do not resolve the root causes of inefficiency. Ultimately, achieving 1) instant settlement, 2) 24/7 trading, and 3) extremely low fees requires an entirely new financial infrastructure.

> *Blockchain technology and tokenized stocks can solve this.*

1.5
Tokenized Stocks

1.5.1 Advantages of Tokenized Stocks

Tokenized stocks refer to representing traditional stocks in the form of digital tokens on blockchain technology. The advantages that tokenized stocks can offer are listed below, and most of them stem from the inherent characteristics of blockchain technology:

- Instant settlement: Transactions on a blockchain are finalized immediately.
- 24/7/365 trading: Blockchain infrastructure operates on decentralized networks around the clock, enabling these assets to be traded 24/7/365.
- Low fees: Tokenized stocks significantly reduce the number of intermediaries involved, allowing investors to benefit from lower fees.
- Fractional investment: Stock tokens can be held and traded in fractional units.
- Global accessibility: Transactions conducted via blockchain are accessible to investors worldwide.
- Direct ownership: Investors can hold stock tokens directly in their personal wallets.
- Smart contracts: Beyond simply holding and trading stocks on a blockchain, investors can leverage stock tokens for a wide range of financial activities through smart contracts.

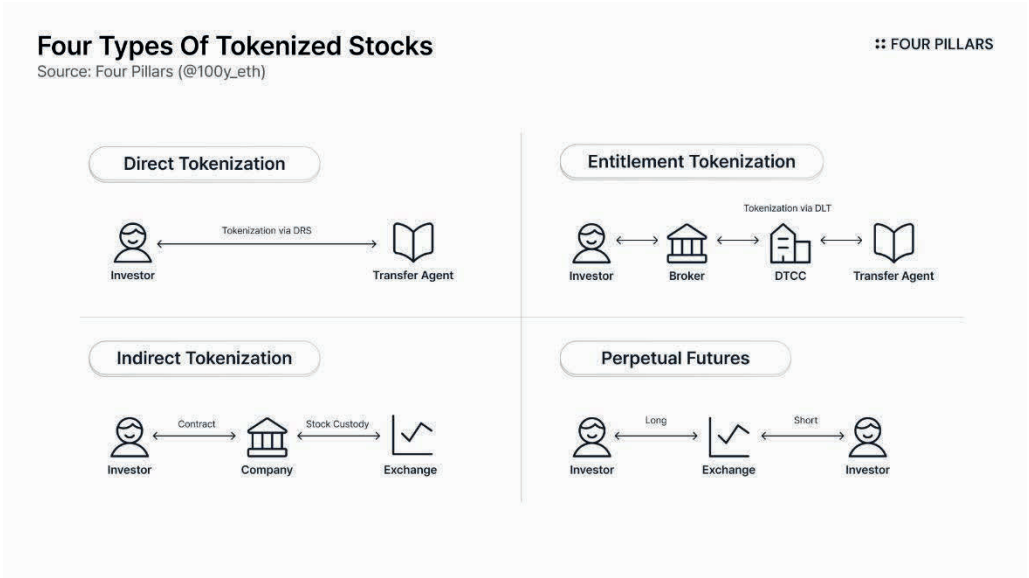
1.5.2 Misconceptions About Tokenized Stocks

A common misconception is that tokenized stocks solve all the shortcomings of the traditional stock market and fully deliver all of the advantages listed above. This, however, is not the case.

As will be examined in detail in the next section, there are many different ways in which stocks can be tokenized. The ownership itself can be tokenized, one or multiple rights associated with a stock can be tokenized, or claims on the company that holds the stock can be tokenized. Because there are various approaches to tokenized stocks, each comes with its own distinct advantages and limitations.

Following stablecoins and bonds, we are now approaching the inevitable evolution of financial infrastructure in the form of tokenized stocks. Since the tokenized stocks market is still at a very early stage, tokenization methods are diverse and not yet standardized. The purpose of this report is to improve understanding of tokenized stocks in the market and to examine the current tokenized stocks landscape, the regulatory environment in each country, and the future opportunities related to tokenized stocks.

2.
TOKENIZED STOCK LANDSCAPE



2.1
Four Types of Tokenized Stocks

2.1.1 Stablecoins and Tokenized Treasury Funds Are Easy. What About Stocks?

Stablecoins and U.S. Treasury funds, which have seen the most active development in tokenization, were able to grow rapidly with relatively limited regulatory and liquidity fragmentation because their tokenization approaches are relatively standardized.

- Stablecoin issuance: An issuer that holds the necessary licenses in each jurisdiction custodies fiat currency and issues onchain stablecoins backed 1:1.
- Tokenization of U.S. Treasury funds: Many people misunderstand this, but RWAs such as BUIDL, USYC, and BENJI are not the tokenization of Treasuries themselves. Rather, they

are tokenized money market funds (MMFs) composed of Treasuries. In the United States, tokenization is carried out by having an SEC registered transfer agent manage the MMF shareholder register using a blockchain based system.

However, tokenized stocks are different. Unlike fiat currency or bonds, stocks come in many varieties, and the associated rights include not only ownership but also voting rights and dividend rights. As a result, it has been very difficult to tokenize stocks in a uniform way like fiat currency or bonds, and major tokenized stocks services such as Securitize, Backed, and Robinhood tokenize stocks using different approaches.

2.1.2 Four Types of Tokenized Stocks

COMPARISON OF TOKENIZED STOCK MODELS

Source: Four Pillars (@100y_eth)

:: FOUR PILLARS

Tokenization Type	Direct Tokenization	Entitlement Tokenization	Indirect Tokenization	Perpetual Futures
Type by SEC Statement	Issuer-Sponsored Tokenized Securities	Tokenized Security Entitlement	Security-Based Swap	-
Overview	Issuer & Transfer Agent uses blockchain as the ledger to register direct ownership of the issued securities	A custodian (DTCC, broker-dealer) uses blockchain as a part of its internal system to record ownership of the securities	A 3rd party issuer creates a new investment vehicle to track the value of the underlying securities	A derivative with no settlement date that tracks an asset's price and can be held indefinitely, often used to gain leveraged exposure without owning the underlying.
Projects		DTCC		
What is Tokenized?	Share itself	Security Entitlements	Contract w/ 3rd Party	-
Direct Ownership	Yes: Investors directly own the shares	No: Investors hold shares indirectly through DTCC	No: Investors have no ownership interest in the shares	No: Investors have no ownership interest in the shares
1:1 Backed?	Yes	Yes	Yes	No
Holder Rights	All Rights	All Rights	Economic exposure only	Economic exposure only
Efficiency	High: Fully bypasses legacy infrastructure	Low: Legacy infrastructure unchanged	Very Low: Legacy infrastructure + new contract layer	High: Price tracking only
Liquidity Fragmentation	Medium: Liquidity fragmentation from traditional shares due to DRS registration	Low: Compatible with DTCC-managed securities	High: Platform-specific, no cross-platform interoperability	High: Exchange-level liquidity fragmentation
Accessibility	Medium: No significant change from the existing model	Medium: No significant change from the existing model	High: Available in a broader range of countries	High: Available in a broader range of countries
Onchain Utility	Medium: Only registered platform users can interact	Low: Public onchain usage not supported	High: Actively usable across public on-chain DeFi	Low: Onchain usage not supported
SEC-Compliant	Compliant: No issues per recent SEC statement	Compliant: SEC no-action letter granted to DTCC	Depends: Varies by corporate structure and investor contracts	Non-compliant
3rd Party Risk	Low: Risk is minimized given there is no extra layer of counterparties.	Medium: Additional counterparty risk against the custodians	High: Additional counterparty risk against wrapper issuers.	Medium: Additional risk against exchange platforms.

The SEC recently released a statement on tokenized securities. This statement is a highly important document in that it presents a classification framework for tokenized securities that exist in the market and the SEC's views on them.

The SEC classified tokenized securities into the following four categories:

- Issuer-Sponsored Tokenized Securities: An approach where the issuer/transfer integrates blockchain into the shareholder register that it previously managed in an off-chain database. The security itself is tokenized. Representative example: Securitize
- Tokenized Security Entitlement: An approach where blockchain is integrated into a registry system managed by a third party. The rights that an investor holds indirectly through an intermediary or custodian are tokenized. Representative example: DTCC
- Linked Security: An approach where a third party references another company's security as an underlying asset and issues a new security in its own name. Investors only have rights to the security issued by the third party and have no rights of any kind to the referenced company.
- Security-Based Swap: A swap type contract in which a third party provides synthetic exposure that tracks the price of another security. Unlike a Linked Security, this is not a security but a derivatives contract, so regulatory requirements are stricter. Representative example: Robinhood

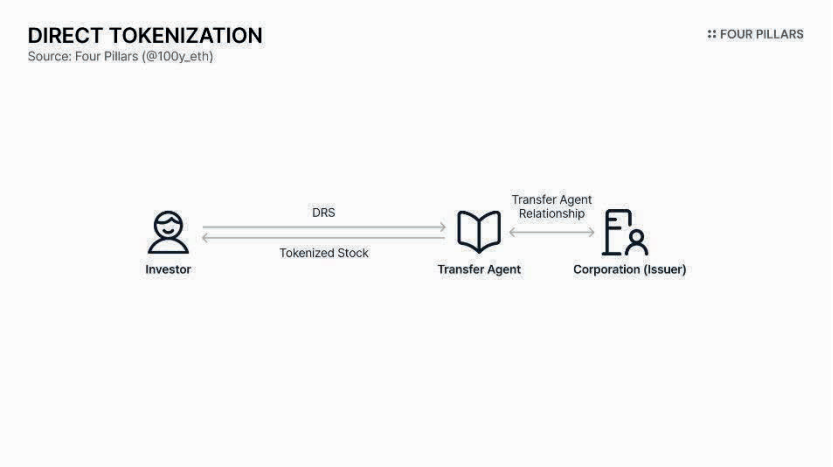
At a time when there had been no official classification framework for tokenized securities, the SEC's framework can serve as an excellent reference. Based on this, and after analyzing real products, we were able to classify tokenized stocks, the subject of this report, as follows.

So far, tokenized stocks services in the market tokenize stocks through the following four methods:

- Direct Tokenization: A method that directly tokenizes stock ownership (e.g., Securitize, Superstate). This corresponds to Issuer-Sponsored Tokenized Securities in the SEC's classification framework.
- Entitlement Tokenization: A method that tokenizes stock related rights within existing infrastructure (e.g., DTCC). This corresponds to Tokenized Security Entitlement in the SEC's classification framework.
- Indirect Tokenization: A method where a company buys and holds stocks on behalf of users and tokenizes the beneficial interest in them (e.g., Robinhood, Backed, Ondo, Dinari). This corresponds to Security-Based Swap in the SEC's classification framework.
- (Additional) Perpetual Futures: A perpetual futures market that tracks a stock's price without spot trading (e.g., Hyperliquid, QFEX)

The processes differ significantly across tokenization methods, and for this reason, factors such as global accessibility, onchain usability, the types of rights being tokenized, and trading hours also vary greatly by method. Let us examine one by one how each method works in detail and what characteristics it has.

2.2
Direct Tokenization



Direct Tokenization refers to fully tokenizing stock ownership onchain. Under the traditional system, even when investors purchase stocks through a brokerage, ownership of those stocks is registered under Cede & Co., and investors are recognized not as direct owners but as beneficial owners. In contrast, investors who hold stock tokens tokenized through direct tokenization are recognized as the direct owners of the stocks and are entitled to all rights associated with the stock, including dividend rights, voting rights, and ownership rights.

How is direct tokenization possible? This is related to the Direct Registration System, or DRS, discussed in the introduction of this report. DRS allows investors to be registered directly under their own names on the shareholder register, rather than through DTCC and Cede & Co. Platforms that support direct tokenization of stocks, such as Securitize and Superstate, manage stock registers through DRS and can issue onchain stock tokens to investors registered via DRS. This approach is almost identical to the way money market funds such as BUIDL are tokenized.

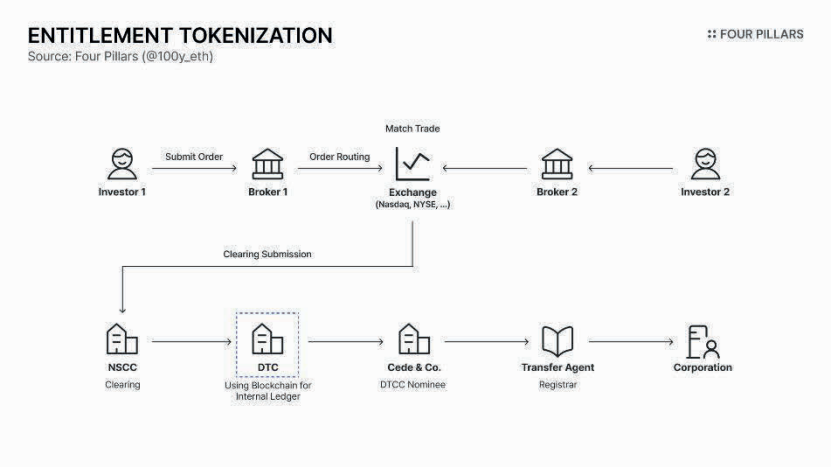
Direct tokenization is the tokenization method that most closely aligns with the direction pursued by the tokenized stocks sector. By tokenizing the stock itself and enabling investors to directly own it, this method offers the following advantages:

- Instant settlement: Tokenized stocks are settled immediately when traded between investors.
- Trading availability: Tokenized stocks are always tradable onchain.
- Fewer intermediaries: Unlike the traditional model, which involves numerous intermediaries such as the NSCC, DTC, brokerages, and transfer agents, the direct tokenization approach involves no intermediaries other than the transfer agent.
- Global accessibility: Any investor registered on the tokenization platform can access stock tokens.
- Self custody: Investors directly hold their stocks.
- Onchain liquidity: Because only a single token representing the stock can exist onchain, liquidity fragmentation is less severe compared to other tokenized stocks approaches.
- Full inheritance of rights: All rights associated with the stock, including ownership, voting rights, and dividend rights, are fully tokenized.

In other words, direct tokenization is an extremely powerful approach that captures nearly all of the advantages commonly associated with tokenized stocks. However, direct tokenization also comes with the following drawbacks:

- Liquidity fragmentation with traditional stocks: There is liquidity fragmentation between stocks already traded on Nasdaq or the NYSE and stocks that are directly tokenized onchain. Converting tokenized stocks back to trading on Nasdaq or the NYSE, or tokenizing stocks purchased on Nasdaq or the NYSE, involves complex processes and additional costs.
- Limitations on onchain usage: For stocks tokenized through direct tokenization, peer to peer transfers among users registered on the platform are generally unrestricted. However, using these tokens within DeFi protocols such as AMMs or lending platforms is still limited. If stocks tokenized through direct tokenization were to interact permissionlessly with a wide range of AMM or lending pools, this could conflict with regulatory requirements.

2.3
Entitlement Tokenization



Entitlement tokenization is a tokenization approach that allows investors to be granted all rights associated with stocks while largely preserving the existing stock market system. This is made possible by replacing internal ledgers used in traditional securities infrastructure to record ownership of rights with a blockchain based ledger.

As a result, entitlement tokenization can capture the advantages of existing centralized infrastructure while also benefiting from the operational advantages of blockchain technology.

- Trading availability: This approach can serve as a foundation to expand beyond the 24/5 trading support that DTCC is preparing this year and eventually enable 24/7 trading.
- Liquidity concentration: By leveraging DTCC's existing infrastructure, this approach can benefit from deep, concentrated liquidity.
- Regulatory continuity: This is the most regulation friendly approach within existing regulatory frameworks.
- Compatibility with existing systems: The only change from existing systems is that rights records are maintained on a blockchain rather than internal ledgers, making this the most compatible tokenized stocks approach.
- Full inheritance of rights: All rights associated with stocks, including ownership, voting rights, and dividend rights, are fully tokenized.
- Smart contract based automation: Smart contracts can be used to automate the recording and management of rights.

