

RESEARCH REPORT

Security Tokens



INTELLIGENT
TRADING

Security Tokens

Date: 29-November-2018



Security Tokens Issuance Platforms



Services Facilitating Exchange



Summary

Since the inception of Bitcoin and the ever-growing group of altcoins, a new asset class was created with very specific characteristics and features. This whole asset class is operating purely on a digital basis, with a global reach and very limited regulatory framework. With the increasing market capitalisation, regulatory authorities all over the world started noticing cryptocurrencies, [evaluating some of them as securities](#) and requesting their compliance in law. Enter the segment of security tokens aiming to unlock the world wealth that is now illiquid through tokenization of real-world assets, while also staying in compliance with the securities law. In the following report, we will assess the need for security tokens, their potential, and map the merging ecosystem of players.

Strengths & Opportunities

- Higher **liquidity** of the asset in secondary trading markets and **reduced settlement time**
- When done right, compliance with regulatory authorities can be automated and automatic
- Opening opportunities for smaller companies to afford regulatory compliance previously available only to larger companies
- Allow for built-in features into financial contracts that have previously been infeasible to execute

Weaknesses & Threats

- When you remove middlemen, you have to shift the middleman's responsibilities to the buyer or seller in the transaction
- There is still a centralised component (real-life asset), decentralisation is on the secondary trading level
- Limited utilisation of the network effect due to the restrictions on the number of investors
- There are high regulatory requirements to be met through the whole ecosystem, from the issuers to exchanges

Security Tokens

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Overview

Securities

In order to explain the concept behind security tokens, we should be sure that we understand what is meant by the term Security and the drawbacks of the current system. This helps us understand the implications of the security law on cryptocurrencies and also the potential of security tokens.

The Howey Test

In May 1946, the case of the [Securities and Exchange Commission v. W. J. Howey CO](#), raised the question whether a leaseback agreement was legally an investment contract. Based on this case, a landmark test was developed. If a certain transaction fulfills its four conditions, it is evaluated as an investment contract and thus subject to securities registration requirements. The conditions are as follows:

1. The contract is an investment of money
2. The investment of money is in a common enterprise
3. There is an expectation of profits from the investment
4. The expected profit comes from the efforts of others

To elaborate on the points, the first one was later expanded to also involve the investment of other assets. The term common enterprise from the second condition is to a certain extent [subject to interpretations](#). All four conditions has to be met, however, the first three conditions are defined broadly and the final determination depends on the fourth condition.

This condition has two aspects. First, the profit is generated by a human effort and second, this effort is outside of the investor's control. For example, profit realised from investment into a collectable asset (art pieces, baseball cards, comic books...) does not make this asset a security. The profit was generated by an increase in demand for that specific asset not by extra effort invested in the asset by a third party.

In general, the purpose of the Howey Test is to judge the nature of transactions by the economic realities behind an investment scheme, rather than by its name or form. This is especially relevant in the ecosystem of cryptocurrencies, which is still novel and lacks standardisation and unified terminology.

Potential for Improvement

The securities market is incredibly complex. The diagram on the right shows the parties involved in a settlement process in a public equity trade. Virtually all of them are centralised authorities and require trust to execute the settlement.

The number of middlemen also increases the costs, and significantly slows the process down. Even if the execution of a transaction can be in a matter of minutes, the final settlement and transfer of ownership rights takes much longer. The latest settlement cycle [adopted by SEC](#) (Securities and Exchange Commission) takes two days after the execution of a trade.

Another factor to take into account are the limited [trading hours](#) of traditional exchanges, different time-zones and national holidays and in general, compliance requirements limiting the interoperability of the system.



Source: A simple Explanation of How Shares Move Around the Securities Settlement System

Overview

Token

The term tokenization refers to replacing sensitive data (e.g. ownership rights) with a unique identification symbol, a token. In the world of cryptocurrencies, the token is a digital representation of the data, permanently stored on blockchain. Blockchain tokens can be easily transferred between two people and hold a potential for increasing liquidity of the underlying asset.

Liquidity

In the financial market, liquidity of an asset is a crucial measurement which can influence the price of that given asset. The Financial Times [lexicon](#) defines liquidity as “the extent to which there are sufficient buyers and sellers to ensure that a few buy or sell orders would not move prices very much”. When an asset is illiquid, it means that it is sufficiently difficult to sell it to a counterparty.

Liquidity can be expressed in the bid-ask spread, hence the difference between the highest price that a buyer is willing to pay for an asset (bid) and the lowest price that a seller is willing to accept to sell it (ask). When an asset has lower liquidity, it means that it is harder to sell it quickly, because there is not enough investors or speculators willing to buy at that moment. If the owner wants to sell the asset, they need do lower the price.

This is reflected in an illiquidity discount on the asset price, or in other words, a [liquidity premium](#). The liquidity premium expresses how much the buyer would need to discount the price if he/she wanted to sell an asset right now.

