How Securitization Can Benefit from Blockchain Technology

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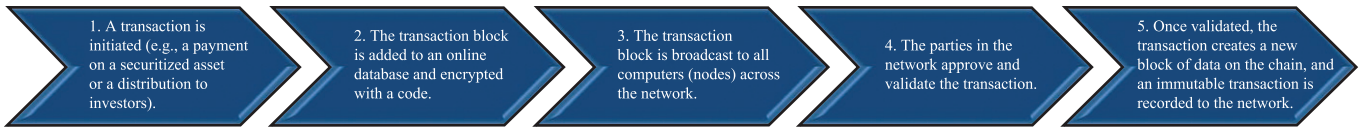
Arriving seemingly from nowhere, in the past two years, blockchain technology has drawn increasing awareness from policymakers, regulators, and market participants across various industries. Both the business and legal communities are recognizing the potential of blockchain technology and are looking more closely at its many applications and benefits. More recently, market buzz has turned to hype, with many asking the question, "What is this all about?" With significant attention given to blockchain at the Structured Finance Industry Group (SFIG) Vegas 2017 conference held this past February, the securitization market is looking particularly closely at this trend.

Blockchain is the name most commonly given to a computer-based technology that enables the creation and operation of a shared, electronic ledger (or database) that can be updated by multiple parties via some form of consensus system. Blockchain is a method of keeping track of records, or *blocks*, of information that are permanently stored on a shared database and, once validated, cannot be deleted or tampered with. If the concept of blockchain is new to you, it helps to envision a database that is replicated over and over across a network of computers (or *nodes*). The information stored in the database is generally accessible to anyone on the network and is continually updated on every node on the network. A traditional database or spreadsheet would typically have one central administrator. A blockchain, however, is decentralized, and stored data are separately replicated and synchronized across the entire network. A key aspect of blockchain is that no one person controls the process of validating the stored information.

Blockchain ledgers can track virtually anything, but they become most interesting when recording the ownership of virtual or tangible assets that have real-world value. Encrypted entries in the ledger are generally grouped into blocks and immutably linked together in chronological order, creating a chain of data in electronic form—hence the name. Each entry in the ledger is cryptographically linked to the entry immediately preceding it. Changing an entry effectively means revalidating all of the data that precede it in time—generally, a highly impractical process for someone seeking to inappropriately tamper with the ledger. This element is said to make the ledger immutable, which is critical for preventing duplicate transfers of a given item. Once a transferor transfers an item to another party, the blockchain shows the transferee as the owner, and the transferor cannot (fraudulently) transfer the asset to a second transferee. Chronological order is important because it prevents sharing of multiple copies of an item: Only the first transfer is considered valid. Because the

Exhibit 1
A Basic Blockchain Transaction



entire blockchain is continually updated and reconciled, each member of the network can identify who owns what asset at any given time.

The best-known blockchain, of course, is the one that maintains the ledger for Bitcoin, the world's first *cryptocurrency*. Although Bitcoin itself has attracted significant media attention and scrutiny (in some cases, due to sensationalistic reports of inappropriate use), it is important to understand that the Bitcoin blockchain is simply one way in which blockchain technology can be deployed.

Blockchain platforms can be open to the public (such as the Bitcoin blockchain), or participation in a given ledger can be limited to a set of participants who are granted access through a predefined protocol or the approval of an administrator. Whichever approach is taken, a copy of the ledger (or at least portions of it) is typically saved on every node that is linked to the blockchain network, and any data that are placed on the blockchain are validated by the participants through the specific consensus model adopted by the network.

Exhibit 1 provides a diagram that may help in visualizing a basic transaction on the blockchain.

What exactly can blockchain do that other, legacy technologies cannot? For a start, validating multiparty transactions through a consensus algorithm on a blockchain allows the participating parties to establish the trust required to transact remotely without the need for a third-party intermediary. This can result in lower cost, greater certainty, a dramatic reduction in counterparty risk, and, often, faster execution and verification of information. Although fraud cannot be completely eliminated because the parties will continue to rely on information outside of the blockchain, (such as borrower income or property condition) at the outset of a transaction, the use of a blockchain-based consensus mechanism can reduce the amount of fraud and mistakes that can arise through the standard multiparty reconciliation process as data are shared and updated throughout the process. In addition, as more information moves onto the blockchain, such as leases (together with their payment history), the use of the blockchain can help to verify the income stream from the property and reduce some of the risk of improper reporting. Blockchain also cuts down on the need for duplicative (and, quite frequently, inconsistent) standalone recordkeeping among participants and for customary middlemen and central authorities (e.g., brokers, escrow companies, notaries public) that are often required for approving and finalizing transactions. Use of blockchain-enabled systems will also facilitate ongoing review and servicing by back office departments.

