Risk Management Association

Tokenization: The Next Frontier for Securities Lending and Collateral Management?

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Introduction

Tokenization has the potential to be a game-changing development for financial markets in the years ahead. The ability for asset owners to take any kind of asset – from a skyscraper, to a parcel of land, to a piece of intellectual property – and tokenize it to allow fractional ownership/ rights or highly customized risk exposures opens a universe of possibilities for creating liquid, tradeable markets in currently illiquid investments.

Nowhere are these possibilities more apparent than in the collateral sector. If the field of eligible collateral can be expanded to include tokenized assets, this collateral can be used to secure repo financing, lent out for income in a securities loan, or serve as initial margin on OTC derivatives trades.

The emergence of such a collateral market appears to still be some distance in the future and may emerge initially in pockets, such as in the wealth management industry. As such, predicting how the field of tokenized collateral will develop is exceedingly difficult.

Nonetheless, analogies can be drawn to the beginning of real estate securitizations in the U.S. and how a thriving mortgage-backed securities (MBS) market worth $3.5 trillion[1] today was carved out of a previously illiquid commercial property sector.

1. Nareit: *REITS by the numbers*, Q3, 2021

Humble Beginnings

Next to New York City's Grand Central Terminal stands the Graybar Building. The landmark is not only important for its Midtown location and iconic art deco design; real estate historians often point to its 1925 construction as the first instance of developers creating tranches of debt to allow any accredited investor to own part of a new office building. The result was essentially the first real estate investment trust (REIT).[2]

REITs have come a long way since the mid-1920s. They've grown into an enormously important and popular asset class, and evolved from allowing fractional ownership of a single commercial building into a structure that enables investors to own a stake in a vast portfolio of properties.

If REITs were the first incarnation of the fractional ownership model in the U.S., the sector took a great leap forward in the early 1980s as the market for both residential and commercial mortgage-backed securities enjoyed rapid growth.

Although the primary driver behind the development of the RMBS and CMBS sectors was to provide lenders with the ability to extend credit to larger numbers of borrowers, these assets were soon being posted as margin collateral to secure repo financing and to support OTC derivatives.

From there, an ever-wider range of securitized assets was inducted into the eligible collateral pool, including asset backed securities (ABS) comprised of auto loans, student loans, and – arguably most importantly – credit card receivables (see Figure 1).

As technology made access to credit card networks more convenient for merchants and customers in the 1980s, the evolution of the asset-backed securitization market was also fueling the use of personal credit cards.

Understanding the profound and lasting effects of asset-backed securitization in credit card receivables is important because tokenizing similarly hard-to-trade, illiquid assets could have a comparable effect on the financial markets in the years to come through increased diversification of risk for lenders and, subsequently, lower costs for borrowers – similar to the impact of securitization on the residential and commercial real estate markets.

When banks began to unload assets such as mortgages and credit card receivables from their balance sheet by reselling portions of their loan portfolios to investors, ABS and MBS became instruments that helped financial institutions in a number of ways.

Beyond simply enabling creditors to expand their lending activities to a broader consumer client base, securitization also allowed for more precise customization of risk exposures, provided more means of distribution for these assets to a wider investor pool, and provided more transparency into what were opaque credit markets.

2. *FINANCE GRAYBAR BUILDING; Bankers Take New $12,000,000 Bond Issue on Skyscraper*, The New York Times, June 17, 1928

The development of ABS also benefited the U.S. economy at large as the fractionalization of credit assets spurred growth across multiple industries. The new market improved the pricing and liquidity of these assets and provided support to retail credit investors. The ABS market also fueled the growth of market participants, including card issuers that were able to scale with reduced balance sheet risks as receivables were secured.