Fractional Ownership & Market Depth

Tokenization of an asset does not automatically increase its liquidity. What tokenization does is that it enables fractional ownership of an asset, allowing for more accurate pricing and hence potentially increasing the market depth. To explain both terms, [fractional ownership](#) is a method in which several unrelated parties share ownership of a high-value tangible asset. [Market depth](#) can be explained as the market's ability to sustain relatively large market orders without impacting the price of the security.



The chart demonstrates a market depth with the bids (buy orders) in green and asks (sell orders) in orange. We can simplify the description to say that market depth charts show the visualisation of supply of an asset in **asks** and demand for the asset in **bids** at a given price.

The proportion of those orders measures the depth of a market. When there is a similar number of outstanding asks and bids at a given time (as in our example), the market has a greater depth than an asset with lopsided numbers of buys and sells.

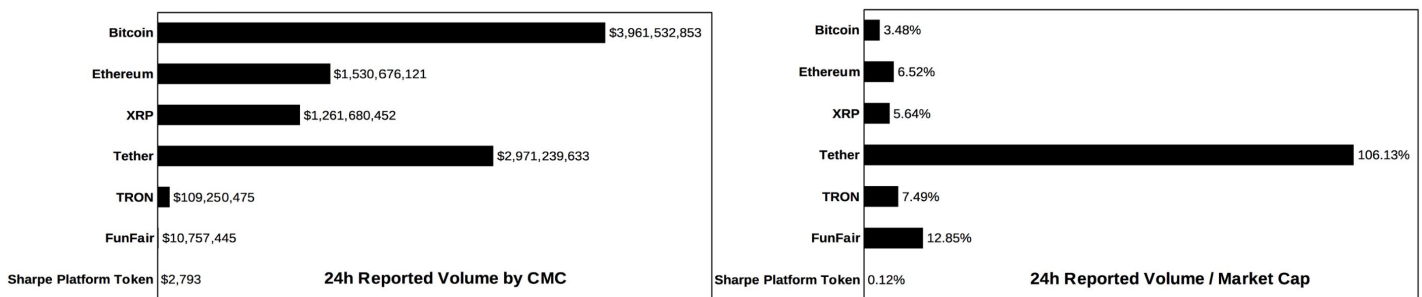
Source: Depth Chart Screenshot from GDAX—08/12/2017

Overview

Thinly traded tokens

Here we can repeat our previous statement: **tokenization of an asset does not automatically increase its liquidity**. The factor that has to be taken into account is the liquidity of the token itself. This depends on two main factors: the **demand** for the token and the **infrastructure** enabling the trading of the token. We will analyse the potential interest in security tokens fueling the demand and the infrastructure for trading later on.

Right now, we should make sure that we are aware of the difference between the liquidity of a token and its volume. One way to compute liquidity of an token is to look at its traded volume in relation to its market cap. [Helios Liquidity](#), a [Sharpe](#) company, is working on improving the liquidity measurements in the cryptomarket. Two charts below demonstrate the comparison of volume and volume relative to market cap.



When looking at the charts, it is obvious that even though Bitcoin has realised high levels of volume, relative to its market cap the number is much less significant. On the other hand Tether's ratio over 100% signals that its entire market cap is traded every 24 hours.

Tokenized assets can still fall short of increasing liquidity due to the risk of thinly traded tokens lacking the demand and/or infrastructure. However, tokens still possess an advantage over tangible real world assets, since they are highly divisible and can be traded globally, without the need for even a bank account. This is a part of its interoperability advantage over the complicated [cross-jurisdiction](#) environment of the security law.

Interoperability

Interoperability can be [defined](#) as an unrestricted sharing of resources between different systems. The base for interoperability is a framework of widespread and transferrable standards. Blockchain technology can offer such a framework of standardised and globally accessible protocols upon which applications can be built.

The advantage of a decentralised database over a centralised solution is the provided interoperability for electronic value transfer built on the same protocol. For example, ERC-20 security tokens can be transferred to an ERC-20 wallet and exchanged for an ERC-20 based stable coin or some utility coin you want to use to pay for a service. This is much easier than sending money from PayPal to Venmo, or from E*Trade to RealtyShares.

Even though the ERC-20 token standard provides increased interoperability, it is possible that they will be [replaced](#) by more scalable protocol. The the whole system can also be further improved by cross-chain interoperability, enabling for tokenized security on Ethereum to be swapped for a tokenized security on Stellar (some companies working on this: [Cosmos Network](#), [Polkadot](#), [Interledger](#)).

However, the promise of the ability of protocols to exchange and make use of information holds enormous potential. It would enable us to hold ownership claims to assets from different classes (real estate, equity or shares) on the same platform. Further down we will look at how these assets can further reference each other in financial contracts, interact in an automated way within a smart contracts and enable frictional movements of value in and out of the diversified portfolio.