One of the most interesting characteristics of blockchain technology is that it can facilitate the use of *smart contracts*, which are actually just computer programs stored on the relevant blockchain that allow for certain terms of business agreements to be automatically implemented when certain conditions are met. For smart contracts maintained on a blockchain, the actions required by the code, such as performing an obligation or making a payment, are stored in the ledger and validated by the network participants.

As the benefits of blockchain started to become more widely recognized by financial market participants, the securitization community took notice. In early 2016, SFIG, the leading trade association for the structured finance industry, formed a blockchain task force to educate and engage with members across the entire securitization industry. The key message of the task force was simple: By creating a common platform for sharing information among all relevant transaction participants, blockchain technology has the potential to create solutions to problems that typically occur throughout the securitization process.

One of the biggest problems identified by policymakers after the financial crisis was the overreliance

by many investors on credit ratings to evaluate risk. Without access to accurate and granular underlying asset pool data, it was recognized that individual investors had little choice other than to rely on the work performed by credit rating agencies. The loan-level data requirements introduced by the Securities and Exchange Commission as part of Regulation AB II are part of a solution to this issue but do not provide nearly the amount of information needed to allow investors to do effective real-time analysis of the asset-backed securities in which they invest. Assuming investors have the expertise needed to evaluate the available data, blockchain could substantially reduce the reliance on credit ratings by allowing investors to read and analyze the granular, asset-level data themselves. By placing asset-backed securities on a blockchain, the performance of each underlying asset could be tracked by authorized investors and analyzed for payment patterns, interest rates, defaults, and all data pertinent to calculating associated risk. An ability to more accurately assess risk directly should lead to increased confidence for investors and, ultimately, greater interest in the secondary market, resulting in improved price discovery and greater liquidity.

The use of blockchain can also provide enhanced certainty regarding the ownership and status of assets to be pooled and therefore more comfort about the ability of an originator to securitize the assets. A number of states are looking into providing blockchain-based asset registries, which would greatly facilitate this element. Blockchain would allow the trustees, administrators, lenders, and attorneys involved in a project to see the composition and ownership history of each pool asset and evaluate their risk in real time. This would also help to minimize the time required to conduct asset-level due diligence on the pool and obtain comfort on pool data from external auditors compared with the current long and expensive due diligence process required prior to the securitization of a pool of financial assets. Similarly, the risk of fraud has led to the implementation of several regulatory statutes, which have increased diligence and reporting requirements, as well as the need for certain disclosures and certifications. These rules have created frictions in the securitization process and have compromised the speed and efficiency with which originators bring transactions to market. By providing a high level of data security, not only would blockchain have the primary effect of lowering the risk of fraud, but it would also lessen the need for excess scrutiny and have the secondary effect of eliminating certain regulatory inefficiencies from the process.

On a more basic level, loan origination historically takes a lot of time and requires volumes of paperwork, particularly when consumer lending is involved. Loan agreements, promissory notes, mortgages, and ancillary documents are often lengthy and fraught with errors. Often included in a loan file are ancillary documents (e.g., in a commercial mortgage-backed security, this could include property appraisals, rent rolls, lease schedules, budgets, and operating statements), all which need to be continuously updated and checked for accuracy. An automated system of reconciliation of these data via blockchain technology would work not only to decrease the amount of manual work required but also to reduce the cost of origination and the likelihood of errors.

Perhaps most interestingly, smart contracts (computer code that executes on the nodes of a blockchain ledger) can also be used to enhance efficiency throughout the securitization process. As a start, smart contracts can help to consolidate and standardize the complicated pooling and servicing agreements and other securitization contracts currently in use. For example, if a loan does not meet certain conditions that apply to a particular asset-backed security pool, as identified by the programmed blockchain code, the loan would automatically be excluded from that pool. Smart contract code is also ideal for managing the waterfall allocations of cash in an asset-backed security, automatically paying the relevant amounts to the relevant parties and providing a clear audit trail for all activity. During the servicing of a loan, smart contracts can automatically track the servicer's collection activity, reporting on when payment notices are sent to borrowers. Blockchain can also be used at the level of the asset-backed security issued by establishing a ledger to track current investors and provide selected pool-level information to them.

Put simply, we believe that as market participants start to look more closely at all the benefits blockchain technology can bring to securitization, the conclusion will quickly be reached that this approach is indeed

the future of the industry. We strongly encourage all interested in securitization to look more closely at blockchain to better understand how this new technology may affect their role in the ecosystem. It may be very beneficial to assets that are currently securitizable and over time may open up new avenues for securitization of nontraditional assets using the blockchain, such as revenue generated from ride-share drivers.