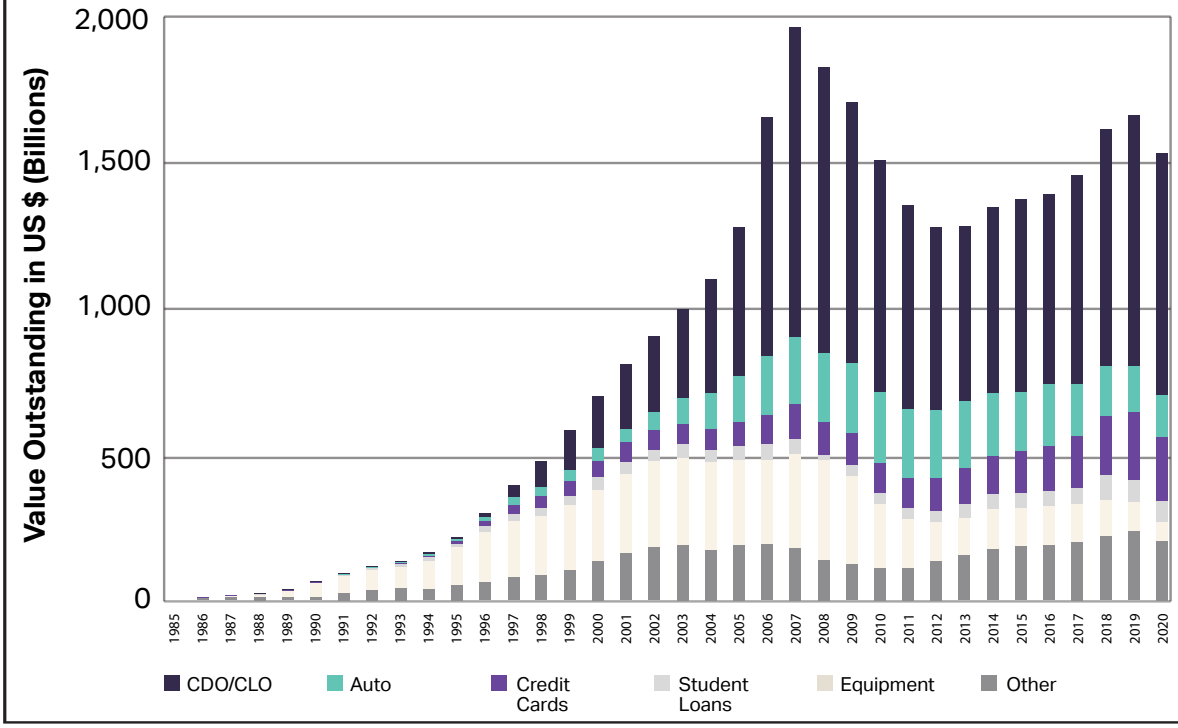
To provide a practical example, when an automotive company issues bonds backed by lease payments on their vehicles, it benefits a number of entities, including:

- Investors who gain access to new products.
- Consumers who have greater access to vehicles with better pricing.
- Issuing companies that reduce risk and create additional capacity for more cars.
- Banks that reinforce their role as value-added intermediaries.

According to SIFMA, the ABS market was worth $1.475 trillion as of December 2021.[3] As more transparency and data on the performance of consumer loans, credit cards, and mortgages has become available, there has been a commensurate improvement in the pricing of these assets.

Figure 1: Historical Growth of the ABS Market

Source: SIFMA



3 Securities Industry and Financial Markets Association – US Asset Backed Securities Statistics, December 17, 2021.

A New Collateral Segment

Securitized products are now a core part of our financial system. Looking to the future, the strides the industry has made in being able to underwrite, price, and trade these fractionalized assets now presents a model to follow for tokenized products.

Similarly, just as a robust collateral infrastructure has developed around securitized instruments, the same potential exists for a thriving tokenized asset collateral sector to emerge.

Today the breadth of assets acceptable as collateral is broad indeed, with central counterparties accepting everything from cash to letters of credit, and money market funds to exchange traded funds and gold. Such collateral diversity would have been scarcely imaginable as recently as 20 years ago.