However, inheriting the existing system almost entirely brings significant drawbacks along with its advantages:

- Inheritance of existing system structure: The many intermediaries involved in the current system, such as brokerages, DTC, and NSCC, remain unchanged.
- Indirect ownership: Investors still hold stocks indirectly, with ownership still registered under Cede & Co.
- Limited global accessibility: Access is limited to existing investors who can already access the U.S. stock market.
- Limitations on instant settlement: Because many intermediaries still exist, instant settlement may remain difficult, although the movement of stock collateral could become easier.

2.4 Indirect Tokenization

Indirect tokenization is fundamentally different from the direct tokenization and entitlement tokenization approaches discussed above. While the two approaches described earlier tokenize the stock itself or all rights associated with the stock, indirect tokenization, strictly speaking, does not tokenize the stock or the rights attached to it.

Indirect tokenization typically operates as follows:

1. A user places a stock purchase order on a tokenization platform.
2. The tokenization company purchases the stock on behalf of the user through a broker.
3. The purchased stock is held under the name of the tokenization company at a regulated institution such as a custodian or broker.
4. The company delivers a tokenized entitlement based on the stock to the user.

An important point to note is that the tokenized stock is not actually a stock, but rather a derivative contract between the user and the tokenization company. From the user's perspective, they receive tokenized exposure in the form of claims and economic rights to the stock held by the tokenization company.

The advantages of indirect tokenization include the following:

- Trading availability: Indirect tokenization platforms that directly issue and redeem stock tokens typically support 24/5 trading, while trading of tokenized stocks on blockchain networks is possible 24/7/365.
- Global accessibility: Any investor registered on the tokenization platform can access stock tokens.
- Optional onchain accessibility: On some tokenization platforms such as xStocks or Ondo Global Markets, even users without KYC can access tokenized stocks onchain.
- Optional onchain usability: As an extension of onchain accessibility, stock tokens from certain tokenization platforms can freely interact with onchain DeFi protocols, allowing anyone to easily engage in a wide range of financial activities based on stocks.

However, because indirect tokenization involves companies holding stocks on behalf of users and tokenizing only the associated claims, it comes with many drawbacks:

- Indirect ownership: Ownership of the stock or stock related rights belongs entirely to the tokenization company, not the user.
- Rights limited to economic returns: Rights such as voting are held entirely by the tokenization company, and users can only access rights related to stock price appreciation and dividends.
- Liquidity fragmentation: Even for the same stock, liquidity is not interoperable across different indirect tokenization platforms. For example, although the underlying stock may be the same TSLA, liquidity and regulatory conditions for Backed's xTSLA and Ondo's TSLAon are all fragmented.
- Inheritance of existing system structure: The many intermediaries involved in the existing system, such as brokerages, DTC, and NSCC, remain in place. Moreover, because stocks are bought and sold using this system and separate contractual agreements are created for tokenization, the overall structure becomes even more complex.

2.5 (Additional) Perpetual Futures

The perpetual futures approach technically falls outside the scope of this report. In the cases of direct tokenization, entitlement tokenization, and indirect tokenization, there is still a one to one backing by actual stocks in some form in order to tokenize stocks. In contrast, the perpetual futures approach merely provides a trading venue that tracks the price of a stock and does not hold the stock itself as an underlying asset. As a result, the perpetual futures approach operates in a fundamentally different way from the three methods above and comes with a distinct set of advantages and disadvantages.

The primary mechanism used by perpetual futures exchanges to create products that track stock prices is the funding fee. This acts as an incentive system that encourages futures prices to track spot prices. For example, if the futures price falls below the spot price, holders of short positions can be required to continuously pay funding fees to holders of long positions in order to incentivize long positions and push the futures price back toward the spot price.

The advantages of the perpetual futures approach are as follows:

- Trading availability: While the three tokenization methods discussed earlier cannot be considered fully 24/7/365 due to issuance and redemption processes for stock tokens, the perpetual futures approach enables truly 24/7/365 trading.
- Global accessibility: Although this can vary by regulatory jurisdiction, overall global accessibility is significantly higher compared to other tokenized stocks approaches.
- Asset diversity: Because stocks are not actually purchased and tokenized, a wide variety of assets can be listed and traded as long as sufficient liquidity is available.

However, because this approach differs significantly from other tokenized stocks methods, it also has the following drawbacks:

- Limited rights: Since there is no backing by actual stocks, no rights of any kind can be obtained, including dividend rights.
- Liquidity challenges: Unless the perpetual futures market reaches sufficient scale, issues such as widened spreads during off market hours and shallow liquidity are very difficult to resolve, given that trading volume in traditional stock markets remains dominant.
- No underlying asset: The perpetual futures approach lacks an underlying asset that can guarantee price integrity.
- Lack of onchain composability: Products traded in perpetual futures markets are not tokens. As a result, they cannot be transferred onchain or integrated with other DeFi protocols.

2.6
The SEC's Position

Source: SEC

What, then, is the SEC's position on each tokenization method? This can be confirmed through the statement released by the SEC.

First, the SEC considers the direct tokenization approach to be safe. In this model, the only change is that the shareholder register managed by the stock issuer, or the company, moves from an internal database to a blockchain. The fundamental nature of the security remains unchanged, and this approach does not violate existing securities laws in any way.

Second, the SEC has taken a conditionally permissive stance toward the entitlement tokenization approach. DTCC seeks to integrate blockchain alongside internal databases for recording stock entitlements, and the SEC recently issued a conditional no action letter allowing this initiative.

Third, the SEC has urged caution with respect to the indirect tokenization approach. This is because the rights involved vary depending on the specific structure used within indirect tokenization, and investors do not hold any direct rights related to the stock itself. Instead, they only hold rights derived from contractual relationships with intermediaries. This is also the reason why companies that fall under the indirect tokenization category are unable to offer services in the United States.

From a personal perspective, I also view indirect tokenization as a transitional approach. As the tokenized stocks ecosystem emerges and regulatory clarity remains limited, platforms that have not obtained licenses appear to adopt indirect tokenization as a way to offer tokenized stocks services. It will be interesting to see whether indirect tokenization platforms, led by Robinhood, grow large enough to become too big to fail, or whether their market share declines as regulations become clearer.

2.7
(Additional) Korean STOs

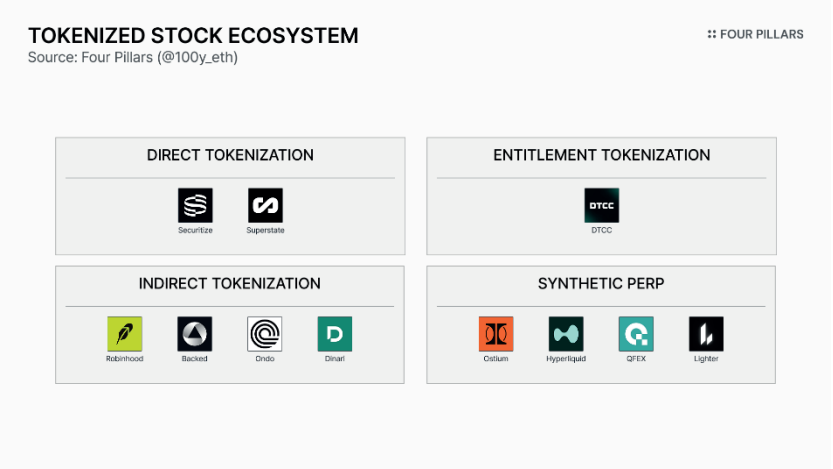
As an aside, which of the categories above do Security Token Offerings, or STOs, in Korea fall under? One of the most important aspects of the Korean STO framework is that issuance, distribution, and ownership information recorded on a blockchain is legally recognized as an electronic registration ledger. In Korea, there is an institution called the Korea Securities Depository, which plays a role similar to that of DTCC. Whereas only the databases of such central clearing institutions were previously recognized as official ledgers, blockchain records are now also legally recognized as official ledgers.

In this sense, the Korean approach is very similar to DTCC's tokenization model, but there are also many differences. Unlike DTCC, which grants indirect ownership, ownership of electronically registered shares at the Korea Securities Depository is recorded directly under the final investor. As a result, the benefits gained from tokenizing stocks within the existing Korean stock system are not particularly large. In addition, when migrating the electronic registration ledger of currently listed stocks from internal databases to blockchain, shareholder consent is required. For this reason, scenarios in which stocks are tokenized in Korea are, in the short term, almost impossible to expect. A far more realistic approach would be to choose blockchain as the electronic registration ledger from the outset when establishing a company and registering its shares.

Another important aspect of Korean STOs is the introduction of the issuer account management institution system. This system allows securities issuers to directly register and manage tokenized securities on a blockchain without going through securities firms, making it very similar to the direct tokenization approach. However, this model also has its limitations. In Korea, STOs are likely to be permitted only on blockchain networks where more than 51% of the nodes are operated by financial institutions. If this happens, even under the same direct tokenization approach, platforms like Securitize would be restricted in Korea to issuing and circulating security tokens only on private blockchains, unlike their use of public blockchains such as Ethereum.

For these reasons, I believe that Korea's STO framework represents only a partial tokenization regime. In my view, it needs further improvement to align with global regulatory standards and move closer to genuine financial innovation. For an overview of global regulatory developments, please refer to Part 4 of this report.

3.
ANALYSIS OF MAJOR TOKENIZED STOCKS PLATFORMS



3.1
Direct Tokenization Case Studies

3.1.1 Securitize

Securitize is the world's largest tokenization platform, having tokenized more than $2.5B worth of RWAs. It is also well known for collaborating with the world's largest asset manager, BlackRock, to issue BUIDL, the BlackRock USD Institutional Digital Liquidity Fund, which is a tokenized money market fund. For reference, excluding gold and stablecoins, BUIDL is the

largest RWA token by market size, with a scale of approximately $1.7B.

Securitize provides tokenized stocks through the direct tokenization approach. Among the stocks currently tokenized on Securitize is the blockchain software company Exodus Movement Inc. (EXOD). Stocks scheduled for future tokenization include FG Nexus, which offers merchant banking services and employs an ETH DAT strategy.

Using Exodus Movement Inc. as an example, in order for an investor to hold the stock in tokenized form and trade it on Securitize Markets, which is the ATS provided by Securitize, the investor must directly register the EXOD shares held in their brokerage account via DRS with Pacific Stock Transfer, which is Exodus's official transfer agent, through Securitize. The detailed process is as follows:

1. The investor creates an account on Securitize and completes KYC.
2. The investor contacts their brokerage and requests that their EXOD shares be directly registered via DRS with Pacific Stock Transfer.
3. Once Pacific Stock Transfer and Securitize confirm that the shares have been transferred, the EXOD shares are reflected in the investor's Securitize account.
4. The investor can trade EXOD on Securitize Markets or withdraw the EXOD tokens on Algorand and transfer them to an Exodus wallet.

Securitize plans to tokenize FG Nexus shares in a similar manner, first tokenizing the common shares FGNX and later tokenizing the Class A Preferred shares FGNXP. Notably, FGNXP is a dividend paying publicly listed preferred stock, and once tokenized, it will become the first case of a stock distributing dividends onchain.

For reference, Securitize uses a smart contract called the DS Protocol to enforce compliance related to the issuance, management, distribution, trading, and dividend payments of RWA tokens directly onchain. This serves as a powerful technical foundation for tokenized stocks. Readers interested in learning more about the DS Protocol can refer to my previously written article, "The Infrastructure of Tokenized Securities: How Securitize Powers the RWA Market."

3.1.2 Superstate

Superstate is a tokenization platform known for issuing USTB, a short term T-Bills fund token, and USCC, a basis trade fund token. Through a service called Opening Bell, Superstate also provides tokenized stocks services. Currently supported tokenized stocks include Galaxy Digital Inc. (GLXY), SharpLink Gaming, Inc. (SBET), and Forward Industries, Inc. (FWDI).

Like Securitize, Superstate adopts the DRS approach to tokenize stocks. After tokenization, it enables issuers to manage shareholder registers and to use smart contracts to distribute dividends, conduct airdrops, or directly sell stocks to shareholders.

3.1.3 (For reference) WisdomTree

As an aside, WisdomTree also offers RWA token products related to stocks. However, unlike Securitize and Superstate discussed above, WisdomTree does not tokenize the stocks themselves. Instead, it tokenizes mutual funds that invest in stocks.

Therefore, WisdomTree's case is not directly related to this section. Nevertheless, since it still represents a tokenized product that invests in stocks and its tokenization approach resembles direct tokenization, it is mentioned here as an aside to prevent potential confusion among readers.

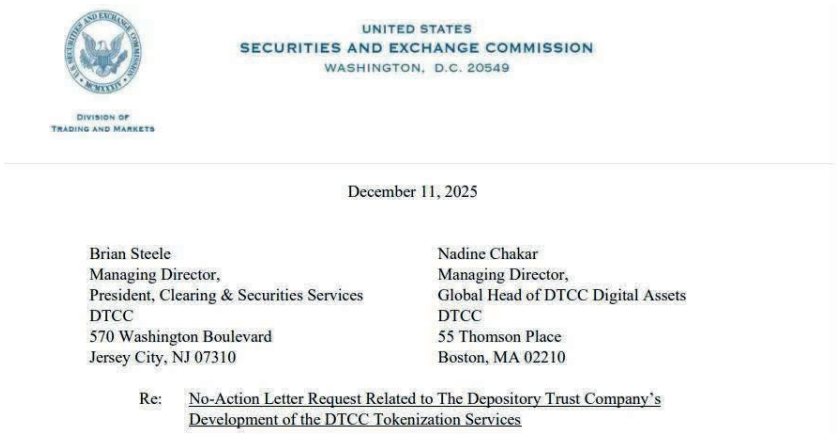
Source: RWA.xyz

3.2
Entitlement Tokenization Case Studies

3.2.1 DTCC

In practice, the entitlement tokenization approach relies almost entirely on the existing stock market infrastructure. Because core functions such as clearing, settlement, and custody of traditional stocks are centered around DTCC, this is effectively a tokenization method that cannot be implemented by any entity other than DTCC.

DTCC has long shown interest in handling stocks on blockchain technology. Recently, there was major news in the blockchain industry when DTC, a subsidiary of DTCC and the central institution responsible for settlement, clearing, and custody of securities in U.S. financial markets, received a no action letter from the SEC. This approval allows DTC to officially provide services that tokenize U.S. securities using blockchain technology.



UNITED STATES
SECURITIES AND EXCHANGE COMMISSION
WASHINGTON, D.C. 20549

DIVISION OF
TRADING AND MARKETS

December 11, 2025

Brian Steele
Managing Director,
President, Clearing & Securities Services
DTCC
570 Washington Boulevard
Jersey City, NJ 07310

Nadine Chakar
Managing Director,
Global Head of DTCC Digital Assets
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55 Thomson Place
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Re: No-Action Letter Request Related to The Depository Trust Company's Development of the DTCC Tokenization Services

Source: SEC

It is important to note that this approval does not immediately allow all assets and all methods. Instead, DTCC was permitted to operate securities tokenization for a three year period under limited assets and conditions. Nevertheless, this provides DTCC with a foundation to begin real world tokenization in a controlled environment without regulatory risk.

DTCC chose a direction that largely preserves the existing stock system while moving the

recording of stock entitlements from DTCC's internal ledger to a blockchain. In other words, by using blockchain to record which investor holds which stock entitlements, all types of rights associated with stocks, including ownership rights, dividend rights, and voting rights, can be tokenized.

