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Blockchain Technology, Finance and Securitization

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Imagine a perfect world where every financial transaction has an electronic chain of proof of title and a history of all prior owners. This is the world of blockchain technology – a world that already exists for Bitcoin, and a concept with major implications for the financial world.

Fraud and negligence, and those inconvenient pieces of paper, have always created risk and nuisance for people engaged in financial transactions involving assets that require written evidence of the obligation. Knowing the source and history of the ownership of an asset helps ensure that the asset is viable and enforceable. Blockchain technology has the potential to greatly reduce that risk and considerably ease the process of transferring financial assets. Property owners and borrowers could identify with complete confidence the owners of their loans. The process of checking in collateral for secured loans or securitizations would be streamlined and simplified for custodians. The trading of securities issued in securitizations could also be enhanced with a reliable registry indicating all prior owners. Settlement timing and costs could be reduced.

Blockchain is a “disruptive” technology, one that could transform how business is done throughout the world. For example, the need for offices where mortgages are recorded could be eliminated with the security provided by blockchain technology. Financial middlemen and other intermediaries may find their roles diminished. The cost and ease of obtaining a loan could be considerably reduced, with benefits to borrowers and lenders.

Any reduction in the cost of lending increases its availability to low-income borrowers. One area where blockchain technology can be of particular use is in combination with existing FinTech assets such as unsecured consumer loans, small business loans and student loans with small-dollar balances. If these assets can be easily and securely traded, they can be pooled into large transactions with reduced transaction costs.

Despite the potential for increased efficiencies and certainty claimed by the proponents of this new technology, its effect on the finance and securitization markets is unclear. While some aspects appear to provide a benefit, there are also material risks involved.

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Bitcoin and the Blockchain

It is impossible to talk about blockchain technology without talking about Bitcoin. Bitcoin is a virtual currency – a concept that, while still evolving, is typically defined by regulators (such as [FinCEN](#) and the [General Accountability Office](#)) as a digital representation of value that is not government-issued legal tender. Bitcoin was designed by its anonymous or pseudonymous creator, Satoshi Nakamoto, to mimic a limited natural resource (such as gold), and therefore the total number of bitcoins that can ever circulate is capped. Bitcoins enter circulation when “mined” by a Bitcoin miner. While introducing new bitcoins into circulation is the most public activity undertaken by miners, perhaps their more important function is adding new transaction records to the related blockchain.

At its simplest level, mining is solving math problems. When a miner successfully solves a problem, it is rewarded with a bitcoin from the unreleased supply. Since the introduction of Bitcoin in 2008, the problems that must be solved to unlock bitcoins have become progressively harder (again, the intent was to mirror the progressive difficulty of accessing ever-scarcer natural resources), such that massive computing power is now required.

While a miner’s supercomputers are busily working at solving math problems, the miner is gathering up transaction records that have been broadcast to the Bitcoin network by Bitcoin exchanges, processors and wallet providers. The miner assembles a “block” of such records. When the miner solves a math problem, in addition to its bitcoin reward, the miner obtains the right to add that block of records to the related blockchain. If any record in the block contradicts a prior record in the block, the block cannot be added. For example, if a prior block reflects that a bitcoin was transferred from Jack to Sally, and the new block reflects a transfer of that block from Jack to Anne, the block cannot be added, because the related blockchain reflects Sally as the current owner of the bitcoin.

Once a block containing a transaction record has been added to the related blockchain, the transaction is final and irreversible (or, in Bitcoin terms, “confirmed”). Because confirmation is critical to transaction finality, many exchanges, processors and wallets offer transaction fees to miners to ensure that transaction records that they broadcast to the network are added to a block. The related blockchain is fully viewable publicly, which means that both current and prior owners of any bitcoin-denominated unit of value can be determined at any time. Note, however, that owners are identified by their Bitcoin address (an alphanumeric string generated by a Bitcoin wallet), not by a legal name.

Blockchain Technology and Secured Lending

Blockchain technology could conceivably be used to make the secured lending process easier and more secure. A blockchain-based platform for identifying assets may give lenders greater confidence that the collateral is correct and has not been pledged to someone else. Knowing the chain of title with confidence may also alert a lender to the possibility of other potential ownership claims. For example, as a matter of diligence, a lender could ask for confirmation of contracts conveying the assets through each step of the process.

However, there are issues with electronic transfers under the Uniform Commercial Code (UCC) that make it difficult to see how trading assets on a blockchain-based platform will be a widely accepted practice for collateral, such as mortgage loans, which are evidenced by a physical note. While eNotes are now permitted in all 50 states, concerns still exist that make them viewed by most lenders as unacceptable collateral. Mortgage Electronic Registration Systems (MERS) exists for the transfer of assignments of mortgage, but has had its own problems with foreclosures. Generally, mortgage loans in electronic form have been frowned upon by lenders because having physical collateral is viewed as

paramount.¹ A nationwide electronic registry for mortgage loans using blockchain technology may solve the problem.

The Uniform Electronic Transactions Act (UETA), which has been passed in 47 of the 50 states and the District of Columbia,² permits an electronic signature to have the same binding legal effect as a traditional manual signature. UETA would become relevant for blockchain technology, in the context of electronic imitations of negotiable instruments, because under the UCC a promissory note must be in tangible writing. Under UCC Article 9, an electronic record intended to function as a promissory note for funds advanced would not be a “promissory note,” but instead would be a “general intangible” or a “payment intangible.” As a result, blockchain technology would change the analysis for secured lending if a blockchain-based platform that permitted physical notes (or their equivalent) to be traded electronically were created.

Blockchain Technology and Securitization

The availability of blockchain technology will primarily affect investors, custodians and trustees in the securitization market. In addition to the UCC issues, there are three main areas where blockchain technology could materially impact securitization.