Given the trends we've witnessed in the expanding collateral universe in recent years, it seems likely – perhaps even probable – that some digital assets will be the next iteration of asset classes to be added to the eligible collateral roster.

In June 2021, the Basel Committee on Banking Supervision published a preliminary proposed framework for the prudential treatment of cryptoassets.[4] The framework proposed imposing regulatory capital requirements on such assets. But in a highly significant decision, the Committee proposal would impose larger capital requirements on cryptoassets not redeemable into physical assets. In effect, the proposal would impose higher risk weights on established cryptocurrencies than those imposed on digital assets that reflect a tokenized piece of a real-world physical asset.[5]

Notably, industry bodies and other respondents to the Basel Committee's comment period were strident in expressing their opinion that the treatment for cryptoassets was too punitive as proposed.

This trend may well go beyond established cryptocurrencies, central bank digital currencies, and stablecoins, however. The potential application of tokenization in fields far beyond what might be called "typical" financial assets is vast and could transform how we think about collateral.

Tokenization promises to help investors gain access to asset classes that have traditionally been out of reach, while reducing the cost and time to transact.

4 Prudential Treatment of Cryptoasset Exposures, Basel Committee on Banking Supervision, June 21, 2021

5 Digital Tokens and the Banking System: Basel Committee Proposes Risk-weighted Assets Framework for Cyptoassets, K&L Gates, 12 July, 2021

Tokenization: The Next Evolution

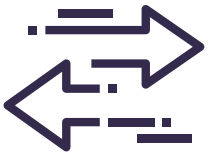
A tokenized asset is very similar to an asset-backed security, in that the tokenization process enables the fragmentation of one asset into a number of smaller asset tokens that can then be distributed among a number of investors. Tokenized assets also share strong similarities with ETFs, a much more liquid investment vehicle that transacts on stock exchanges and can be structured to reference any underlying type of asset to which an investor wishes to gain exposure.

Where a tokenized asset differs from an ABS or MBS, however, is in the type of assets capable of being tokenized. Art collectors and dealers are exploring tokenizing rare pieces of art in the form of non-fungible tokens (NFTs) to monetize their ownership in a work by one of the Old Masters in a market that exceeds $1 trillion and has lower correlations to traditional investments such as stocks and bonds. Real estate developers and brokers are doing much the same to fractionalize their commercial and residential property assets.

The advent of NFTs that are unique tokens for digital assets, including images and collectibles such as "tweets," is a relatively recent development. 2021 saw retail "meme stock" investors advocating online for corporations to issue dividend payments in the form of NFTs. While no company has thus far taken this step, expect more developments in this space during 2022.

Issuing tokens could, therefore, provide the same types of benefits to the digitized market of today that ABS and ETFs have done for the past 30 years – but with the added advantages of improved transaction times, reduced cost, and the democratization of investment opportunities enabled by enhanced transparency and distribution, given the newer benefits that distributed ledger technologies afford.

Asset securitization requires sophisticated financial techniques. What makes tokenization unique over the long run is the open-source technology that enables a quicker pace of innovation, and the underlying smart contracts that allow for a more automated and transparent marketplace. There are varying degrees of complexity by asset class: Tokenizing a parcel of land is conceptually less complicated than bundling the future cash flows of many credit card debtors into a single securitization. However, land generally refers to a physical asset versus a dematerialized one such as an asset-backed security. Each asset has its own challenges, which will be discussed further in this paper.



Tokenized Assets: Broader Trading and Collateral Use

Tokenization, fractionalization, decentralization, and reconciliation allow for traditionally illiquid assets to be traded more widely while offering more diverse products in the "alternative" asset class. Expanding investment opportunities beyond traditional financial asset classes is the next logical step in the evolution of capital markets, where investors want to maximize their risk-adjusted return.

As both illiquid and new assets are tokenized, the technology could also have a profound impact on the collateral management market. Collateral is essential to reducing the risk associated with market-making activities and is key to efficient credit and counterparty risk management. By expanding the range of available collateral, tokenization may facilitate a lower cost of funding for less-liquid asset classes, since those assets are often funded on an unsecured basis. This will be a key driver of the technology and will generate substantial savings for market participants over time.