3.3
Indirect Tokenization Case Studies

COMPARISON OF INDIRECT TOKENIZATION PLATFORMS
Source: Four Pillars (@100y_eth)

:: FOUR PILLARS

Platform	Robinhood	Backed Finance	Ondo Finance	Dinari
Service	Stock Tokens	xStocks	Ondo Global Markets	dShares
Service Provider	Robinhood EU	Backed Finance AG	Ondo Finance Inc.	Dinari Inc.
Issuer	Robinhood EU	Backed Assets (JE) Limited (SPV)	Ondo Global Markets (BVI) Limited (SPV)	Dinari Inc.
Fee	FX: 0.1%	Mint/Redeem: 0.5%	Spread Fee	Mint/Redeem: fixed fee ($0.2-$50) + 0.25% Dividend Fee: 5%
Dividends	Fiat distribution	Reinvests dividends	Reinvests dividends	Stablecoin distribution
Transferable	In-app only transfer	Transferable even for non-KYC users	Transferable even for non-KYC users	Registered-user only transfer
Permissionless DeFi	X	O	O	X

Projects that follow the indirect tokenization approach are very similar in that they purchase stocks on behalf of users, custody them at regulated institutions, and issue tokens representing economic rights. However, depending on the regulatory jurisdiction, there are significant differences in who can access the tokens and whether the tokens can be used onchain.

3.3.1 Robinhood

Robinhood is the largest financial super app in the United States. On June 30, 2025, it began offering a tokenized stocks and ETF service for EU customers. Through Robinhood's Stock Tokens service, European users can trade tokens that track the prices of U.S. listed stocks and ETFs on a 24/5 basis.

The mechanism works as follows. When a user purchases a stock token through the Robinhood app, Robinhood EU buys the underlying stock through a U.S. broker. The stock that serves as collateral for the contract is custodied under the name of Robinhood EU at a regulated U.S. institution. A derivative contract based on that stock is then tokenized and delivered to the user.

Robinhood's Stock Tokens are not stocks. They are OTC derivatives that track stock prices on a one to one basis, and the derivative contract is entered into between the user and Robinhood EU. These are not simple blockchain tokens, but regulated derivatives under the EU MiFID II regulatory framework. In other words, investors hold a contractual claim against Robinhood EU.

There are no issuance or redemption fees for Stock Tokens. Only a 0.1 percent FX fee is charged. Dividends generated by the underlying stocks are paid to users by Robinhood in fiat currency. Stock Tokens can only be traded within the Robinhood app.

Currently, Robinhood's Stock Tokens are tokenized and traded on the Arbitrum blockchain. However, Robinhood plans to operate Stock Tokens in the future on its own Layer 2 network built on Arbitrum Orbit.

3.3.2 Backed Finance

Backed Finance is a tokenized stocks platform founded in early 2021. On June 30, 2025, it launched its tokenized stocks service called xStocks. xStocks is accessible to users of major centralized exchanges such as Kraken, Bybit, and Gate, and offers more than 70 stocks and ETFs.

The structure operates as follows. Backed Finance consists of Backed Finance AG, a Swiss headquarters responsible for platform provision, technical support, and strategy, and Backed Assets (JE) Limited, an SPV created for the issuance and redemption of xStocks. On behalf of users who wish to tokenize stocks, Backed Assets (JE) Limited purchases stocks through brokers and custodies them at regulated Swiss financial institutions.

xStocks are not stocks. They are bearer debt securities issued between the user and Backed Assets (JE) Limited. Because Backed Assets (JE) Limited is an issuer registered with the Jersey Financial Services Commission, it is legally permitted to issue securities. In addition, because it holds an EU approved prospectus, xStocks can be legally distributed in European markets under the EU and EEA financial regulatory framework. Notably, Switzerland has a blockchain related regulation known as the DLT Act, under which xStocks can be recognized as proof of securities ownership.

Issuance and redemption of xStocks incur a 0.50 percent fee. There is currently no management fee, but documentation notes that a management fee of 0.25 percent per year

may be introduced in the future. This represents relatively high fees compared to other platforms. Dividends from the underlying stocks are reinvested into the stocks and reflected in an increased multiplier applied to the tokens, which raises the effective value of the tokens. While KYC and investor eligibility requirements must be met for direct issuance and redemption, once issued, xStocks can be freely traded and used onchain.

3.3.3 Ondo Finance

Ondo Finance is another representative tokenization platform, best known for U.S. Treasury based tokens such as USDY and OUSG. On September 3, 2025, Ondo Finance launched a tokenized stocks service called Ondo Global Markets, supporting the tokenization of more than 100 U.S. stocks and ETFs.

The mechanism is similar to Backed Finance. Ondo Finance operates an SPV called Ondo Global Markets (BVI) Limited, created solely for issuance purposes. This SPV purchases stocks on behalf of users through a broker, Alpaca, custodies them at regulated financial institutions, and issues stock tokens representing claims on those stocks. Tokenized stocks issued by Ondo Global Markets can also be recognized as proof of securities ownership under Switzerland's DLT Act.

There are no issuance or redemption fees for Ondo Global Markets tokenized stocks. However, similar to the PFOF structure between Robinhood and Citadel, Ondo Finance can earn spread revenue while processing users' stock orders. Dividends generated by the underlying stocks are reinvested into the stock tokens, which can result in the actual stock price being higher than the price of the tokenized stocks. As with xStocks, Ondo Finance's tokenized stocks can be freely traded and utilized onchain.

3.3.4 Dinari

Dinari issues USD+, a U.S. Treasury based stablecoin, but its core product is a tokenized stocks service called dShares. Compared to other tokenized stocks platforms, dShares launched relatively early on August 27, 2024, and currently offers more than 200 stocks and ETF tokens.

The operating model is almost identical to Robinhood's Stock Tokens. In this context, Dinari Inc. effectively plays the role that Robinhood EU plays in Robinhood's structure.

dShares carry a relatively high number of fees. During issuance and redemption, a fixed network fee is charged, with $50 on Ethereum and $0.2 on other networks. In addition, depending on issuance size, an order fee of 0.25 to 0.50 percent is charged by network. When dividends are generated, Dinari takes 5 percent of the dividend amount. Dividends from dShares are paid to users in the form of the USD+ stablecoin. As with Robinhood, Dinari's tokenized stocks can only be transferred among users registered on the Dinari platform.

4.
GLOBAL REGULATORY FRAMEWORK FOR STOCK TOKENIZATION

4.1
Expansion of Stock Tokenization and the Onchain Ecosystem

The "onchaining of assets" currently led by major firms such as Robinhood and Coinbase is more than a technical supplement to increase transaction speeds; it is a process of redesigning traditional financial infrastructure based on distributed ledger technology (DLT). While initial stages, such as BlackRock's BUIDL, focused on debt and Money Market Funds (MMF) for accredited investors to verify digital liquidity, extending this to the general stock market to combine with P2P trading and DeFi ecosystems represents a paradigm shift in impact.

This is because stock is an asset directly linked to corporate governance and capital structure, moving beyond simple debtor-creditor relationships. Therefore, innovation in stock ownership transfer presents technical and institutional challenges previously unseen in financial law, including:

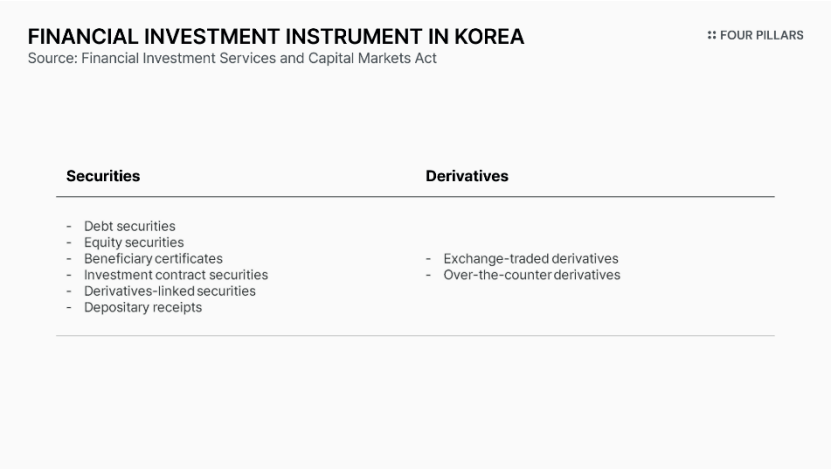
- Execution of voting and dividend rights via smart contracts.
- Expansion of stock collateralization and its impact on financial system stability.
- Real-time synchronization of shareholder registries based on distributed ledgers.
- Internalization of regulatory compliance through whitelist policies.

This chapter reviews the legal and institutional responses of major countries aiming to move beyond mere "wrapping" of profit rights toward "native" tokens that fully realize intrinsic shareholder rights on a distributed ledger.

4.2
Republic of Korea

4.2.1 Regulatory Framework of the Capital Markets

Republic of Korea regulates both "securities" and "derivatives" under the Financial Investment Services and Capital Markets Act (the "Capital Markets Act"). Unlike the U.S., which maintains separate systems like the Securities Act of 1933 and the Commodity Exchange Act of 1936, Korea manages these under a single, unified legal framework. The Act defines "financial investment instruments," which include the following:



4.2.2 Case Study: Kasa and the Sandbox System

Security tokens were first introduced in Korea through fractional investment. In 2019, Kasa utilized the Financial Regulatory Sandbox to issue Digital Asset Backed Securities (DABS) for commercial real estate.

The Financial Services Commission (FSC) defines fractional investment as a new investment form where two or more investors invest in and trade claims split from physical assets or rights with property value (Financial Services Commission, *Guidelines on New Securities Businesses such as Fractional Investment*).

In Korea, fractional investments are issued in the form of either investment contract securities or beneficial certificates of non-monetary trusts. At the time, although investment contract securities existed under the legal and institutional framework, there had been no actual cases of issuance.

Kasa received "Innovative Financial Service" designations for two regulations that were otherwise impossible under current law:

- Non-monetary Trust Beneficiary Certificates: The Capital Markets Act only stipulated monetary trusts; a sandbox was needed to issue non-monetary certificates (Art. 110, Sec. 1).
- Brokerage and Exchange Specialization: To avoid being classified as an unauthorized brokerage, Kasa received exemptions to operate both the issuance and distribution platforms (Art. 373, Art. 11).

In addition, securities recorded on a distributed ledger are not accorded the presumption of rights under the *Act on the Electronic Registration of Stocks and Bonds.* (hereinafter referred to as the "Electronic Securities Act")—under which a holder in possession of a physical certificate is presumed to be a lawful holder and may transfer the security by delivery of the certificate, and a person registered in the electronic securities account registry is presumed to be the lawful right holder and may transfer the security through book-entry transfers. Accordingly, Kasa established a mechanism to ensure legal protection of investors' rights by mirroring the distributed ledger and the Korea Securities Depository's electronic securities system on a one-to-one basis.

4.2.3 Policy Announcement on the Improvement of the Regulatory Framework Governing the Issuance and Distribution of Security Tokens

In 2023, the FSC announced a plan to reorganize the token security framework, clarifying that token securities are legally "securities" and subject to investor protection under the Capital Markets Act. Key features include:

Recognition of the Presumption of Legal Rights for Distributed Ledgers (Amendment to the Electronic Securities Act)

Security tokens are accommodated under the Electronic Securities Act as a form of securities issuance recorded on a distributed ledger. Distributed ledger technology is recognized as a legally valid method of recordation in the statutory register for information concerning the creation, modification, and extinguishment of rights in securities. Through this recognition, securities issued on a distributed ledger are afforded the same level of legal protection as traditional securities.

Introduction of the Issuer Account Management Institution (Amendment to the Electronic Securities Act)

Unlike traditional securities, which may be issued only through account management institutions such as securities companies, distributed ledger–based securities may be issued

directly by the issuer acting as an account management institution, provided that the issuer satisfies certain statutory requirements. Where the issuer does not meet the requirements to qualify as an issuer account management institution, the securities must be issued through an existing account management institution, such as a securities company.

Introduction of the Over-the-Counter Brokerage Business (Amendment to the Capital Markets Act)

Security tokens issued using distributed ledger technology are to be traded and circulated through the Korea Exchange (KRX) and licensed over-the-counter (OTC) brokerage firms. OTC brokerage firms are required to meet certain quantitative thresholds and to satisfy prescribed physical and human resource requirements, as well as to establish internal control standards, including measures to prevent conflicts of interest.

In addition, in order to ensure the separation of issuance and distribution, securities and beneficial certificates that are issued, underwritten, or arranged by the brokerage firm itself or by its affiliates, as well as beneficial certificates for which such entities act as trustees or sponsors, may not be distributed through the same brokerage firm.

The amendment to the Enforcement Decree of the Capital Markets Act regarding the introduction of over-the-counter(OTC) brokerage entities were enacted and took effect in September 2025. Subsequently, the amendments to the Electronic Securities Act, along with additional revisions to the Capital Markets Act, passed the National Assembly plenary session on January 15, 2026.

4.2.4 Full Implementation of Security Tokens in 2027 and Key Challenges for Institutional Stabilization

The security token (STO) market in the Republic of Korea is scheduled for full-scale implementation in January 2027. In preparation for this rollout, the government will launch the Security Token Consultative Body in February 2026.

The consultative body will design detailed regulatory frameworks through three specialized working groups: (i) technology and infrastructure (including blockchain infrastructure), (ii) issuance framework (including securities registration statements), and (iii) distribution framework (including disclosure requirements for secondary trading and licensing regimes).

From a technological perspective, the use of smart contracts in connection with security tokens is expected to become fully operational. In particular, with a focus on investment contract securities, smart contracts are anticipated to enable the automation of contractual execution, including profit distribution, the provision of incentives, and the exercise of conditional rights. This development may lead to enhanced operational efficiency and improved transaction transparency in capital markets.

The remaining key challenge lies in the rational design of the permissible scope of infrastructure and licensing requirements. In particular, whether the current private blockchain–based framework should be expanded to permit the use of public blockchains constitutes a critical policy issue that will determine the scalability and international competitiveness of Korea's security token ecosystem. In addition, ongoing domestic discussions on security tokens remain largely centered on fractional investment, and the limited scope of permissible underlying assets continues to function as a constraint on the expansion of viable business models.

Ultimately, legislation represents only a starting point. Over the next year, the design of subordinate regulations that can preserve investor protection while accommodating technological innovation will constitute a critical turning point in determining the international competitiveness of Korea's security token market.

4.3 United States

4.3.1 Integration into the Existing Regulatory Framework and the "Same Function, Same Regulation" Principle

In the United States, even where assets take the form of digital tokens, existing securities regulations—namely the Securities Act of 1933 and the Securities Exchange Act of 1934—are applied if their economic function and substance qualify them as securities. This approach reflects the so-called "same function, same regulation" principle. Accordingly, a number of digital assets have been registered as securities, and in many cases, issuers have relied on registration exemptions under Regulation D. This approach generally permits securities offerings to be conducted as private placements, allowing sales only to accredited investors.

4.3.2 Private Fintech–Led Security Token Infrastructure Built upon Traditional Financial Regulation

As discussed above, security token service providers in the United States operate their businesses based on existing licensing frameworks embedded in traditional financial infrastructure, rather than seeking to create an entirely new and separate regulatory regime. The issuance, custody, and distribution of security tokens are structured around established securities market licenses—namely transfer agents, broker-dealers, and alternative trading systems (ATSs)—with distributed ledger technology being utilized in a manner that supports and extends this existing framework.

Amendments to the UCC and the Exclusion from the Securities Exchange Act of 1934

The *Uniform Commercial Code* (UCC) has traditionally contemplated only certificated securities, represented by physical instruments, or uncertificated securities, recorded on the issuer's books. As a result, distributed ledger technology—characterized by the absence of a centralized record-keeping authority—has faced limitations due to its ambiguous legal status within the existing legal framework.