Those characteristics can potentially change how we manage short term liquidity needs. As Tushar Jain from [Multicoin Capital](#) [tweeted](#): "Blockchain will first redefine what assets are considered money. Then it will actually reduce the total demand for money."

Overview

Security Tokens

The new segment born from cryptocurrencies, security tokens, may appear as an over-complication, adding the complex concept of tokens to the already complex environments of securities. Security tokens are nothing more or less than digitalised securities based on blockchain. Simply put, they represent an intersection of digital assets (tokens) with traditional financial products.

[Anthony Pompliano](#) describes security tokens in relation to Bitcoin, a "programmable money," as a "programmable ownership". However, the analogy with Bitcoin is not entirely accurate. Bitcoin offers a completely novel alternative substituting for the current system represented by governmental issued fiat money.

Security tokens on the other hand do not aim to be a substitute for the current system, the content (underlying asset) stays the same. The mechanism can be compared to the advancements provided by email technology. The written content remains the same as when sent through a letter; what changes is the simplicity of the process of delivery, its speed and the associated costs.

Ecosystem of Security Tokens

The landscape of the security token ecosystem resembles, to some extent, the current market of securities but adds some new parties. We will briefly cover the main players and explain the role they play in the security token ecosystem.

Issuers of Security (Tokens)

We will consider an example of securities in the terms of shares. In this context, the issuers of security tokens will be the companies issuing stocks of their businesses and the tokens represent an ownership claim in that company. The company itself is a centralised, real-world entity.

When a company issues shares, it can create a restriction for the shareholder list. Those restrictions can take into account several aspects, e.g. the nationality of the shareholders (especially relevant for country-specific restrictions), the total number of shareholders (relevant to determine whether the company has to go public), or the competition law such as the non-compete clauses and covenants.

Based on those restrictions, a whitelist of wallet addresses of qualified investors can be created. The setting of the restrictions and the fact that only investors that meet the conditions are allowed on the list assures compliance. The curation of the whitelist can be outsourced to exchanges or the platform that issues the tokens.

Security Token Issuance Platforms

These are the companies/projects that fuel the whole ecosystem, powering the underlying technology and creating the security tokens. Their role can be limited from simply providing the technology (potentially even provided by someone like [Ethereum](#)) to managing the whole issuance process (Harbor), to the distribution of security tokens and curating the wallets whitelist (Polymath).

Cleared Investors

Investors allowed on the whitelist represent the liquidity pool. They create a network that can execute secondary trades of the stock (token) between each other. As they are all on the whitelist, they are compliant to engage in the trade. This is where the transformative difference happens, when the cleared investors can trade 24 hours a day, 7 days a week, and 365 days of the year, around the globe with **near instantaneous settlement and no counterparty risk**.

The means of trade are completely flexible; they can be facilitated on a P2P (Peer to Peer) basis, or through a third party service provider. A drastic change from the current system.

Overview

Services facilitating exchange

The services facilitating exchange are the last main players in the whole ecosystem. They are concerned with the secondary trading between cleared investors, and since the tokens traded officially represent securities, the service providers need to meet certain pre-established requirements. Currently, most of the cryptocurrency exchanges don't have the necessary licenses to permit the trading of securities. Enter licensed security token exchanges, emerging to fill this gap and provide liquidity for the security token market.

Additionally, certain services and software providers are necessary, for example lawyers designing the legal restriction of the whitelist, engineers to build the smart contract or even some combination of both (like the law students of University of St. Thomas, who are actually building smart contracts in their [course](#)).

Programmable Ownership

We have discussed the advantages of increased liquidity and interoperability of tokenized assets. When talking about the whitelist and cleared investors, we have also touched on the potential which security tokens possess for secondary trading. There is one more aspect native to cryptocurrencies, and that is the ability to execute programmable smart contracts, leading us back to the idea of programmable ownership.

Complete Contract

The concept of Complete Contracts is part of Contract Theory, which in 2016 was awarded the [Nobel Prize](#) to its contributors Oliver Hart and Bengt Holmström. Complete Contracts enables certain rights and duties to be known and specified for the parties for every event into the future. This is currently purely a theoretical concept and in reality, we operate with *Incomplete Contracts*, where the future specificities are unknown or incomplete. Programmable ownership allows for building in contractual features that have previously been infeasible to execute and brings us closer to the concept of complete contracts, such as:

- *Ownership characteristics:* Imagining that you can implement a feature in your token that will assign voting rights power based on different ownership characteristics: for example, a longer holding period of shares results in more voting rights. This is an example of an implementation of [tenured voting](#), advocated for instance by [Eric Ries](#) or [Carl Bass](#).
- *Access rights:* Building the access rights into security tokens can enable their monetization. In a VC Fund for example, programmable features can enable token owners participation rights in a follow-on fund. In addition, many things are possible, such as granting physical access to real estate, entrance to exclusive events or access to discounts and special offers.
- *Unbundling value:* The potential of security tokens to enable the unbundling of value can significantly simplify revenue sharing. For example, imagine a company unbundling its revenue streams to raise funds for each of them separately.
- *Cross-asset referencing:* Combining different securitised asset classes on one platform enables them to be referred to in financial contracts, e.g. imagine you are experiencing a liquidity squeeze and security tokens enables you cross-referencing debt and equity, as suggested by Stephen McKeon in his [article](#).