First, if blockchain technology provides a secure method of transferring assets, it can also reduce much of the collateral-based risk to investors. The risk of “double selling” of assets, whether through fraud or mistake, would be reduced or eliminated on a blockchain-based platform. In addition, certainty of ownership, for example in a mortgage foreclosure, would provide a court with confidence of who the owner of such mortgage loan is and would enhance the speed and reliability of the foreclosure process. The applicable blockchain-based platform would need to provide the ability to identify actual ownership. Ease of transfer would permit the creation of more efficient primary lending to prospective homeowners, as smaller loan amounts could be originated more profitably, leading to more collateral available for securitization. FinTech-originated assets, such as those currently being originated through marketplace lending, traded on a blockchain-based platform could benefit in particular. Custodians will need to consider how to modify their procedures to certify the evidence of the ownership of assets traded on blockchain-based platforms.

Second, the market for trading of residential mortgage-backed securities and asset-backed securities could benefit. Most securities created by the securitization market are cleared and settled through the Depository Trust & Clearing Corporation (DTCC). DTCC has publicly posted on its website a [considerable amount of materials](#) related to its efforts to incorporate blockchain technology into its activities. In addition to mitigating risk and providing transparency, if the use of blockchain technology enabled the securities settlement system to move to a “T+0” construct, that would provide a benefit to the securities markets generally. Trustees involved with the closing of transactions and subsequent trading of securities will need to evaluate how their procedures will need to change in light of any developments at DTCC.

¹ Lenders secured by mortgage loan collateral may also be reluctant to accept electronic collateral since only 28 states have adopted the Uniform Real Property Electronic Recording Act of 2004 (URPERA). Real property transactions are required to be recorded at the local level in the public land records to evidence the transfer of title to the purchaser. States that have adopted URPERA permit mortgages, assignments of mortgage and other real estate instruments that bear electronic signatures to only be recorded in the public land records, giving them the same effect as traditional manually signed instruments. Unless and until there is a uniform acceptance of recordable instruments bearing electronic signatures only, lenders secured by mortgage loan collateral may continue to shun the use of “e-collateral.”

² The three states that have not adopted UETA (Illinois, New York and Washington) have enacted similar legislation to legitimize the enforceability of electronic signatures.

Finally, securitization contracts may be converted all or in part into “smart contracts,” which are contracts on a blockchain-based platform. However, many provisions of these contracts, such as indemnity provisions, are ill-suited for this type of arrangement given the complexity of securitization and the types of issues that arose during and after the financial crisis. A certain amount of flexibility is necessary for situations that might at the time of the securitization be viewed as extremely unlikely. For example, it would be challenging to ensure that a securitization waterfall could be properly coded to cover all situations, without having concerns that the coding could be gamed by investors to obtain results that would not reflect the intention of the parties. Trustees will need to consider any modifications of their role in light of these changes and evaluate their ability and willingness to satisfy any obligations under smart contracts.

Other effects of the availability of blockchain technology on the securitization market may be material but are peripheral at this time and primarily related to securitization data. It should be noted that existing data sources like EDGAR and Intex are viewed by most securitization market participants as reliable, and so the benefits of blockchain technology may represent only a marginal improvement.

Risks of Blockchain Technology

Blockchain technology is not a panacea for all transactional ills: security is a significant issue. In the Bitcoin world, whoever possesses the private key associated with the Bitcoin address a particular unit of value is tied to has the ability to transfer that bitcoin value (and any non-bitcoin asset that it might represent), even if that private key was obtained by theft (e.g., hacking a bitcoin wallet). Therefore, while the registry itself is likely unimpeachable, that does not mean that every transaction reflected in the related blockchain is a bona fide, consensual transfer of value from one owner to another.

Most significantly, the private key associated with an asset may be lost or stolen, which could occur as a result of a computer crash, loss or theft of credentials maintained in hardcopy, or a security compromise on the owner’s systems or those of a technology provider that offers key management or vaulting services. While these types of risks for the registry are minimal, questions arise about what happens to an asset on the registry if it “disappears in cyberspace” or is “lost” because the key is lost. These types of situations are troubling given the large dollar values that might be at stake. The situation is perhaps analogous to loans whose original notes have been lost, but the loan continues to be serviced – an owner may be prevented from foreclosing or realizing on the asset in the event of a default.

Regulatory Issues and Blockchain Technology

The regulation of modern financial services in general and in FinTech specifically has not kept pace with the enormous changes and technological advances of the past two decades. As a result, FinTech efforts have escaped extensive government regulation, although FinTech and blockchain technology have recently drawn, and will continue to draw, the attention of regulators. There has been some discussion of self-regulation and regulation by U.S. banking regulators (the OCC, FDIC, FRB, NCMA, FFIEC and CFPB) based on the financial strength of parties engaged in transactions involving blockchain technology. However, since no concrete proposed rules have been published to date, regulation of blockchain technology lags behind regulation of other FinTech areas such as marketplace lending. In addition, it remains unclear how state regulatory efforts relating to virtual currency (such as New York’s BitLicense Regulation) will affect the development and adoption of blockchain-based solutions.

Conclusion

Blockchain technology is a disruptive technology that has the potential to dramatically change the financial world. It may do so very quickly, or it may take years to implement. Investors are deploying significant amounts of capital in this technology, and similar to other disruptive technologies, changes are likely to outpace regulatory consideration. As Yogi Berra once said, "It's tough to make predictions, especially about the future." The creativity of companies in the technology market and their ability to supply innovative ideas seem limitless. One thing is certain: blockchain technology should not be ignored, and those with a vested interest in the finance, securitization or any other financial markets would be wise to pay attention.

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