However, the 2022 amendments to the UCC introduced Article 12, which establishes the concept of "controllable electronic records." Under this framework, a person is deemed to have "control" where the electronic record itself, a record attached to or logically associated with it, or the system in which it is recorded: (i) confers upon the person the power to avail itself of substantially all of the benefits of the electronic record; (ii) grants the person exclusive power, subject to statutory exceptions, to prevent others from availing themselves of substantially all of such benefits and to transfer control of the electronic record to another person, or to cause another person to obtain control of a different controllable electronic record as a result of such transfer; and (iii) enables the person to readily identify itself as

holding such powers, including through a name, identifying number, cryptographic key, office, or account number. By defining control in this manner, the amendments allow transactions conducted through distributed ledger technology to be accorded legal effect.

In addition, the U.S. Securities and Exchange Commission (hereinafter, the "SEC") expressed a forward-looking interpretive position in its staff FAQs regarding the broker-dealer obligation to maintain possession or control of securities under Rule 15c3-3 of the Securities Exchange Act of 1934. Although the rule is premised on the existence of physical certificates, the SEC indicated that even in the case of digitally native, uncertificated assets such as crypto asset securities, the possession or control requirement may be deemed satisfied where such assets are held at a qualified control location.

These legislative developments are regarded as having laid the legal groundwork for recognizing distributed ledger records themselves as native securities records capable of evidencing the attribution and transfer of rights.

Transfer Agent: Legal Ownership Records for Security Tokens

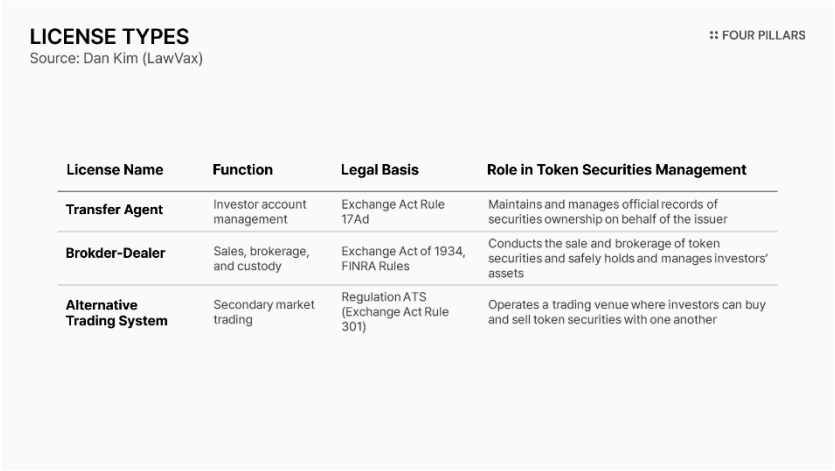
A transfer agent is a key entity that, on behalf of the issuer, maintains and administers the official records of securities ownership. Within a security token structure, the transfer agent is responsible for managing investor accounts and recording transfers and changes in ownership of security tokens. Such records serve as authoritative evidence consistent with the legal register and are accorded a strong presumption of legal validity.

Broker-Dealer: Distribution, Intermediation, and Custody

A broker-dealer is responsible for the sale and intermediation of security tokens, as well as the custody and management of customer assets. In this process, distributed ledger–based security tokens are subject to the same customer asset protection obligations applicable to traditional securities. However, as discussed above, security tokens are exempted from the requirement of physical possession and control of securities.

Alternative Trading System (ATS): Secondary Market for Security Tokens

Secondary trading of security tokens is conducted primarily through alternative trading systems (ATSs). While ATSs operate under a more flexible structure than national securities exchanges, they function as regulated trading platforms subject to Regulation ATS and are overseen by the U.S. Securities and Exchange Commission (SEC) and the Financial Industry Regulatory Authority (FINRA).



4.3.3 Integration of Distributed Ledger Technology into Centralized Core Infrastructure

Traditional financial market infrastructure (FMI) has been operated efficiently for decades; however, distributed ledger technology (DLT) is presenting new benchmarks in terms of settlement speed and operational efficiency. Against this backdrop, core U.S. financial market infrastructures—including Nasdaq and the Depository Trust & Clearing Corporation (DTCC)—are seeking to incorporate DLT in order to shorten settlement cycles within existing centralized systems and to enhance transparency in asset management.

DTCC Case Study: Digital Expansion of the Central Securities Depository System

The Depository Trust & Clearing Corporation (DTCC) is the central securities depository of the U.S. capital markets and a core institution responsible for the safe custody and settlement of securities transactions. In December 2025, DTCC obtained a no-action letter from the U.S. Securities and Exchange Commission (SEC). Pursuant to this relief, DTCC is permitted, over a three-year period, to provide custody and assurance services for tokenized stocks and other real-world assets (RWAs) recorded on pre-approved distributed ledgers. DTCC is expected to launch its new tokenization-related services in the second half of 2026.

Nasdaq Case Study: Overcoming Temporal Constraints of Centralized Exchanges

Nasdaq, as a leading U.S. national securities exchange, seeks to address the temporal constraints and inefficiencies inherent in traditional securities trading through the adoption of distributed ledger technology. Specifically, Nasdaq plans to build a system enabling 24-hour trading, five days a week, extending beyond the existing limited trading hours, with a target launch in the second half of 2026.

In addition, Nasdaq is focusing on the potential of distributed ledger technology to enable real-time settlement. By significantly shortening the settlement cycles that are currently standard in securities markets—such as T+2 or T+1—Nasdaq aims, over the longer term, to establish infrastructure capable of supporting same-day settlement (T+0).

To facilitate this system transition, Nasdaq has already submitted a proposed rule change to the SEC. If approved, Nasdaq—operating as a regulated central securities exchange under the SEC's formal supervision and authorization—will be able to offer security token trading utilizing distributed ledger technology within the existing regulatory framework.

4.3.4 Securitize: Demonstrating the Feasibility of Compliance-Native Security Tokens

Securitize demonstrates the practical feasibility of an issuer-led, native token model that embraces blockchain innovation while complying with U.S. securities regulation, without relying on exemptions from existing securities laws. Leveraging its status as an SEC-registered transfer agent, a FINRA-member broker-dealer, and an operator of a licensed alternative trading system (ATS), Securitize operates the entire lifecycle of security tokens within the regulated framework—from issuance to secondary market trading and custody-related support.

In particular, by working directly with issuers to issue native tokens in which the issuer's shareholder register directly reflects beneficial ownership, Securitize ensures that investors are granted the same voting and dividend rights as those associated with traditional securities, thereby providing legal certainty throughout the entire asset lifecycle.

The core driver of Securitize's regulatory compliance lies in its smart contract technology based on the DS Protocol. This protocol enables the whitelisting of investor wallets and performs real-time onchain verification of anti-money laundering (AML) compliance and investor eligibility (KYC). In addition, by synchronizing smart contracts with an off-chain master securities record, the system allows, in cases of token loss or theft, for the affected tokens to be burned and reissued at the issuer's instruction.

This architecture overcomes the anonymity traditionally associated with digital assets and the vulnerabilities of bearer securities, and may be regarded as presenting a modern custody model that is consistent with FINRA's customer protection rule (Rule 15c3-3).

Furthermore, Securitize integrates Regulation NMS, a core normative framework of traditional stock markets, into the onchain environment. By utilizing price oracles to ensure execution within prevailing market price ranges, the platform faithfully fulfills its best execution obligations. This robust risk management framework clearly differentiates Securitize from wrapped tokens or permissionless DeFi models that operate in regulatory blind spots.

While embracing the asset efficiency of DeFi—such as stablecoin-based settlement for security token purchases, onchain lending and borrowing, and the use of tokens as collateral—Securitize simultaneously achieves the financial system stability required by regulators, thereby positioning itself at the forefront of a global standard for compliant tokenization.

4.4
Japan

4.4.1 Digital Asset Regulation through the Extension of Existing Financial Regulatory Frameworks

Unlike Korea or the European Union, which have enacted separate regulatory regimes for digital assets, Japan regulates digital assets by defining and governing them within its existing financial laws.

Under the Financial Instruments and Exchange Act (FIEA), security tokens are defined as Electronically Recorded Transfer Rights, which are regarded as securities rights recorded in a digital form.

CRYPTO-ASSET REGULATORY FRAMEWORK IN JAPAN
Source: Dan Kim (LawVax)

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Asset Type	Regulatory Law	Category	License / Authorization
Non-security Crypto-Assets (BTC, ETH)	Payment Services Act (PSA)	Intermediation	Crypto-Asset Exchange Service Provider
Security Token Crypto-Assets	Financial Instruments and Exchange Act (FIEA)	Issuance	Type I Financial Instruments Business
		Alternative Trading System	Type I Financial Instruments Business & Approval by Japan Financial Services Agency (FSA)
		Over-the-Counter Brokerage	Type I Financial Instruments Business

Electronically Recorded Transfer Rights are subject to the same regulatory framework as securities listed in Article 2, Paragraph 1 of the Act (Article 2, Paragraph 3 of the Financial Instruments and Exchange Act).

Accordingly, any entity engaging in businesses involving such rights is required to obtain a Type I Financial Instruments Business license pursuant to Article 28 of the Financial Instruments and Exchange Act.

However, pursuant to Guideline 2-2-2 under the Financial Instruments and Exchange Act and related guidelines, where the registration (recordation) of the holder(s) of rights or the number of such rights, which are contractually or in practice managed by the issuer or other relevant party, and the transfer of such rights are carried out in an integrated and continuous manner on an electronically recorded ledger (including any ledger that is linked to such ledger), the relevant rights shall constitute Electronically Recorded Transfer Rights.

Conversely, where the electronic ledger is merely created for internal administrative purposes

within the issuer or similar entity, and the transaction parties or intermediaries are unable to access or refer to such electronic ledger, the rights recorded therein shall not be deemed Electronically Recorded Transfer Rights.

In conclusion, Electronically Recorded Transfer Rights are not merely internal electronic records, but a system that grants legal effect to the transfer of rights through a transparent and consensus-based electronic ledger.

4.4.2 The SBI-Led Strategic Paradigm in the Stock Tokenization Market

The SBI Group utilizes security tokens as a primary mechanism to overcome the limitations of traditional stock market structures, pursuing a strategy to establish an integrated digital infrastructure that encompasses the entire lifecycle of issuance, distribution, and settlement.

Secondary Market via Proprietary Trading Systems (PTS), the Osaka Digital Exchange (ODX)

Japan has adopted a distinct distribution structure centered on Proprietary Trading Systems (PTS) rather than listing security tokens on the Tokyo Stock Exchange (TSE). To engage in these operations, entities are required to obtain a Type I Financial Instruments Business license under the Financial Instruments and Exchange Act (FIEA).

In 2021, SBI Holdings and Mitsui Sumitomo Financial Group established the Osaka Digital Exchange (ODX) through a joint venture, successfully institutionalizing an independent distribution channel for security tokens within the formal regulatory framework. "START," operated by ODX, is Japan's first secondary market dedicated to security tokens authorized to handle "Electronically Recorded Transfer Rights." It currently serves as the core infrastructure for Japan's security token distribution model.

Digitalization Strategy for Securities Settlement and Clearing Infrastructure Using Stablecoins and Deposit Tokens

Securing Stablecoin Distribution Licenses by the SBI Group

Japan recognizes crypto-assets as a legitimate means of payment. The institutional foundation was finalized through the 2023 amendment of the Payment Services Act, which explicitly defined stablecoins as "Electronic Payment Instruments" and established a new licensing system for "Electronic Payment Instrument Exchange Service Providers

In connection with these regulatory developments, SBI VC Trade became the first entity in Japan to obtain the "Electronic Payment Instrument Exchange Service Provider" license in March 2025. By securing the authority for the legal distribution and payment processing of USDC within Japan, the group has established a leading position in the market.

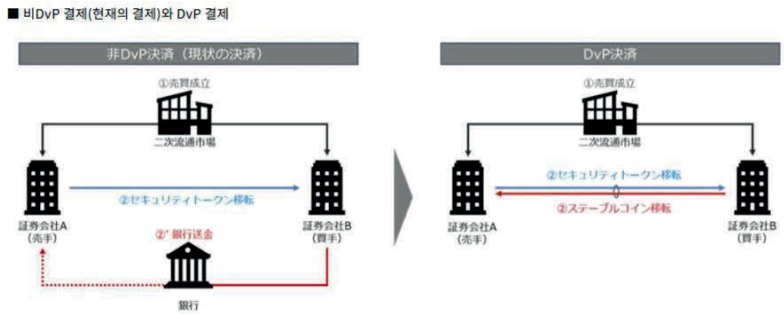
Real-time DVP Structure Linking Security Tokens and Stablecoins

In August 2025, the Osaka Digital Exchange (ODX) announced a project for Delivery Versus Payment (DVP) utilizing security tokens and stablecoins. In this framework, the transfer of securities and the payment of funds are conditionally linked and executed automatically via smart contracts.

Notably, this system adopts a "gross settlement" structure, where settlement occurs on an individual transaction basis, rather than the traditional method of aggregating transactions for collective netting.

If this structure is formally established, it is anticipated that the transfer of securities and payment of funds will occur instantaneously and simultaneously on the blockchain. In the long term, this is expected to resolve the settlement lag (T+N) inherent in traditional securities settlement systems, as well as the accompanying clearing risks.

Furthermore, global investors will be able to utilize internationally recognized stablecoins, such as USDC, to facilitate rapid investment and capital repatriation regarding security token assets within Japan. Consequently, this is highly likely to reduce friction costs associated with cross-border payments and capital movements, ultimately establishing a more 'seamless' international investment environment.

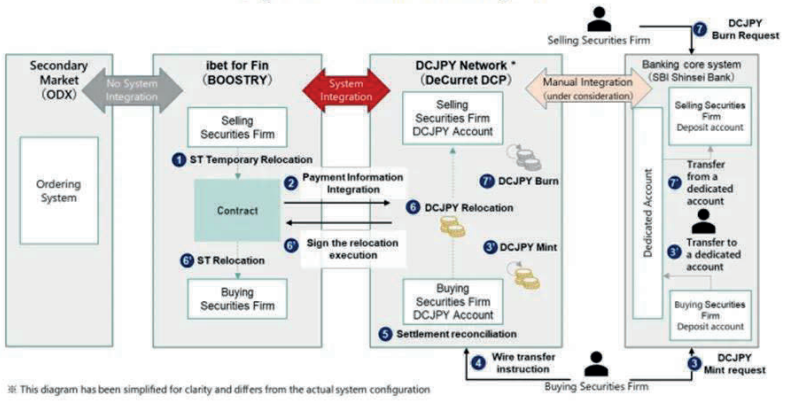


Source: odx

Infrastructure Strategy Extending to Deposit Token-Based Stock Settlement Proof-of-Concept

The SBI Group is conducting proof-of-concept (PoC) experiments for an stock DVP (Delivery Versus Payment) settlement structure utilizing not only stablecoins but also DCJPY, a form of deposit token. This initiative is evaluated as a strategic move that transcends the mere tokenization of shares; it represents a comprehensive effort to redesign the entire financial infrastructure—encompassing transfer, settlement, and clearing systems—on a distributed ledger foundation.

【Figure1: Demonstration Scheme Diagram】



Source: SBI Shinsei Bank

4.5
EU

4.5.1 The EU DLT Pilot Regime (DLTR, Regulation 2022/858)

Inclusion of Distributed Ledger in the Definition of 'Financial Instruments'

The EU has amended the existing MiFID II to explicitly include instruments issued via Distributed Ledger Technology (DLT) within the definition of "financial instruments." Through this amendment, tokens issued and circulated on a distributed ledger have obtained formal legal status as "financial instruments" (MiFID II, Art. 4(1)(15)).