Overview

Utility and Security Tokens

We have now covered the advantages of tokenization, and the use cases in the scope of programmable ownership. In order to provide you with a clearer orientation of the cryptocurrency ecosystem, this section will be focused on mapping the difference between security tokens and the second main group, utility tokens.

When looking at both classes in respect of the Capital and Product market, we can divide them as follows:

- Security token - Capital market
 - Intended to fund a project, investors invest hoping for return
 - The central theme is Return on Investment (ROI)

- Utility token - Product markets
 - People participate in order to consume the product/service
 - No expectation of profit, price stable goods

Currently, there is still a high level of novelty and lack of standardisation in the cryptocurrencies market. Due to this, there are several misconceptions differentiating between what are utility and security tokens. This leads to some users buying utility tokens and analysing their investment as they would for security tokens or some companies advertising their utility tokens as if they were a security token (for example by promising shares in future revenue).

Due to regulatory requirements, it is crucial to differentiate between both categories. The table below offers a brief overview of the main differences and some of the leading examples.

	Utility Tokens	Security Tokens
Purpose	Access to protocols or products	Ownership of asset
Valuation	Derive their value from how many people use the protocol/utility	Derives the value from underlying tradable assets
Expectations	Purchasers, no profits guaranteed	Investors expecting profits
Distribution	Unregulated token sales	Regulated offerings-KYC
Examples	Storj (STORJ), Siacoin (SC), Ether (ETH), Steem (STEEM)	Polymath (POLY), Blockchain Capital (BCAP), tZero (TZRO)

Regulatory Framework

U.S. Regulations and SEC

Stephen McKeon [defines](#) security tokens as "any blockchain based representation of value that is subject to regulation under security laws." As we already mentioned, a security token's value is based on the underlying asset in the real world and as such, it needs to be in compliance with the required regulations.

Identifying Security Tokens

In May 2016, The DAO [raised](#) \$163 million in an ICO. The DAO was an [experiment in algorithmic governance](#), a smart contract on the Ethereum blockchain, with a goal to create a decentralised venture capital fund for the crypto. The DAO platform would allow anyone to introduce their idea to the DAO community and the DAO tokens holders could vote on the funding. If they were to invest, they would receive rewards if the projects turned a profit. In June 2016, The DAO was [hacked](#) and the attacker stole 3.6 million ETH, (\$70 million at the time). This was the beginning of the end.

In Summer 2017, SEC issued an investigative [report](#) concluding that The DAO tokens are in fact securities. With this act, the agency warned the crypto market that the federal securities laws apply to everyone offering and selling securities in the U.S., no matter if the issuing entity is a traditional company or a decentralized autonomous organization. If those securities are purchased using dollars or virtual currencies, and if they are distributed in standard form or through distributed ledger technology.

In February 2017, SEC chairman Jay Clayton [stated](#) that nearly every ICO was a security. This statement led to [rumors](#) that regulators were even preparing to call Ether, the second-most valuable crypto-token, a security.

Luckily for Ethereum, the [verdict](#) in June was that it is not considered to be security. William Hinman, the SEC director of Corporate Finance stated that the reason is that the Ethereum network is "**sufficiently decentralised**" and hence ETH trading is not to be considered securities trading. What remains questionable is the definition of the measurement of decentralisation and to what extent the main cryptocurrencies are decentralised.

[Emin Gün Sirer](#), a cryptocurrency expert at Cornell University, and his group are working on determining precisely that. At the time of this report, they do not have any final result, but their two-year-long [study](#) reveals that the mining of Bitcoin and Ethereum is currently not that decentralized.

In August 2018, the SEC released a [Cease & Desist Order](#), stating that "a 'gift' of a security is a 'sale' within the meaning of the Securities Act when the [issuer] receives some real benefit." This implies that Airdrops and Bounty programs, in which tokens are freely distributed in exchanges for some promotion services are subject to regulation as well.

The case of [Tomahawkcoin](#) was an example of this implication, when the SEC [determined](#) that TOM token distributed via Airdrop Bounty is a security. As per the report, the reason was that "the Company provided TOM to investors in exchange for services designed to advance Tomahawk's economic interests and foster a trading market for its securities."

Current SEC Regulations

It remains questionable whether some of the tokens that currently identify as utility tokens will be evaluated as security tokens in the future. However for those projects that position themselves as security tokens from the beginning, there are clear guidelines and requirements by SEC.