For example, as an illiquid asset becomes more liquid, price discovery improves. With price discovery, valuations become easier, which in turn increases the potential eligibility of an asset as collateral. In the example of fine art, tokenization has the potential to increase price discovery of the asset as fractions of the art are traded on secondary exchanges, potentially improving the valuation process of the asset as artwork could trade more frequently on the secondary market than at auction.

This could lead to the expanded use of fine art as collateral over time, particularly for wealth managers who may be lending money to their client base and may want to reuse client assets as collateral to secure wholesale financing. In turn, this could reduce the cost of financing that asset, as wholesale lenders accept it as an eligible piece of collateral.

It's unlikely homeowners know their mortgage is packaged in an MBS and that it is used as collateral for a variety of other trades. Similarly, as commercial real estate, intellectual property, and other illiquid assets are tokenized, the owner will likely be unaware of this repackaged, secondary trading.

Nonetheless, the owners will reap the benefits of the added flexibility and liquidity of their assets. Much like how securitization in real estate benefits homeowners – through lower costs, increased availability of credit, and the growth of mortgage lenders and institutional buyers in the mortgage industry – the prospective owners of illiquid assets could also benefit from the efficiencies created by tokenization.

Tokenization of established asset classes – such as Treasury securities – may also create efficiencies for market participants. For example, BNY Mellon is developing services to support tokenized Treasuries within clearance, settlement, and collateral management processes. This will be achieved by bridging traditional and future market infrastructure technology platforms that will deliver digital asset custody and tokenization-as-a-service capabilities. The firm is also actively seeking feedback from the market on potential applications as it evaluates improved efficiencies for mobilizing collateral.

Tokenization of Illiquid Assets: Near-Term Challenges and Opportunities

The demand for new forms of eligible collateral has become one of the primary driving forces in capital markets operations in recent years. This surge has been accompanied by the development of ABS markets in a variety of novel financial instruments, including insurance policies and Small Business Administration loans (see Figure 2).

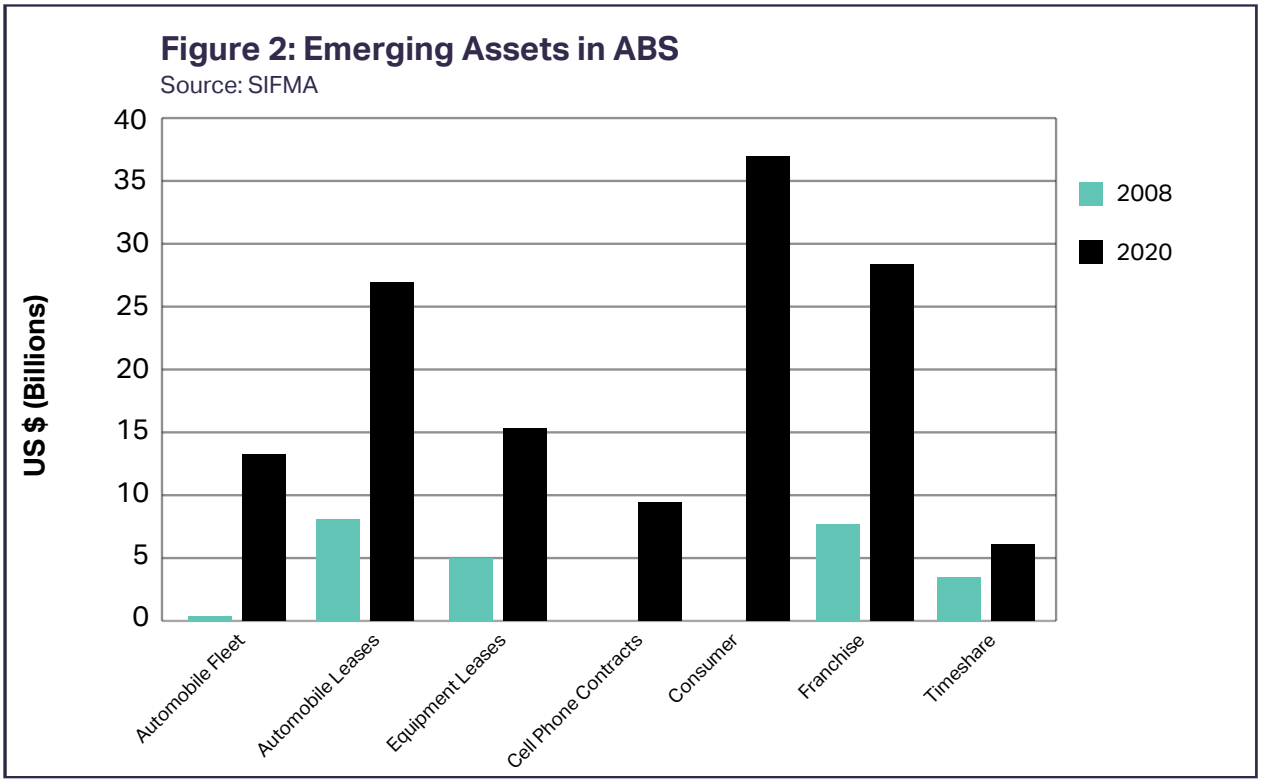
Although traditional cash collateral has historically dominated the securities lending market in the U.S., the trend started to shift in the 2000s. By 2021, the use of non-cash collateral against U.S. assets reached 54%, overtaking cash. To be sure, this phenomenon still trails the European market, where some 86% of loans are booked against non-cash collateral, but it nevertheless represents a growing trend.