Temporary Recognition of Distributed Ledger Records as 'Book-entry'

Under the EU Central Securities Depository Regulation (CSDR), listed securities must be recorded in the form of book-entry at a Central Securities Depository (CSD) to obtain formal legal recognition (CSDR Article 3). However, the DLT Pilot Regime (DLTR) provides a temporary exemption from this requirement to support technological innovation.

Under the DLT Pilot Regime (DLTR), operators of DLT Settlement Systems (DLT SS) and DLT Trading and Settlement Systems (DLT TSS) are permitted to use a distributed ledger in place of the traditional Central Securities Depository (CSD) ledger. This allowance is granted provided that the operators demonstrate that traditional book-entry methods are incompatible with distributed ledger technology and implement compensatory measures to ensure investor protection and market stability.

Furthermore, the DLTR permits a temporary settlement structure in which the delivery of securities and the payment of funds are completed solely through onchain data movement, by mandating that the transfer of tokens on a distributed ledger be regarded as a legally valid 'settlement'.

Establishment of New DLT Market Infrastructures

The DLT Pilot Regime (DLTR) has defined three new forms of infrastructure based on distributed ledger technology.

- DLT multilateral trading facility (DLT MTF) : A multilateral trading facility that only admits to trading DLT financial instruments
- DLT settlement system (DLT SS) : A settlement system that settles transactions in DLT financial instruments against payment or against delivery
- DLT trading and settlement system (DLT TSS) : A DLT MTF or DLT SS that combines services performed by a DLT MTF and a DLT SS

Direct Trading Based on DLTR and the Acceptability of Non-Custodial Wallets

In traditional financial markets, transactions were required to be conducted through "intermediaries." However, the DLT Pilot Regime (DLTR) allows natural persons to participate directly in DLT market infrastructure as participants without an intermediary.

In this regard, the European Securities and Markets Authority (ESMA) stated in its DLT Pilot Regime report that "direct transactions between investors using non-custodial wallets that they control directly, with no interposition of a third-party, could be considered OTC trading, while exchanging an asset between two counterparties through the interposition of an DLT MI, where the infrastructure also offers the custodial wallet to the two counterparties, could be considered on-venue trading". By providing this interpretation, ESMA has effectively opened up the possibility for the P2P transfer of tokenized financial instruments via non-custodial wallets.

4.5.2 [Reference] Robinhood's Lithuania-Based Stock Tokenization Service Mode

Robinhood has obtained a Category A financial brokerage firm license in Lithuania, an EU member state and a Crypto Asset Service Provider (CASP) license to expand its services across more than 30 countries in the European Economic Area (EEA). This model utilizes tokenization technology within the regulatory framework of MiFID II.

Robinhood's Products: OTC Derivatives, Not Securities

Robinhood's security tokens are legally classified not as "securities," but as over-the-counter (OTC) derivatives with the characteristics of Contracts for Difference (CFD) regulated under MiFID II. In other words, investors do not directly hold the underlying shares; instead, they enter into a 1:1 contractual relationship where gains or losses resulting from price fluctuations are settled in cash.

Under this structure, Robinhood does not act as an intermediary; instead, it functions as the direct counterparty to its users. Based on its Category A financial brokerage license in Lithuania, Robinhood exectues trades via an over-the-counter(OTC) model.

In such an OTC structure, unlike listed securities, there is no mandatory requirement to record transactions in the Central Securities Depository (CSD) ledger. Consequently, it is possible to utilize a distributed ledger as a means of contract recording and management without the need for separate regulatory exemptions, such as those provided by the DLT Pilot Regime (DLTR).

Furthermore, since typical rights associated with shares, such as the entry in the register of shareholders or the granting of voting rights, are not required, this model is characterized by

a relatively low implementation burden in terms of service design and operation

Division of Institutional Roles and Asset Custody

To manage the risks associated with the CFD contracts executed with investors and to satisfy regulatory requirements, hedging and asset custody are performed.

ROBINHOOD'S LITHUANIA-BASED STOCK TOKENIZATION
Source: Dan Kim (LawVax)

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Institutional Role	Function
Robinhood	Acts as the counterparty to clients' CFD transactions and, in order to offset market risk arising from clients' long/short positions, establishes a Special Purpose Vehicle ("SPV") to acquire the underlying assets.
Custodian Institution	The actual underlying shares acquired by Robinhood for risk management purposes are held in custody and are reportedly kept with a US-licensed institution. These assets are hedging assets for the purpose of risk management of the Robinhood entity, separate from client asset segregation obligations.
Bank of Lithuania	In accordance with MiFID II, regularly supervises whether Robinhood maintains adequate capital and sufficient risk management (hedging) systems, and imposes transparency and reporting obligations (EMIR) regarding clients' CFD positions.

4.6
Liechtenstein

4.6.1 The World's First Comprehensive Blockchain Legislation: The Liechtenstein TVTG

Liechtenstein enacted the Token and Trustworthy Technology Service Provider Act (commonly referred to as the TVTG) in 2020. By doing so, it became the first jurisdiction in the world to introduce a comprehensive legal framework governing the transfer of rights via distributed ledger technology.

The core of the TVTG lies in its adoption of the 'Token Container Model,' which directly links legal rights to tokens on a distributed ledger. Under this model, existing legal rights—such as stocks, bonds, real estate, intellectual property, and physical assets—are encapsulated within a digital container called a 'token' to be transferred on a distributed ledger. Consequently, the transfer of the token itself is legally recognized as the transfer of the underlying right.

This is evaluated as a more advanced approach than the EU's DLT Pilot Regime (DLTR) implemented later, in that it does not merely digitize existing rights for record-keeping on a distributed ledger, but rather recognizes the legal status of the digital certificate itself as the embodiment of the right. While the DLTR posits the distributed ledger as a substitute for traditional 'ledgers,' the TVTG recognizes the token as the legal object itself through which rights are manifested.

COMPARISON OF APPROACHES: DLTR VS. TVTG
Source: Dan Kim (LawVax)

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Category	EU DLTR	Liechtenstein TVTG
Regulatory Nature	Regulatory sandbox	Law
Nature of Tokens	Financial instruments issued directly on DLT	Token container capable of representing any type of rights
Legal Basis for Native Token Issuance	Allows issuance of native tokens by exempting certain obligations under existing securities laws (e.g., CSDR)	Defines token transfer as a transfer of rights and recognizes tokens themselves as legal objects, thereby allowing native token issuance
Scope of Applicable Assets	Traditional financial instruments such as listed shares, bonds, and funds	All types of rights, including real estate, intellectual property rights, and tangible assets

4.6.2 Application of MiCA in Liechtenstein

Although Liechtenstein is not a member of the European Union (EU), it belongs to the European Economic Area (EEA) and adopts a significant portion of the EU's single market regulations. Accordingly, the Markets in Crypto-Assets Regulation (MiCA) is implemented and applied as part of Liechtenstein's domestic law.

However, the TVTG and MiCA are not designed to be mutually exclusive; rather, they are structured to coexist with clearly demarcated regulatory scopes. MiCA governs the overall crypto-asset market—including crypto-assets like Bitcoin and Ethereum, as well as stablecoins—by regulating the licensing of Crypto-Asset Service Providers (CASPs), white paper disclosure requirements, and market abuse. In contrast, the TVTG addresses legal issues concerning NFTs, security tokens, and tokenized rights, granting legal effect so that the transfer of a token constitutes the transfer of the underlying right according to the Token Container Model.

Ultimately, while MiCA functions as a financial regulatory framework for the crypto-asset market, the TVTG serves as the comprehensive legal infrastructure governing the ownership and transfer of rights embodied in tokens. These two systems operate in a complementary manner.

4.7
United Kingdom

4.7.1 UK Regulatory Principles: Substance over Form

The UK Financial Conduct Authority (FCA) does not treat tokenized shares as a distinct asset class; rather, it classifies them as "Specified Investments," identical to traditional financial instruments.

According to the FCA guideline PS 19/22 (Guidance on Cryptoassets), if the rights inherent in traditional securities—such as stocks or bonds—are implemented in a tokenized format, they are categorized as security tokens. Consequently, they are subject to the same financial regulatory framework as conventional securities.

As a result, any entity seeking to issue or distribute tokenized shares must ensure that both the issuer and intermediaries obtain financial business authorization under the Financial Services and Markets Act (FSMA) and MiFID. Furthermore, they must strictly comply with the same regulations applicable to traditional securities, including the preparation of prospectuses and continuous disclosure obligations.

4.7.2 Testing Innovation through Sandboxes while Maintaining Existing Securities Regulations

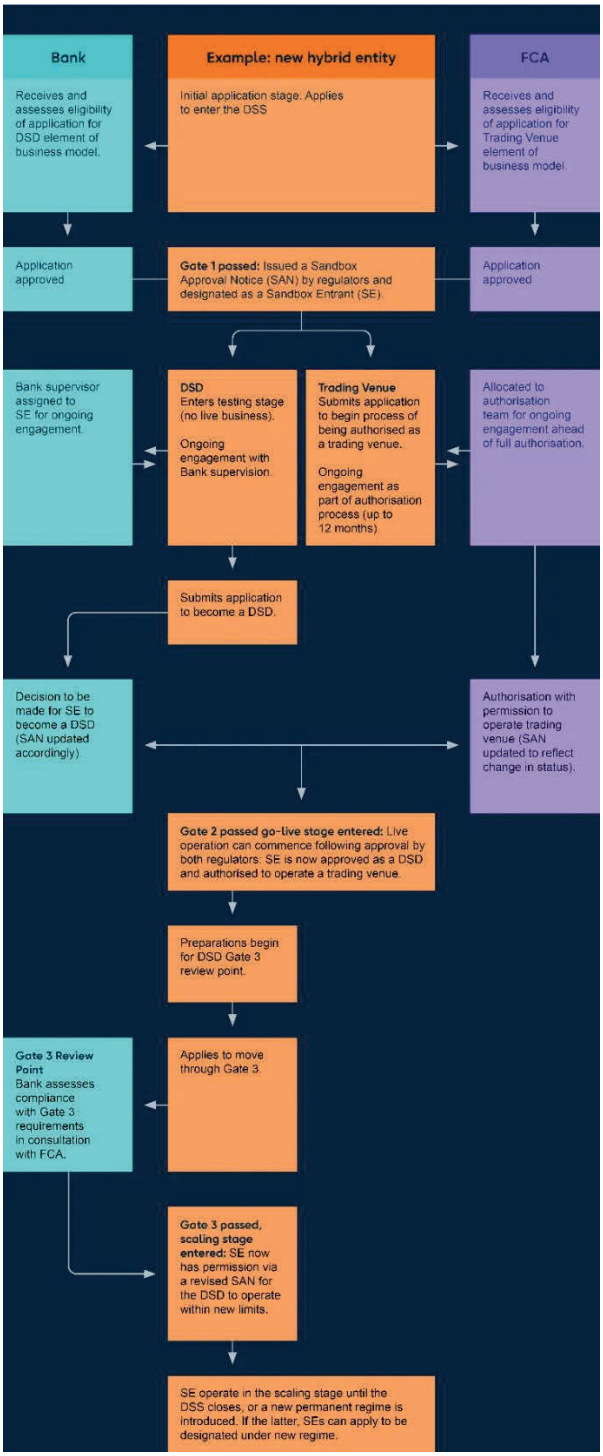
The UK operates the Digital Securities Sandbox (DSS) to facilitate the introduction of security tokens, where participating entities are subject to joint supervision by the FCA and the Bank of England. The UK is designing its system based on a hybrid model, where a single legal entity can perform both trading venue functions and settlement/custody functions, the latter being referred to as a Digital Securities Depository (DSD).

Applicants must submit their respective entry applications for the DSS to both the FCA and the Bank of England, after which they proceed through the following stages:

- Gate 1: Application to become a sandbox entrant and begin non-live testing and preparation. Concurrently, the applicant undergoes the FCA's exchange authorization process, which may take up to 12 months.
- Gate 2: Approval to begin live activities in the DSS.
- Gate 3: Application to increase limits and scale up activity.
- Gate 4: Approval for operating outside DSS under a possible new permanent regime.

This sandbox model is scheduled to conclude in December 2028, and the empirical results obtained therein will serve as the legislative basis for the future digital securities regulatory framework. The UK utilizes the regulatory sandbox not merely as a temporary experiment, but

as a phased implementation pathway leading toward formal institutionalization.



Source: Bank of England

4.7.2 Law Commission Report: Digital Assets

Similar to Liechtenstein's "Token Container Model," the UK is pursuing legislative reforms to grant direct legal effect to tokens. In 2023, the UK Law Commission recommended the necessity of recognizing digital assets as a "third category" of personal property, distinct from the traditional categories of "things in possession" (tangible objects) and "things in action" (claims or rights).

This recommendation reflects the critical awareness that DLT-based tokens are not sufficiently encompassed by the existing property law framework. If this recommendation is adopted, it is expected to provide a robust legal foundation to protect the possession and ownership of tokens under UK law.

4.8
Switzerland

4.8.1 Native Stock Tokenization via the Swiss DLT Act and Autonomy-Oriented Regulatory Design

Through the "Federal DLT Act" enacted in 2021, Switzerland has fully integrated distributed ledger technology into its existing legal framework, including the Civil Code (specifically the Code of Obligations). A key innovation is the concept of "Registration Agreements," which allows the transfer mechanism of tokens to be designed flexibly according to the parties' agreement—such as smart contract logic and terms of use—rather than being uniformly prescribed by law. This structure does not fix the distributed ledger as a static technical infrastructure; instead, the law provides only the minimum requirements for the establishment of rights, leaving the specific transaction mechanisms to the autonomy of market participants.

Furthermore, Switzerland has established a secondary market for security tokens via distributed ledgers by introducing the "DLT Trading Facility License," which allows for the integrated performance of trading, settlement, clearing, and custody functions. The SIX Digital Exchange (SDX) stands as a representative case where Switzerland's DLT-based securities regulation has been realized as actual market infrastructure. Under this legal foundation, Swiss corporations are now able to conduct "native issuance," where shares are issued in digital form from the very beginning.

4.8.2 Stock Tokenization by Backed Finance and Ondo Finance: Pan-European Distribution Strategy through Regulatory Integration

The security tokens issued by Backed Finance and Ondo Finance are securities structured as "Tracker Certificates," designed to allow investors to track the performance of underlying assets on a 1:1 basis without requiring direct ownership of those assets. Under the MiFID II framework, these instruments are classified as "Transferable Securities".

Backed Finance and Ondo Finance adopted Swiss law—which explicitly codifies the legal status and transfer of rights for DLT-based securities—as their governing law. Simultaneously, they established a strategic "multi-jurisdictional regulatory integration" model to overcome the limitation of Switzerland not being a member of the European Economic Area (EEA). Specifically, these entities obtained approval from the Financial Market Authority (FMA) of Liechtenstein, an EEA member state, in accordance with the EU Prospectus Regulation. By linking this approval with the Passporting system, they completed a legal structure that enables the lawful issuance of securities to qualified investors across the EU, including Germany and France.

The distribution of Backed Finance's xStocks within Europe is conducted based on the investment firm license (No. 342/17) held by PEDSL (Payward Europe Digital Solutions (CY) Limited), which is regulated by the Cyprus Securities and Exchange Commission (CySEC). In this framework, PEDSL does not act as an intermediary but serves as the direct counterparty to the transactions.

Unlike Robinhood's stock tokens—which are derivatives and cannot be transferred out of the application—the security tokens of Backed Finance and Ondo Finance are capable of onchain circulation. In non-custodial environments such as Bitget or MetaMask, this allows users to hold and transfer tokens directly via their own wallets, effectively functioning as peer-to-peer (P2P) transactions rather than exchange-based trades managed by the service provider.