Regulatory Framework

Current SEC regulations

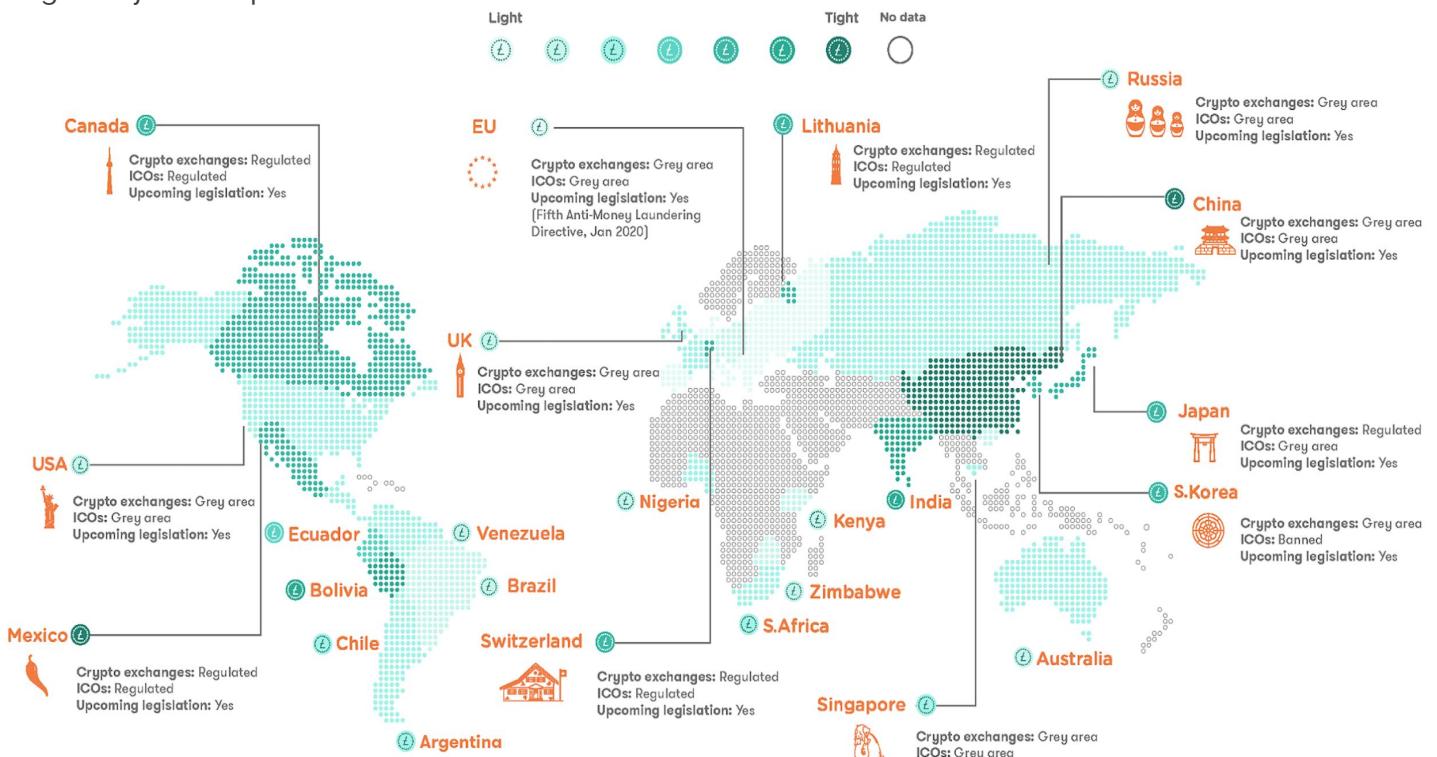
The [Securities Act of 1993](#) states requirements for investors in publicly traded securities in three regulations:

- *Regulation D*: which allows for avoiding registration with the SEC if an electronic filing of “Form D” is provided after the securities have first been sold. Mostly the investors of Regulation D offerings are limited by a restriction to sell their ownership stake before 12 months after the initial purchase
- *Regulation A+*: allows an issuer to offer a security qualified with the SEC to non-accredited investors through general solicitation for up to a total of \$50 million in investment. This issuance requires issuers to qualify the security and complete an audit, and thus can cost more and take longer
- *Regulation S*: is relevant for an offering of securities executed in a country other than the US. This issuance is not subject to the registration requirement, however, the issuer is still required to comply with the security regulations in the country where they offer their security.

Other countries

There are different approaches to the regulation and definition of cryptocurrencies in terms of security laws. There is no unified consensus or regulatory practice around the globe, ranging from absolute prohibition to negligence to support.