Using non-cash collateral provides some clear benefits, such as higher levels of collateralization, balance sheet efficiency, and removing the cost and complexity associated with cash collateral reinvestment and potential duration mismatch. As a result, the leading financial market intermediaries, operating under a highly regulated framework, increasingly accept a higher percentage of non-cash collateral, including equities.

The same is true for buy-side market participants posting cash for derivatives margins. As cash collateral becomes an increasing performance drag on a fund, buy-side participants will look for ways to post securities to pick up yield and stay fully invested in their fund to reduce performance drag.

Figure 2: Emerging Assets in ABS

Source: SIFMA



Over time, the evolution of this trend may be to post tokenized alternative assets to access higher yields while diversifying portfolios on a risk-adjusted basis. It's possible that hedge funds, wealth managers, and alternative asset managers will lead the charge in this respect.

Wider adoption of tokenized assets will require regulators to determine how to treat such instruments – as securities, commodities, or some other asset type – and update existing rules accordingly. Moreover, the legal status and enforceability of tokenized assets will develop over time, thereby enhancing investor confidence, which will make these assets even more liquid and widely acceptable as collateral.

To be considered eligible as collateral, financial instruments need to be agreed upon between counterparties. Cash and U.S. Treasuries are the most liquid collateral assets and their values are easily assessed. By providing the means for a secondary market to emerge in tokenized assets, which would allow investors to trade and value tokens representing legal ownership of real-life assets, blockchain technology and tokenization could fundamentally change the dynamic of this market.

Regulation continues to evolve as exchange participation in the issuance of tokens increases. This evolution may provide additional liquidity to the market, while potentially reducing risk in the event of collateral liquidation. This additional diversification of collateral sets may add transparency, a trading market and, therefore, additional liquidity – to the benefit of the asset owners.

The blockchain infrastructure to support this evolution will deliver additional benefits to the collateral management process because of real-time settlement in fragmented T+2+ markets. For the asset classes discussed in this paper, there is no pre-defined settlement window. Think about how long it takes to settle a commercial real estate transaction or the sale of a piece of expensive art. There currently is no one-size-fits-all solution, though the secondary market trading of such assets on a regulated distributed ledger promises to reduce friction, improve settlement times, and enhance price discovery.