Meanwhile, Ondo Finance is accelerating its entry into the U.S. tokenized stock market, extending its reach beyond Europe. To facilitate distribution within the United States, Ondo Finance is establishing an infrastructure that strictly adheres to the U.S. securities regulatory environment. Specifically, the firm utilizes Oasis Pro Markets—an SEC-registered broker-dealer and Alternative Trading System (ATS) operator—to conduct brokerage activities. Furthermore, by appointing Oasis Pro Transfer Agent as its transfer agent, Ondo Finance is developing a tokenized stock distribution system that maintains rigorous compliance with the institutional regulations of the U.S. capital markets.

4.9
Hong Kong

4.9.1 Regulatory Status of Stock Tokenization in Hong Kong: Technology Neutrality and Application of Existing Securities Regulations

In November 2023, the Hong Kong Securities and Futures Commission (SFC) outlined its regulatory direction for security tokens through the "Circular on Intermediaries Engaging in Tokenised Securities-Related Activities." Hong Kong maintains a technology-neutral stance, asserting that tokenized securities are identical to traditional securities in terms of their legal and economic substance, regardless of the underlying technical implementation. Consequently, existing securities regulations apply directly to equity tokens. While the SFC theoretically permits both public and private blockchains, it emphasizes rigorous controls over transfer restrictions, minting and burning mechanisms, and procedures for transaction reversal or redemption when utilizing public blockchains.

Regarding the issuance structure, Hong Kong currently recognizes the legal effect of records on a distributed ledger primarily through contractual arrangements. To institutionally recognize "native issuance," where rights are established directly via distributed ledger records, further legislative reforms are required to introduce the concept of "possession" for electronically transferable records. Meanwhile, to provide brokerage or trading services for security tokens or virtual assets, an entity must either (1) be a platform operator holding Type 1 (Dealing in Securities) and Type 7 (Providing Automated Trading Services) licenses under the Securities and Futures Ordinance (SFO), or (2) obtain a Virtual Asset Trading Platform (VATP) license under the Anti-Money Laundering Ordinance (AMLO).

By leveraging the principle of freedom of contract within the existing Common Law framework prior to formal legislative amendments, Hong Kong has opened a practical path for the industry. This serves as a significant pragmatic regulatory model that ensures market innovation is not stifled during legislative lacunae.

4.9.2 Easing the Classification of “Complex Products” and Permitting Retail Distribution

One of the key implications of Hong Kong’s 2023 guidelines is the abandonment of the blanket practice of classifying all security tokens as “complex products.” Previously, tokenized products were automatically deemed complex solely by virtue of being tokenized, which effectively restricted their sale to retail investors. The guidelines clarify the principle that, where the underlying asset itself is non-complex, the mere fact of tokenization does not justify classification as a complex product.

By dismantling regulatory barriers that had limited investor access on purely technological grounds, the guidelines have opened the door to the activation of a retail-oriented security token market.

4.9.3 Project Ensemble: Pilot Implementation of Integrated Tokenized Assets and Real-Time Settlement Infrastructure

Project Ensemble, led by the Hong Kong Monetary Authority (HKMA), is an initiative aimed at piloting a next-generation financial market infrastructure (FMI) tailored for transactions in tokenized assets. A central focus of the project is the implementation of an interbank real-time settlement architecture leveraging wholesale central bank digital currency (wCBDC). The project conducts proof-of-concept testing to validate the technical interoperability among tokenized assets, tokenized deposits, and wCBDC.

By implementing a system in which assets and money are settled on a single ledger, the project presents a reference model for addressing long-standing inefficiencies in traditional securities markets, including settlement delays and counterparty risk. In this respect, the initiative represents a significant technological milestone, as it goes beyond mere asset tokenization toward the full digital integration of the monetary system and capital markets.

4.10
Policy Implications and Recommendations

At present, in many jurisdictions, security tokens are being incorporated into existing securities law frameworks and are designed to be subject to the same level of regulation and investor protection as traditional securities. However, the significance of security tokens extends beyond the mere digitization of record-keeping.

The realization of instant settlement through distributed ledger technology, together with an integrated structure encompassing trading, clearing, and settlement, has the potential to fundamentally enhance the operational efficiency of capital markets and to accelerate the velocity of capital circulation. Furthermore, by enabling exchanges with stablecoins and interoperability with DeFi protocols, security tokens are expected to function as boundary assets that connect traditional finance with decentralized finance, thereby facilitating convergence with the onchain financial ecosystem.

The emergence of such new financial infrastructure should, from a regulatory perspective, be approached not as a matter of simple permission or prohibition, but as a challenge of building systemic resilience to ensure the stable functioning of the financial system in a transformed market environment. While preserving the principles of prudential regulation and investor protection that have been accumulated under existing securities regulation, it is essential to design a sophisticated regulatory framework that can institutionally accommodate the programmability and cross-border interoperability enabled by distributed ledger technology.

Ultimately, future regulatory strategies should focus not on ex ante controls that suppress innovation, but on flexible and phased regulatory reforms capable of managing risks while responding to changes in market structure.

5.
BUSINESS OPPORTUNITIES

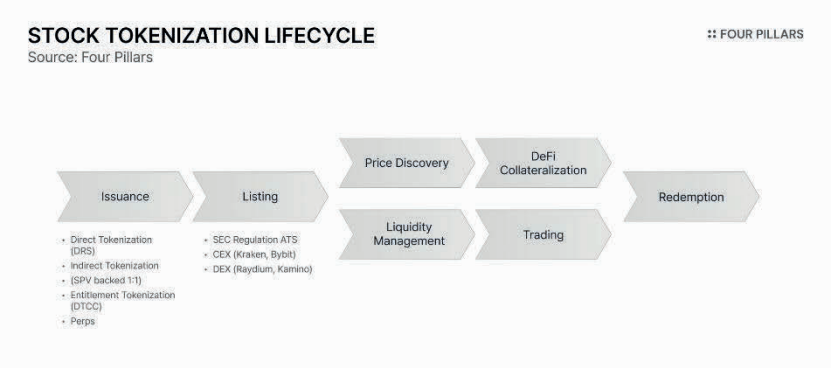
When the underlying technical primitives change, the range of businesses that can be built on top of them changes as well. Stablecoins were the first clear example of this shift. Major issuers such as Tether and Circle now have roughly $250B in stablecoins in circulation, and Tether has grown into a company that holds more U.S. Treasuries than most G20 countries.

The business scope of stablecoins has already moved beyond issuance. It now spans orchestration layers (i.e., BVNK, Stripe), onchain neobanks (i.e., Ether.Fi, UR), and stablecoin payment terminals (i.e., Ingenico-WalletConnect), with products that are already in active commercial use.

New technologies have consistently created new forms of economic activity, and new business opportunities have followed. The natural question, then, is what kinds of opportunities tokenized stocks unlock.

In this section, we map out the lifecycle of stock tokens, examine the current market landscape, and highlight the business opportunities that are beginning to emerge.

5.1
Tokenized Stock Lifecycle



The tokenized stock market is still in its early stages, and most discussions today remain focused on tokenization models. Issuance, however, is only the starting point. In the sections below, we walk through the full lifecycle of stock tokens, from issuance to listing on trading venues, price discovery and liquidity formation, use as collateral, and eventual redemption.

To ground this analysis, we focus on three representative case studies: Securitize, Backed Finance, and Robinhood. We compare how each stage differs across these models and identify the key considerations at each step.

5.1.1 Issuance

- Securitize: Issues stock tokens directly through an SEC-registered transfer agent. Investors can participate only via approved wallets, and the tokens carry the same ownership rights, voting rights, and dividend rights as traditional shares.
- Backed Finance: An SPV holds the underlying shares and issues bearer debt securities that reference the shares, packaged in token form.
- Robinhood: When an investor purchases a stock token through the Robinhood app, Robinhood EU acquires the shares via a U.S. broker and issues the stock token as a derivative contract rather than as the underlying shares.

The first step in the lifecycle is the tokenization of the underlying shares. The key distinction lies in the legal ownership structure implied by each tokenization model. This structure determines where the token can trade and who is allowed to participate. We omit the detailed mechanisms here, as each model was covered in the previous section.

5.1.2 Listing on Trading Venues

- Securitize: Supports secondary trading of stock tokens on its own ATS. The ATS partners with OTC market makers that operate as SEC- and FINRA-registered broker-dealers, facilitating trades via both order book and RFQ mechanisms.
- Backed Finance: xStocks trade freely on a 24/7 basis across CEXs such as Bybit and Kraken, as well as DEXs such as Jupiter and Raydium.
- Robinhood: Robinhood stock tokens can be traded only within the Robinhood app and currently operate on a 24/5 schedule.

Trading venue access varies by tokenization model, and execution mechanics differ accordingly. On the Securitize ATS, order matching and settlement occur offchain under existing securities market rules. By contrast, xStocks face no venue restrictions. They trade via order books on CEXs and via non-custodial, onchain AMMs on DEXs. Robinhood acts as both counterparty and liquidity provider, internalizing user order flow within its platform.

5.1.3 Price Discovery

- Securitize: Under Reg NMS, Securitize's ATS is required to provide fair execution prices. At the point of order matching, it references prices formed in traditional stock markets and verifies that executions fall within acceptable price ranges.
- Backed Finance: xStocks integrate oracles that source reference prices for the underlying stocks onchain. Solana-based stock tokens primarily rely on Pyth Network, while EVM deployments combine multiple data sources, including Chainlink, to construct reference prices.
- Robinhood: Stock token prices are determined within Robinhood's internal ledger system and directly reference regular-session prices from U.S. stock markets such as Nasdaq and NYSE.

Price discovery provides a fair reference price that allows investors to trade efficiently. Compared to traditional stocks or crypto-native assets, price discovery for stock tokens involves more friction. While crypto assets default to 24/7 onchain trading, the underlying markets for stocks remain offchain.

The most challenging factor is regular trading hours. When markets are open, arbitrage keeps stock token prices closely aligned with their underlying shares. Premiums and discounts are quickly corrected using real-time price feeds, and token prices converge toward spot stock prices.

However, U.S. stock markets close for 16 hours on weekdays and remain shut over weekends. During these periods, no dominant reference price exists, and the price linkage of 24/7-traded stock tokens can weaken. Off-hours trading also introduces higher risks of price gaps, stale data, and execution instability.

As a result, stock tokens require safeguards to manage offchain and off-hours risk. These include market-status tracking, data freshness detection, circuit breakers, and event-awareness logic. In response, oracle providers have begun integrating contextual metadata into their data feeds alongside raw prices.

Traditional ATSs and market data vendors are also entering the stock token market by supplying after-hours price feeds to oracle networks. In addition, if NYSE's planned 24/5 trading support is implemented, price gap risks may be reduced across most trading hours, excluding weekends.

5.1.4 Liquidity Management

- Securitize: Secures liquidity through partnerships with OTC market makers on its ATS.
- Backed Finance: xStocks connect to CEX order books supported by market makers while also sourcing onchain liquidity from external LPs via DEX pools.
- Robinhood: Liquidity for Robinhood stock tokens is confined to the platform itself and depends on Robinhood's internal order book and affiliated market makers.

Liquidity management ensures that stock tokens can absorb market trading activity smoothly. Beyond supporting large trades, sufficient liquidity depth is essential for stock tokens to function as collateral, preventing unnecessary liquidations driven by price impact and allowing borrowers to unwind positions when needed.

In practice, stock token trading typically occurs on thin liquidity. This leads to frequent price swings and excessive slippage for traders. For example, swapping $1M of TSLAx on Jupiter results in roughly 5% slippage, while NVDAx experiences slippage as high as 80%, rendering it effectively untradeable. Compared to traditional exchanges such as CME, where price impact is measured in single-digit basis points, these levels are difficult to accept.

Liquidity constraints largely stem from market-making challenges. In public markets, market makers supply liquidity by managing inventory under risk constraints and allocating capital efficiently. stock token markets present unfavorable conditions on several fronts.

- High inventory costs: Market makers must pre-acquire stock tokens from issuers before supplying liquidity, incurring issuance and redemption fees as well as operational friction related to brokers and custodians.
- Low inventory turnover: stock tokens cannot always be redeemed instantly beyond small sizes, and redemption limits are often set on daily or weekly schedules. This prevents rapid inventory reduction and forces market makers to unwind positions gradually, reducing capital efficiency and spread capture.
- Limited hedging options: During off-hours, hedging instruments are unavailable. Market makers facilitating weekend trading bear direct price risk and respond by quoting wide spreads and small sizes. Investors who buy at a premium during weekends risk immediate

losses when prices converge to spot stock levels at market open.

For these reasons, protocols, exchanges, and investors are forced to adopt conservative operating strategies in the stock token market. These include lower LTV ratios, wider safety margins, and avoiding off-hours trading altogether. Over the long term, stock token markets may seek to reduce dependence on traditional stock venues and evolve into base markets themselves. Achieving this, however, would require substantial changes across regulatory frameworks and financial infrastructure and remains a longer-term challenge.

5.1.5 Collateralization

- Securitize: Through DS Protocol features such as KYC enforcement, transfer restrictions, and address whitelisting, Securitize is positioned to enable collateralization within a permissioned ecosystem composed of pre-approved participants and applications.
- Backed Finance: xStocks are already used as collateral across permissionless DeFi protocols such as Kamino and Loopscale.
- Robinhood: Robinhood stock tokens are restricted to trading within the platform and do not support collateralization services.

Tokenized bonds such as BUIDL and USTB have already established themselves as DeFi collateral assets that generate stable Treasury yields alongside additional lending income. stock tokens extend this model further by enabling 24/7 collateralized borrowing against stock exposure, allowing users to access stablecoins without selling their holdings.