Some countries like China decided to ban ICOs all together and are currently fighting the challenges of regulating a decentralised system. The People’s Bank of China has [mentioned](#) so-called “disguised” ICOs, when some firms moved their projects to other countries where they use agents to invest on behalf of people in China. Other countries are taking a more crypto-friendly approach, but in the ever-changing crypto environment, the current state may be relative. A map by [ComplyAdvantage](#) shows a snapshot of the regulatory landscape.



Infrastructure of Exchanges

Current Players

As Bitcoin, Ethereum and other large cryptocurrencies are [not classified as securities](#), it is significantly easier to trade them on a large scale without the need to comply with strict regulations. With the complexity and requirement of compliance on security tokens, this is not the case. The dynamic world of cryptocurrencies is starting to realize the need for security trading services and we can already see some players taking steps toward this realisation.

Centralised Exchanges



In June, the Coinbase exchange [reported](#) an acquisition of the FINRA-registered broker-dealer Keystone Capital, potentially opening a way to offering security tokens on the exchange. President and COO Asiff Hirji outlined their plan on adding crypto-securities to the company's roadmap, [stating](#) that Coinbase "can envision a world where we may even work with regulators to tokenize existing types of securities."



Coinbase is not the only exchange aiming to list security tokens. Circle CEO Jeremy Allaire [spoke](#) on the (Off) Chain Summit about the [acquisition of Poloniex](#) and launch of the Circle Invest app, stating that "the tokenization of everything is going to happen and that there needs to be market infrastructure and marketplaces for these tokens." The company is currently [pursuing a federal banking license](#) to gain registration as a broker-dealer with the SEC.

Decentralised Exchanges



The decentralised exchange Stellar is providing a base for a fully integrated stock exchange for trading security tokens, [DSTOQ](#). The company's CEO Mc Gregor [says](#):

"When it comes to securities, digital or otherwise, one cannot avoid addressing regulation. The uncertainty and volatility in the crypto space today is a result of a lack of regulation and a lack of standardised obligations"



Not all current players decided for compliance with regulations. For example EtherDelta decentralized exchange failed to register with the SEC. As a decentralised exchange, EtherDelta is in principle a smart contract facilitating peer-to-peer exchanges of ERC-20 tokens by automatically matching traders.

This may lead to questions about the accountability for the failure, however, the [SEC held the founder](#) of the exchange accountable in the first enforcement action against an illegally operating exchange.

Infrastructure of Exchanges

New Players

With the emerging market segment, new players originated, competing with the established exchanges by being compliant from the day-one and focus to trading of security tokens. Enter exchanges dedicated to security tokens.



Overstock, an online retailer, launched a trading platform and token [tZero in 2017](#). The ICO for tZero token was held to [fund the development](#) of a licensed security token platform and tZERO tokens were issued in accordance with SEC regulations.

Overstock CEO Patrick Byrne stated that token holders will be entitled to quarterly dividends derived from the profits of the tZERO platform. The ICO raised [\\$134 million](#). "I think it's a historic event. We're opening a new type of capital market" Byrne [told](#) Coindesk.

Some surprising new players from the traditional or real-world assets traders and exchanges are entering the realm of security token trading.



The SIX Swiss Exchange — Switzerland's principal stock trading exchange [announced](#) that they are planning to build a trading and issuing platform, SIX Digital Exchange. This should serve as a regulated exchange for tokenized securities.

Their users do not need to know the technology behind the trades, as the utilisation of DLT and tokenization of the assets can serve only as an internal mechanism on the exchange. The size, regulatory licensing and established user based provides incumbents like SIX a prime starting position for establishing power on the security tokens trading market.

It is quite likely that other major financial exchanges and brokers will follow the example of the Swiss exchange and take advantage of their market power.



For example the Nasdaq Stock Market, an American stock exchange, is frequently [commenting](#) on the topic of security tokens, and is increasingly a supporter of their concept. Quoting from their post:

"Security tokens digitally represent ownership in any asset, such as a piece of a tech startup or a venture capital fund and can provide investors with various rights to that company or fund. Furthermore, security tokens provide liquidity to investors, access to compliance features to issuers, and a framework for oversight to regulators."

Others are looking into the potential of security tokens, like the Boston Stock Exchange, [announcing](#) a cooperation with tZero to launch regulated security token exchange. The CEO of tZero, Sam Noursaleh, commented on their partnership:

"Together, we will continue to work with the SEC as we develop a first-of-its-kind platform that will integrate blockchain capital markets into the current U.S. National Market System."

Market Analysis

Issuance Platform

When mapping the ecosystem of security tokens, we have covered the main players. In the previous section, we detailed the projects providing the infrastructure, the exchanges. In this section, we will focus on the companies fueling the whole ecosystem, the issuance platforms.

The accredited issuance platform aims to apply regulation on the token level and to embed the regulatory requirements onto the tokens, providing automatic compliance for the issued security tokens. We will focus on two main players.