Capital Charges: Punitive for Digital Assets?

Market makers such as banks and broker-dealers are focused on optimizing the risk weights of their securities portfolios and are seeking ways to improve balance sheet efficiency through counterparty diversification and netting of financial exposures.

The Basel Committee's aforementioned June 10, 2021 proposal on risk weights for digital assets could have a significant impact on the take-up of some digital assets that are held on balance sheet – namely cryptocurrencies such as Bitcoin and Ether, as well as some digital assets that are linked to real-world assets but that can be challenging to redeem against physical assets.

Where the tokenized asset can be redeemed in the same way as the real-world asset it represents, it appears it will continue to maintain the same risk weight. This is important, as it allows market participants, such as banks and broker dealers, to enter markets in a balance sheet-efficient manner.

Given the need to maintain, or even increase, the liquidity profile of tokenized assets, what is needed is a deeply integrated market infrastructure with potentially new providers of services that haven't previously catered to the financial markets in a traditional sense.

For example, recall the differences between physical and dematerialized assets earlier in this paper (a securitization and a parcel of land) and the unique challenges each one faces. In the case of asset-backed securities, the future cash flows from the various range of asset classes that those securities represent may be difficult to model, and therefore challenging to price.

In the case of land, who is responsible for pricing the asset and how often is it marked-to-market? How is it custodied and who ensures its safekeeping? The market infrastructure required to offer similar assurances to dematerialized assets can quickly become a plethora of niche service providers with local presences globally to ensure sufficient housekeeping of the assets that are traded and serviced globally. Should insurance companies step in and play a bigger role? What about auditors? Do we rely on crowdsourced pricing? And can we be sure the underlying asset is maintained at a certain quality?

As the onion peels back further and further, the challenges presented by illiquid physical assets don't go away. However, the promise of a connected, decentralized network of market participants offers a glimpse into what transparency, trust, and distributed information sharing can offer to a heretofore opaque market. And where traditional assets have evolved further, the same benefits can be a step change to deliver more value to the financial marketplace.

Collateral Movements: A Real Possibility

Much has been made of the benefits of blockchain when it comes to the post-trade arena. But it is important to stress how moving to a real-time data ecosystem would increase the performance of collateral management activities. With a blockchain infrastructure, investors have a real-time view of the location of their collateral, can access a precise and trustworthy audit trail of all their collateral movements, and can leverage collateral optimization services to reduce their funding costs.

Additionally, distributed ledger technology can allow interoperability across "untrusted" entities such as disparate settlement systems to ensure that collateral can flow across markets and locations to provide the most optimal use of assets. There will be a broadening of this across private and public blockchains over time via trusted protocols that connect the native digital world with the established financial infrastructure that continues to evolve to a more modern architecture.

Several financial institutions, exchanges, and other financial intermediaries have started to announce tokenization initiatives and investments. The Swiss Exchange has stated that it will facilitate the trading of tokenized securities. The New York Stock Exchange, Nasdaq, and the Hong Kong Stock Exchange have all announced digital asset investments or emerging product offerings.

There are relevant challenges that need to be addressed before introducing this market model. Our industry should introduce new standards and risk management capabilities, as well as adapt existing products and services (e.g., custody) to support digital assets and drive institutional adoption. Additionally, we need to provide a specific framework for the valuation of digital assets and develop new economic modeling tools.

Although the tokenization market is in its infancy, several incumbent market infrastructure providers and their participants are now embarking on a journey to participate in the next evolution of capital markets. Digital asset tokenization has the potential to add more asset liquidity, more investment opportunities, and greater mobility to the global financial ecosystem.

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Victor O'Laughlen is the Digital Business Leader for the Clearance and Collateral Management group and is responsible for delivering the digital strategy that supports Government Securities Services' (GSS) Fed-eligible securities clearance, U.S. Triparty Repo, and Global Collateral Management products and services.