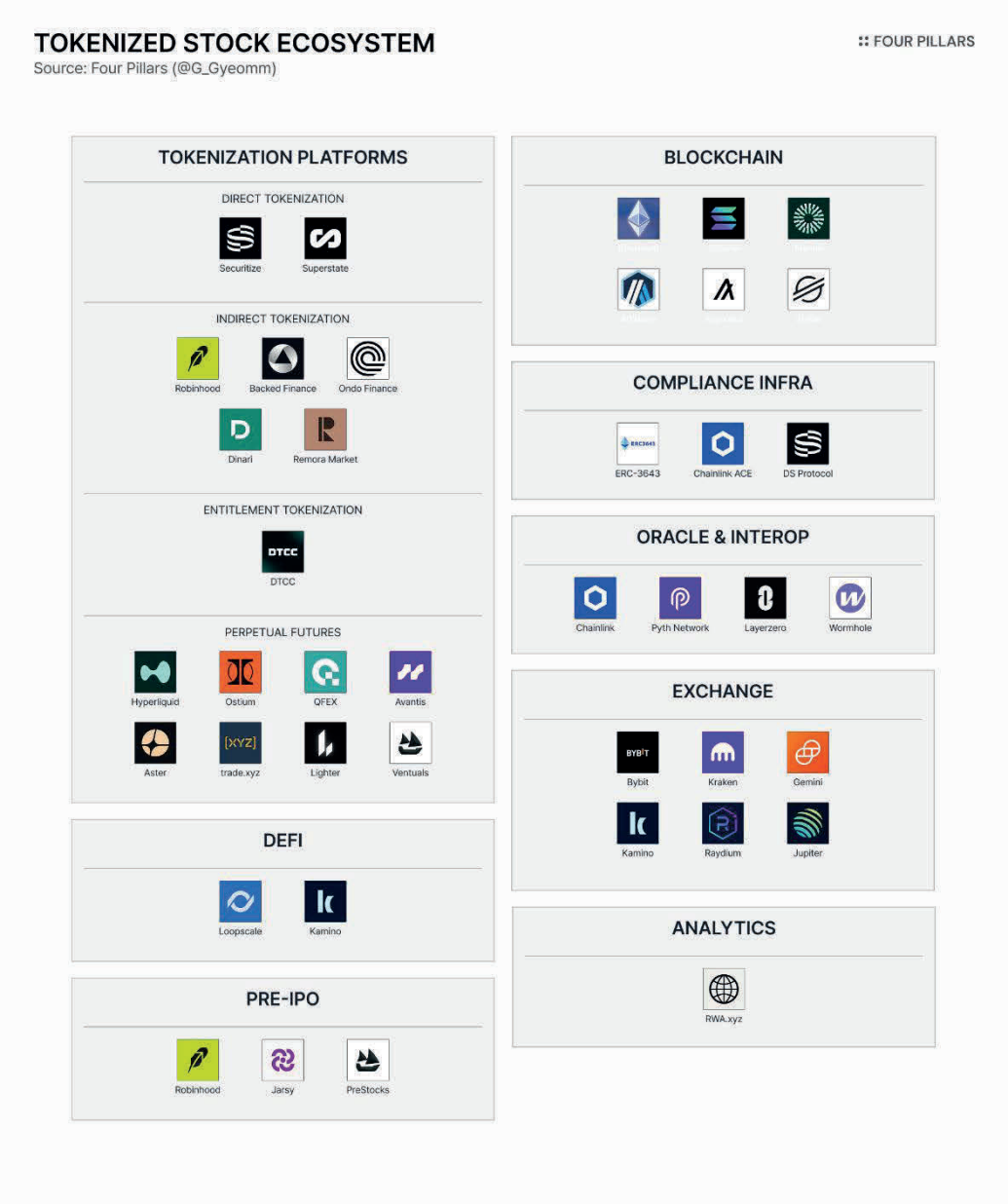
At the same time, stock token collateralization differs materially from crypto-native assets. Regulatory compliance, price discovery, and off-hours risk interact in more complex ways. As with trading, collateralization splits along tokenization models into permissionless DeFi on one side and compliance-oriented DeFi, using tools such as ERC-3643, on the other. We examine specific cases in more detail in later sections.

5.1.6 Redemption

- Securitize: Allows tokens to be transferred to traditional brokerage accounts or redeemed through DTCC, where tokens are burned and equivalent shares are delivered to the investor's existing stock account.
- Backed Finance: xStocks can be redeemed through the Backed Finance platform into fiat currency or stablecoins, with settlement guaranteed within T+3 business days. Smaller redemptions can be processed immediately using working capital.
- Robinhood: Robinhood stock tokens do not support redemption into underlying shares and can only be exited through secondary market sales.

The final stage of the lifecycle is redemption, where stock tokens are converted back into cash or underlying shares. The redemption mechanism distinguishes between tokens that represent derivative exposure and those directly linked to the underlying asset. It also determines whether token prices can converge toward underlying stock prices over the long term.

5.2
Business Opportunities Enabled by Tokenized stocks



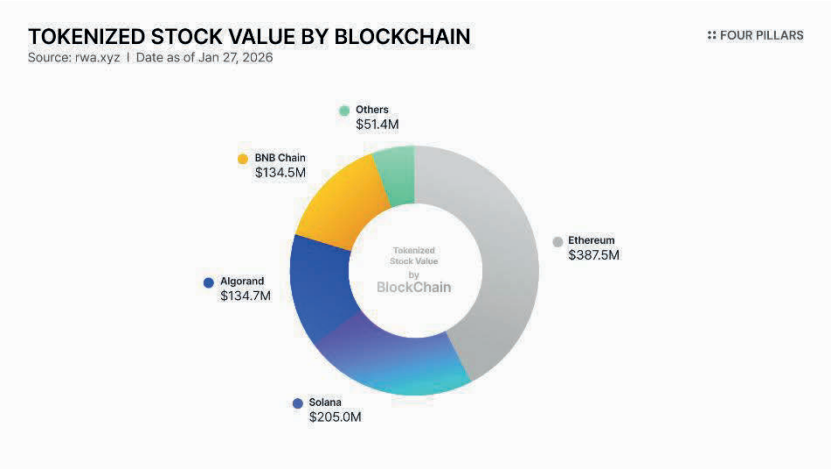
Breaking down the lifecycle of stock tokens makes it easier to see what kinds of new businesses can emerge. As stock tokens move through the market as a new asset class, new points of friction appear, and with them, new stakeholders that did not previously exist.

In the sections below, we examine the key sectors that make up the stock token market, focusing on blockchains, tokenization platforms, compliance infrastructure, oracles, and DeFi. For each, we outline the major players and the current state of the sector.

5.2.1 Blockchains

In stock tokenization, blockchains serve as the most fundamental infrastructure required to finalize ownership transfers. Historically, discussions around blockchain selection have focused on technical considerations such as transaction throughput, block finality, and developer tooling.

For stock tokens, however, regulatory compliance becomes the primary consideration. As a result, attention has shifted toward how blockchains can programmatically enforce regulatory requirements.



When market share is measured by the issuance volume of stock tokens, Ethereum remains dominant, followed by Solana, Algorand, and Stellar.

Ethereum is widely viewed as the blockchain with the lowest downtime risk and has built a strong institutional track record through multiple RWA issuances, including BlackRock's BUIDL.

Solana, by contrast, has developed an stock token ecosystem centered on more flexible, trade-oriented products. Chains with strong retail trading activity have attracted stock tokens such as those issued by Backed Finance and Ondo, where liquidity and trading flexibility are prioritized.

Algorand and Stellar, which have seen relatively lower usage in other segments, stand out in

stock tokenization for their regulatory compliance capabilities. Both chains natively support features such as transfer restrictions, permissioning, and asset recovery at the protocol level, without requiring additional middleware.

In practice, WisdomTree has issued five mutual funds totaling $20M, including stock portfolios, on Algorand. Securitize also selected Algorand as the issuance chain for approximately $150M of EXOD stock tokens.

Stellar

Stellar allows issuer, distributor, and holder roles to be separated at the chain level. After an asset is issued on Stellar, users must establish a trustline with the issuer in order to hold the asset, and the issuer can approve or deny that trustline. By combining this structure with features such as transfer restrictions, authorization requirements, revocability, and clawback, Stellar can implement the control surface required for stock tokens.

Algorand

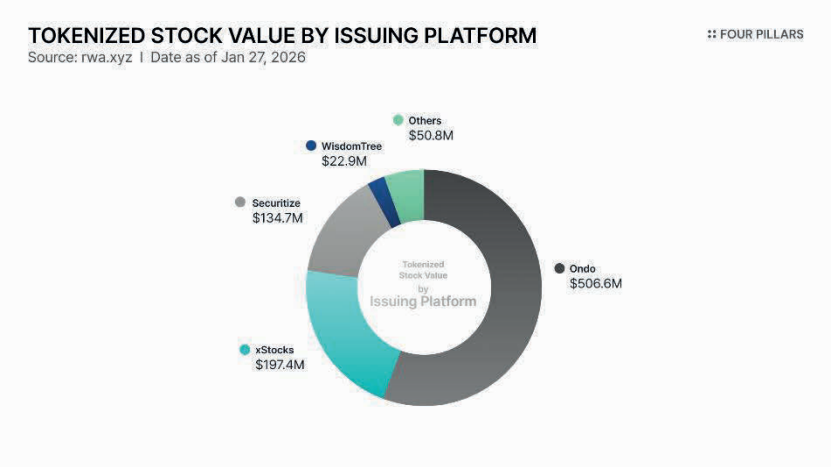
Algorand embeds compliance features directly into the token itself. Its token standard, ASA (Algorand Standard Asset), allows issuers to programmatically define manager, freeze, clawback, and reserve addresses at asset creation. This enables issuers to approve or freeze transfers for specific accounts and reclaim assets in response to regulatory or legal requirements.

At the contract level, Algorand's stateful smart contracts apply rules such as conditional transfers, holder eligibility checks, and jurisdiction-based policies. Together, these mechanisms enable enforcement of KYC status, accredited investor access, and transaction restrictions required for stock tokens.

5.2.2 Tokenization Platforms

While the total issuance of tokenized Treasuries stands at roughly $9.3B, the cumulative issuance of stock tokens remains around $900M, a gap of more than tenfold.

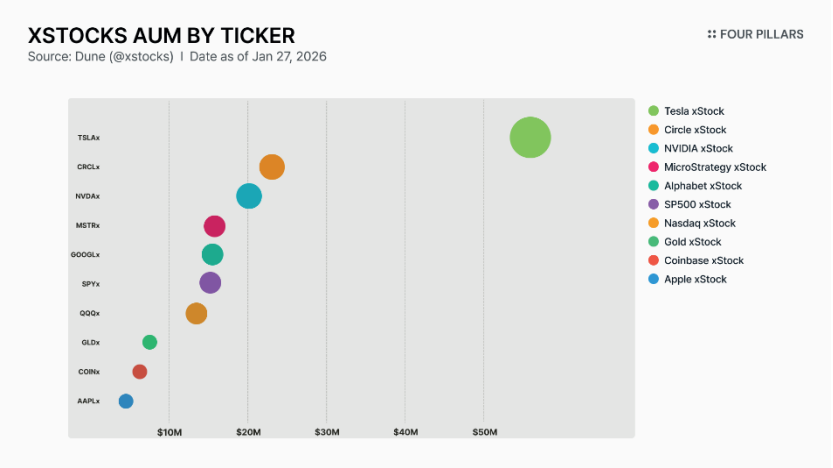
The relationship reverses when viewed through the lens of traditional market size. The U.S. stock market is estimated at about $68T in market capitalization, while the outstanding stock of U.S. Treasuries is closer to $30T. On a global basis, stock markets are roughly twice the size of government bond markets. From this perspective, the addressable market for stock tokenization is significantly larger than that of tokenized Treasuries.



Against this backdrop, tokenization platforms emerge as the most important players to watch. Market share can be approximated using cumulative issuance, but the market remains too early for definitive comparisons. Securitize has issued only a single stock token to date, Exodus Movement Inc. (EXOD), and both Backed Finance and Ondo have been integrated with exchanges and DeFi for less than six months.

Looking ahead, market share is unlikely to be determined by issuance volume alone. Each platform adopts a different tokenization model with distinct legal ownership structures and compliance requirements. As a result, target investor bases and addressable markets vary widely.

Backed Finance



Backed Finance's xStocks face no restrictions on trading venues. Rather than directly tokenizing shares in coordination with issuers, Backed purchases shares in public markets and issues stock tokens that reference those shares as underlying assets.

This structure allows Backed Finance to supply high-demand stocks to secondary markets with greater flexibility. In practice, xStocks issuance is concentrated in popular names such as TSLAx, CRCLx, and NVDAx.

In addition, an analysis of trading data from Backed Finance and Ondo between July and October 2025 shows that 78% of all trades were under $100. This suggests that indirect tokenization models have been effective at capturing retail demand for micro-sized stock trades.

Securitize

Direct tokenization models such as Securitize's provide an end-to-end framework for issuance, trading, and redemption under U.S. securities law. This preserves legal ownership in full but comes at the cost of flexibility relative to indirect models, where any publicly traded stock can be tokenized and traded freely once shares are acquired.

Even so, regulatory alignment is likely to become increasingly decisive. Recent debate around the Clarity Act reflects growing efforts to clearly classify digital assets as securities, commodities, or other categories, and to define the applicable regulatory regime.

If enacted, stock tokens would almost certainly be classified as securities based on the nature of their underlying assets. This would subject stock token issuance to more rigorous scrutiny under existing securities laws.

In this context, regulatory compliance is unlikely to remain optional. For licensed issuers and

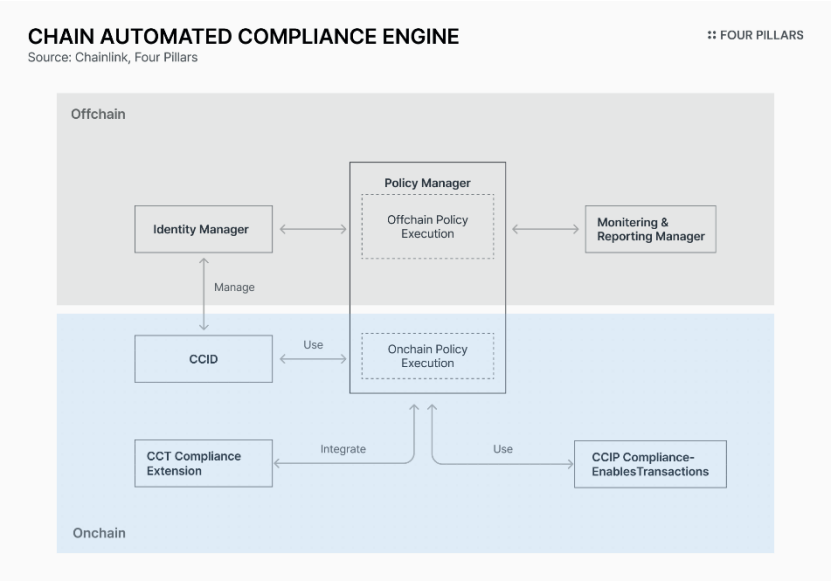
for investors who prefer stable dividends and long-term holdings, tokenization platforms that meet regulatory requirements are likely to become the default choice.

5.2.3 Compliance Infrastructure

In stock tokens, investor eligibility checks typically operate only at issuance or redemption, or within proprietary ATS environments. Once stock tokens trade onchain or are used as collateral, they enter an environment built around wallet-based, bearer-style transfers.

As a result, controlling whether participants are eligible investors and whether activity occurs within permitted jurisdictions becomes a central challenge. A range of compliance infrastructures has emerged to address this need.

Chainlink Automated Compliance Engine (ACE)

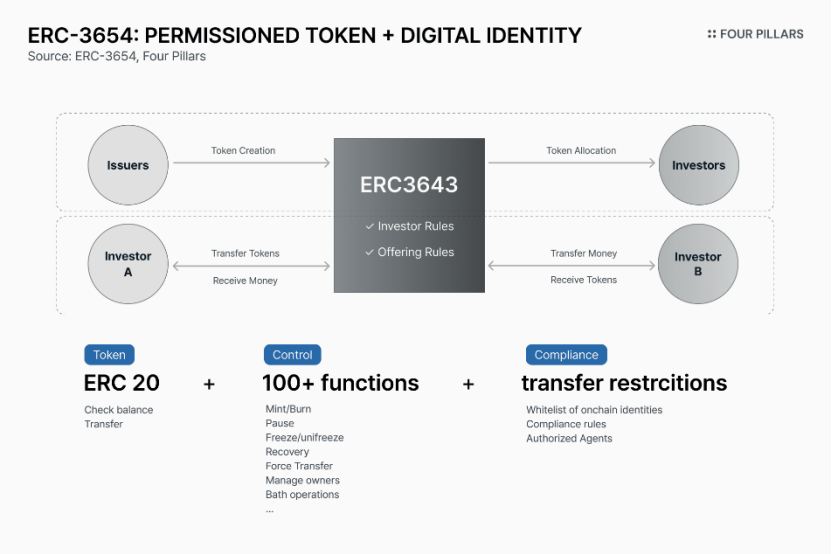


Chainlink's ACE is designed to enable tokenized assets to circulate onchain while meeting regulatory requirements. Its goal is to standardize verification of investor eligibility, jurisdictional constraints, and AML/KYC requirements, and to make those verifications interoperable across chains and applications.

One of ACE's core components, CCID (Cross-Chain Identity), is a cross-chain identity framework that represents investor credentials. Offchain-verified information such as KYC, AML, and accreditation status is stored onchain as encrypted proofs rather than exposed data. Users can reuse credentials across multiple chains and DeFi applications, while service providers satisfy compliance requirements without accessing personal information.