[Polymath](#) is a blockchain protocol that embeds financial security requirements into the design of new security tokens. The Polymath solution is fueled by the platform-native token [POLY](#), and aims to provide a range of services from platform token issuance to investors authentication. Through a partnership with tZero, Polymath aims to provide a means to the secondary trading of security tokens.

Polymath creates a whitelist of addresses on Ethereum based on criteria defined by the issuers. Once the potential investor proves that he is in compliance with the criteria, he or she is eligible to trade the security token with other people on the whitelist. Polymath's [ST-20 standard](#) is intended to enable embedding regulatory requirements into tokens created on Polymath platform in a [six-steps-process](#).

The CEO Trevor Koverko clearly stated their positioning in an [interview](#): "The existing capital market infrastructure is our competition, it's not the Blockchain stuff, it's the investment banks, brokers, stock exchanges. Getting rid of unnecessary middleman, similar as bitcoin and payments, polymath and security market".

An advantage of Polymath is censorship resistance, the project is highly decentralised and operating on the principle of smart contracts. The Polymath organisation is not required for the underlying protocol to operate.

HARBOR

[Harbor](#) is an open-source platform enabling traditional investment classes to migrate seamlessly onto the blockchain. There is no native token, and the company didn't do an ICO unlike Polymath, Harbor is crucial for the system to operate. If Harbor ever goes away, the issuer will have to re-issue tokens with a new provider.

Harbor is focused on the issuer, providing end to end solutions for the initial issuance of the security token with the main goal of providing an initial compliance layer. The team does not handle secondary trading, however, and each token has a mechanism inside and everytime a token changes owner (wallet addresses), Harbor oracle is notified and then checks the transaction and involved wallets. If they are compliant, the trade goes through; if not, it does not.

Rules are set by the issuers and they have the right to suspend trading if necessary. Harbor integrates requirements such as KYC/AML, tax rules, reporting information, and accreditation status into each new token formulated through the system.

Market Analysis

Tokenized Securities

Now that we have mapped the emerging infrastructure for secondary trading and familiarised ourselves with leading examples of platforms issuing the tokens, we will briefly cover the landscape of tokenized securities. We can categorise them in three main groups based on their prevailing structure.

Tokenized VC Funds

The principle of a tokenized VC fund is to provide its token holders with a claim to a share of a fund. Each token is a unit that represents a fixed amount of investor rights. The main difference to traditional VC funds is that tokenized VC funds do not lock in investors' capital for a period of 7 to 10 years, but provide investors with immediate liquidity opportunities. Harbor CEO Josh Stein said that such a move allows a fund to "lock up the capital without locking up the investors."

Tokenized VC funds are commonly issued under Reg D and Reg S and are subject to the [Investment Company Act](#), limiting the number of investors to 99 U.S. investors, and 2000 investors globally.



[BCap](#) (Blockchain Capital) is a blockchain venture capital fund pioneered by Brock Pierce in [2013](#). The fund created a benchmark for future tokenized securities and has since [invested](#) in other ICO's that were compliant with its standards and accepted funds only from accredited investors.



[Science Blockchain](#) is another example of a tokenized VC fund. Its security token SCI provides token holders with rights up to 70% of the stream of new tokens generated from portfolio companies.

Share-Like Tokens

The share-like tokens is what we have used in our example on [page 6](#), a security token representing a share in a company. This token can have features as described in the complete contracts, and to list some practical examples, this could mean an ownership stake in an entity, LP shares, voting rights, dividends, profit shares, or some interest in the success of a future entity.



[Lottery](#) is a mobile lottery service which is currently nearing the close of the private sale of its [STO](#). The securitized token should produce financial yield to token holders based on gross raffle sales.

Asset-Backed Tokens

The model of asset-based tokens is most commonly used in real estate and represents an economic right to a real-world asset, such as art, commodities, or even power plants. The security token enables fractional ownership and the bundling and unbundling of assets.



[Slice](#) is a commercial real-estate investment platform. It enables investors the choice between stable quarterly distributions from cash-flowing properties, or high-yielding projects with large but infrequent dividends

Strategic Analysis

In the previous pages, we have talked about the benefits that security tokens can bring to the world of securities. We have covered the strengths of a tokenized security over the traditional real-world asset, be it the increased market depth or faster settlement time, and the opportunities created by their advantage (already realized by for example by the SIX Swiss Exchange). We have also mentioned the weaknesses, namely the fact that there is still a centralised entity issuing the token and the threats of tightening regulations.

The following SWOT is focused on analysing the security token in relation to the rest of the cryptocurrency ecosystem. We will look at the strengths of this specific asset class over the rest of cryptocurrencies and the weaknesses.

Strengths

To [quote](#) Anthony Pompliano: "When security tokens are done correctly, **they don't skirt laws & regulations, they remove financial institutions and middlemen.**" The leveraging of blockchain characteristics allows for regulatory compliance on the token level, without "rent-seeking" intermediaries. Omitting the middle-man from the transaction execution and settlement opens the security market to several improvements.