Another component, the Cross-Chain Token Compliance Extension (CCT), is a modular layer that attaches compliance logic to token standards such as ERC-20 and ERC-3643. It connects tokens to CCID, policy managers, and CCIP, allowing issuers to embed compliance logic without redesigning token structures.

ERC-3643: T-REX Protocol (Permissioned Token Standard)

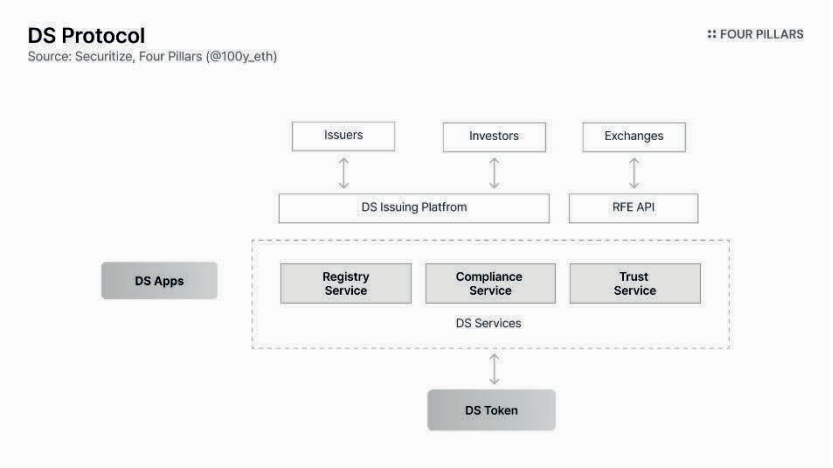


ERC-3643 is an Ethereum-based standard designed for RWA tokenization. It extends ERC-20 with permissioning features that control identity verification, KYC/AML status, investor eligibility, and jurisdictional access.

ERC-3643 tokens integrate with an onchain identity registry called ONCHAINED at issuance. The registry maps verified attributes such as KYC status and jurisdiction to wallet addresses without storing personal data. Only addresses that have passed offchain verification and are registered can receive or transfer ERC-3643 tokens.

All token actions, including issuance, transfer, and collateralization, query the ONCHAINED registry in real time. Issuers can flexibly define policies such as holding limits, transfer restrictions, country blocks, and lock-up periods.

Securitize DS Protocol



Securitize's DS Protocol is a proprietary compliance infrastructure already used to support the circulation of BlackRock's BUIDL. Like Chainlink ACE and ERC-3643, it enables ERC-20 tokens to enforce compliance checks at the token level, but it is limited to Securitize-issued securities.

The DS Protocol verifies investor eligibility, transfer limits, and regulatory compliance before allowing any token transfer. It also supports vesting conditions and forced recovery, features required for securities.

Its registry manages the list of investors eligible to hold DS tokens and stores limited regulatory attributes such as nationality and accreditation status, without recording personally identifiable information. This approach preserves privacy while enabling compliance.

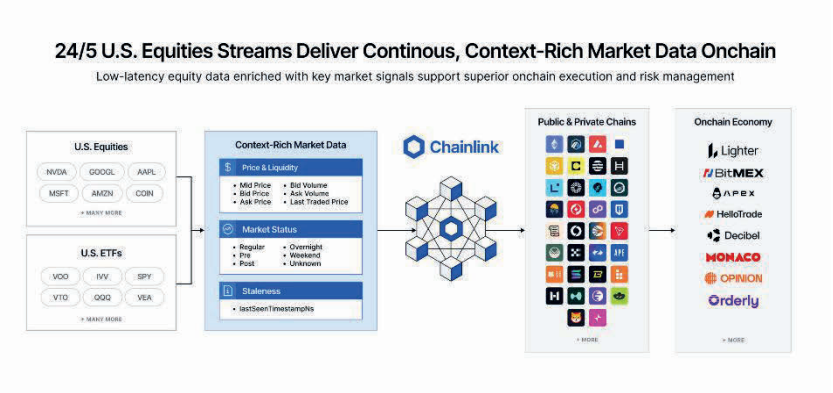
5.2.4 Oracles and Interoperability

Nasdaq generated over $600M in U.S. market data revenue in 2023, while ICE, the owner of NYSE, generated $1.4B from market data and connectivity services in the same year. Market data has long been a core business in traditional stock markets.

In crypto, oracle providers initially focused on relaying offchain exchange prices onchain. With the rise of RWAs, they have expanded to deliver real-time NAV updates for Treasury funds and spot prices for precious metals.

As stock tokenization scales, oracles are evolving further into data vendors that supply not only prices but also trading context such as market hours, liquidity conditions, and off-hours status.

Chainlink



Source: Chainlink

Chainlink's Data Streams aggregate prices from at least three traditional financial data vendors. Offchain prices from consolidated tapes and vendors such as Bloomberg are validated and securely delivered onchain.

Beyond prices, Chainlink also provides contextual metadata required for stock token trading, including logic that allows smart contracts to detect whether markets are open, closed, or in low-confidence states.

Pyth Network

Pyth Network sources first-party market data directly from financial institutions and exchanges, minimizing latency by avoiding intermediaries. Banks, exchanges, and financial institutions including Revolut, AMINA Bank, Cboe Global Markets, and LMAX provide high-fidelity data directly to Pyth.

Pyth also integrates overnight U.S. stock trading data through its partnership with Blue Ocean ATS, an SEC-registered overnight exchange. This enables more reliable reference pricing for stock tokens outside regular trading hours.

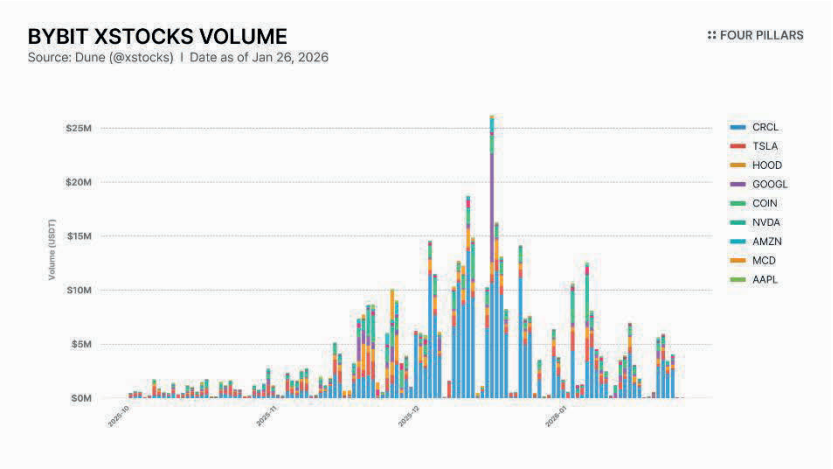
5.2.5 Exchanges

Exchanges serve as the primary venues where stock tokens are traded. If tokenization platforms structure and issue stocks as a primary market, exchanges such as Bybit and Kraken function as the secondary markets, analogous to NYSE or Nasdaq.

Outside of regulated ATS environments, most stock token trading currently takes place on CEXs. For exchanges, stock tokens represent both a response to latent demand from crypto-native investors and a potential growth vector. For tokenization platforms, exchanges offer distribution to KYC-verified users and access to deep, market-maker-supported order books.

In this context, exchanges such as Bybit, Kraken, and Gemini have begun supporting stock token trading. In December 2025, Kraken acquired Backed Finance.

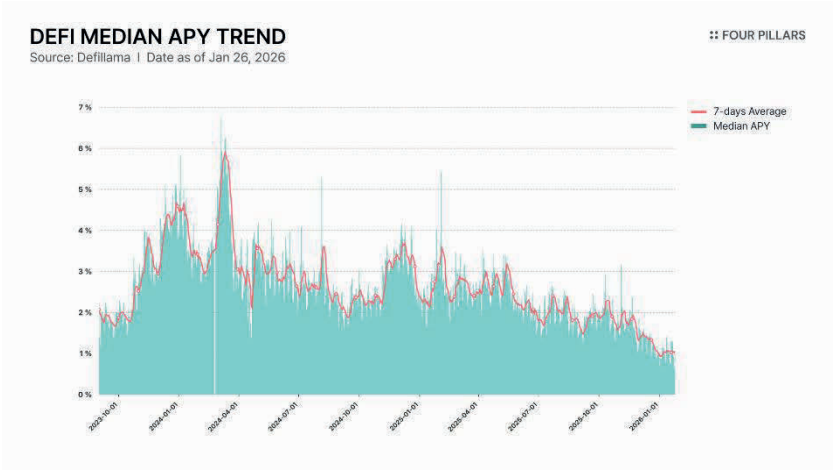
Bybit xStocks



Bybit supports 24/7 spot trading for ten xStocks assets, including COINx, NVDAx, and AAPLx. Only secondary trading is available on the platform, while redemptions are handled through Backed Finance for users who complete KYC/AML, based on NAV.

To date, xStocks on Bybit have recorded approximately $550M in cumulative trading volume, with steady activity outside weekend off-hours.

5.2.6 DeFi



Onchain RWA-backed lending markets are growing rapidly. One driver has been the declining competitiveness of crypto-native yields. As returns on crypto assets fell, borrowing demand and LP yields declined in parallel.

With crypto money market APYs around 5% and U.S. Treasury yields near 4%, the incentive to participate in crypto-collateralized lending instead of government-backed returns has weakened. Against this backdrop, RWA-focused lending markets have gained traction. Aave Horizon, launched in August 2025, reached $600M in deposits and $200M in loans within six months.

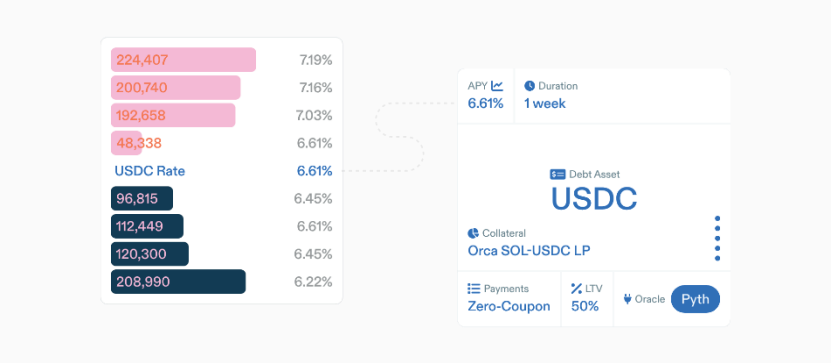
stock tokens are emerging as the next RWA collateral class after Treasuries. Aside from off-hours liquidation risk, stock tokens combine relatively stable volatility with meaningful upside, making them attractive collateral assets.

Kamino: Isolated Pool Lending

Kamino is a Solana-based lending protocol that operates pool-based markets. In July 2025, Kamino launched dedicated xStocks lending pools, allowing users to borrow stablecoins against stock tokens such as SPYx, AAPLx, and TSLAx.

Each asset operates in an isolated pool with its own risk parameters and liquidity. Losses in one pool do not propagate to others. LTVs for xStocks are capped below 50%, compared with 70–80% LTVs commonly allowed for ETH collateral.

Loopscale: Order Book–Based Lending



Source: Loopscale

Loopscale is a Solana-based lending protocol that offers fixed-rate, fixed-maturity loans through an order book model.

1. **Loan execution**: Borrowers submit loan orders specifying size, maturity, rate, and collateral, or match existing orders. Upon execution, funds are borrowed at a fixed rate, and xStocks collateral is locked in escrow.

2. **Maturity repayment**: At maturity, borrowers repay principal and interest and withdraw their collateral. Terms are fixed at execution, making repayment amounts predictable.

3. **Liquidation**: Real-time price oracles monitor collateral value. If LTV exceeds liquidation thresholds, third parties can liquidate positions in exchange for collateral and liquidation incentives.

Order book lending offers advantages for stock tokens. Risk can be priced directly through negotiated LTVs and interest rates. Fixed terms reduce uncertainty during off-hours. Markets can form with minimal initial liquidity, as a single lender and borrower are sufficient to match.

stock token lending remains early. On Loopscale, looped positions backed by xStocks can currently be unwound only during U.S. market hours, a design choice intended to mitigate off-hours oracle and price-gap risk.

5.2.7 Others

Pre-IPO Tokenization

Pre-IPO tokenization refers to issuing tokens that reference shares of private companies. Robinhood has gone beyond public stocks to launch tokens tied to private firms such as OpenAI and SpaceX, opening 24/7 access for global investors to assets previously limited to private markets.

These tokens do not grant legal ownership of the underlying shares and are not redeemable. In practice, most pre-IPO stock tokens rely on indirect tokenization, where an SPV holds the shares and issues corresponding tokens.

OpenAI has explicitly stated that it "was not involved in or approved any stock transfer" related to Robinhood's tokenized offering, highlighting the unresolved ownership and consent issues that remain in this model.

Onchain IPO: Superstate DIP (Direct Issuance Program)

Superstate's DIP is a compliant platform that allows SEC-registered public companies to issue new shares directly onchain.

Companies set issuance terms based on real-time market prices, and investors purchase shares directly from the issuer. Secondary trading is limited to whitelisted wallets.

Superstate's onchain transfer agent system, Opening Bell, updates shareholder registries at issuance. Issued tokens are treated as official shares with CUSIP identifiers and carry the same economic and voting rights as common stock.

Unlike traditional stock offerings or ATM programs, onchain IPOs reduce issuance costs by removing underwriters and intermediaries. They also provide global investors with 24/7 access, positioning them as a potential new capital formation channel.

5.3
Takeaways

Although they fall under the same broad category of tokenization, fiat, bonds, and stocks differ fundamentally. Fiat and bonds are usage-driven assets centered on payments, collateral, and yield. stocks, by contrast, are primarily held and traded. As a result, stablecoins and bond tokens support broader value chains and business opportunities, while stock tokenization offers a narrower set of new activities.

Even so, the potential impact of stock tokenization should not be understated. Traditional stock markets are structurally inefficient, and tokenization offers a powerful tool to address those inefficiencies. It also has the potential to unlock stock-based financial activity that has historically been inaccessible to retail investors.

This transition will not be trivial. Liquidity management, price discovery, and regulatory alignment remain open challenges. But if these issues can be navigated, stock tokenization could move beyond experimentation and into a sustained phase of adoption.

6.
TOKENIZED STOCKS, AN INEVITABLE FUTURE

Historically, finance has always evolved in a direction that improves accessibility. The advancement of finance means enabling more people to engage in a wider range of activities with a broader variety of assets. From this perspective, blockchain is a system that can resolve the inefficiencies and fragmentation of existing financial systems and ultimately emerge as the next generation financial infrastructure.

Humanity currently stands at a critical turning point in financial history. Fiat currencies have already been tokenized at massive scale in the form of stablecoins, and the tokenization of securities such as bonds and stocks is also progressing rapidly. However, because we are in a transitional period where financial infrastructure is being fundamentally reorganized, tokenization methods for stocks, which have complex rights structures, have not yet been standardized and are being attempted in various forms. The fact that, regarding the same legislation, Coinbase CEO Brian Armstrong argues that it effectively bans tokenized stocks, while Securitize and Superstate evaluate it as providing regulatory clarity for tokenized stocks, clearly illustrates how early stage the tokenized stocks market still is.

Tokenized stocks represent an inevitable trend. To realize more efficient stock trading, close collaboration among a wide range of participants across infrastructure, regulation, and the broader industry is essential. With this perspective, this report has examined the major implementation methods of tokenized stocks, the overall ecosystem landscape, global regulatory conditions, and the resulting business opportunities. Amid the complex and rapidly evolving tokenized stocks ecosystem, it is our hope that this report serves as a useful guide for readers.

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