Unlocking liquidity in the secondary trading opens up opportunities for faster settlement. The blockchain technology comes with transparency, which can, together with automated compliance, lead to the easing of regulations.

Weaknesses

From the crypto-purists point of view, one weakness of security tokens is that there is still a centralised aspect in the whole system. Due to the fact that the real asset itself cannot be decentralised, the issuance of the security token is done in a centralised manner.

Due to the connection to real world assets and the qualification of the token as a security, there are naturally higher regulatory requirements. And some critics (for example [Preston Byrne](#)) are arguing that due to this, there won't be any cost cutting realised, as the costs at issuance won't be lower when the token is compliant with all regulations.

However, opponents such as [Stephen McKeon](#) are opposed to this. The main argument states that even though the costs of securitizing at the time of issuance may still be high (due to the need to confirm to legal regulations), the real and transformative change is happening on the secondary market. There the liquidity increases with increased market depth.

Opportunities

Automatic compliance and cost cutting opens opportunities for smaller companies, which would now be able to afford regulatory compliance previously available only to the [FORTUNE 1000](#). Also the interest of established funds and traditional finance players can represent an opportunity for the market, increasing the sector's attractiveness and funding.

An important role is assigned to the regulators as well. Their motivation to support a regulation-compliant crypto-asset with the potential to increase transparency is obvious. William Hinman, the SEC director of Corporate Finance, [promised](#) to publish a "plain English instrument" that can be used to determine whether or not a certain project undergoing an ICO is a securities offering. Unfortunately, the SEC hasn't committed to a publication date. But in the meantime, Hinman referred developers with questions to consult with [FinHub](#), the SEC's new division that is supposed to help and support financial technology startups navigate the regulatory landscape.

Strategic Analysis

Threats

The main threat may come from regulatory activities, as they play a crucial role in the whole system. Decentralisation does not represent sufficient protection against censorship from the hands of regulatory authorities. There are proposals to hold the developers of a smart contract accountable for any illegal activity of their users, and this is due to the fact that it is extremely complicated to go after the users of the technology. And we have already seen the example of EtherDelta, the decentralised exchange. Its founder was the person held accountable for the users who traded security tokens on the platform.

Brian Quintenz, commissioner for the US Commodity Futures Trading Commission, [commented](#) on the challenge for regulators in respect to the global and decentralised nature of blockchain technology:

"How can our regulatory apparatus, built to register and oversee intermediaries, adequately police our markets and set standards for a disintermediated market?"

Another potential threat for the new entrant to the scene are the mature players, who have built a user base in the traditional asset market, established a unique position with the regulators and can now control a significant market share if they were to decide to enter the security token market.

Final Thoughts

We have established that unlike cryptocurrencies such as Bitcoin, the goal and purpose of security tokens is not to replace the current system. Security tokens cannot be fully decentralised, as the issuance is still centralised. The content of the underlying asset stays the same; what changes is the speed of delivery, the costs, and the simplicity of handling.

It is important to assess its potential the same way non-tokenized assets should be judged. A tokenized version of a poor investment opportunity most likely will still result in a poor investment.

An advantage of tokenization is the potential for increased market depth and the unlocked liquidity in the secondary trading market. In this regard the same asset could possibly have a higher value when tokenized, as the liquidity discount is lower.

Automated compliance and fractional ownership potentially allows for previously unattainable funding for smaller companies. There will still be some lawyers' services required for setting up the smart contract and meeting the requirements for the whitelist of the wallets. However, some tasks can be automatised, like for example drafting the contracts between two cleared investors, which will potentially decrease the costs.

To sum up, Security Tokens do possess intriguing opportunities and offer lots of potential for real use cases. However, when combining something as complex as blockchain with the already complex system of securitization, extreme cautiousness is necessary to make sure you are in compliance with the required regulations.

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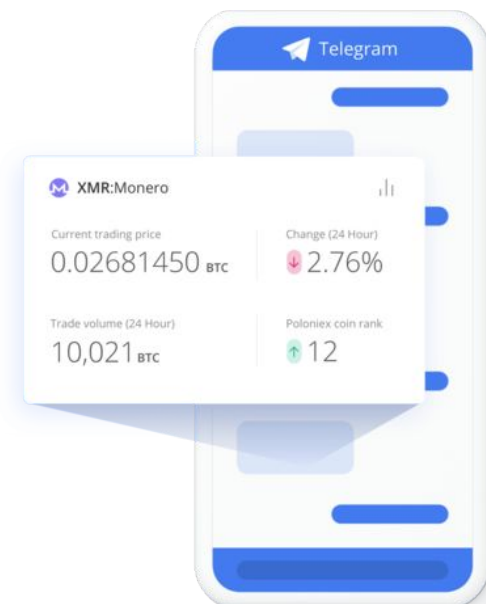
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