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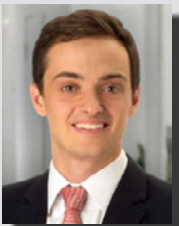
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Blockchain Technology: A Syndicated Loan Revolution?

By Stephen A. Rutenberg and Robert W. Wenner

Goldman Sachs has said that “the blockchain could disrupt...everything.”¹ Though roadblocks exist, and the technology is still developing, blockchains have the potential to disrupt many industries including financial services, healthcare, shipping and logistics, and real estate. It is possible that we will see blockchains revolutionizing commerce, similar to how the internet transformed communications. **Some go as far as to predict that blockchain technology will fundamentally change our life and society by decentralizing many of the roles that have been filled by government for thousands of years.**

One area that offers promise in the use of blockchain technology is the syndicated loan market. Just this spring, a consortium of 19 banks and other FinTech companies successfully tested a syndicated loan solution that relies on blockchain technology.² But what is blockchain technology?

Blockchain Technology

A blockchain is a means of storing and transferring information without a centralized computer system or registry. Although blockchain technology is best known for its use in powering a variety of digital currencies, including Bitcoin and Ether, the potential for the blockchain goes beyond digital currencies. A blockchain is made up of a series of sequential “blocks,” each block representing an individual record of a stored piece of information, like the date and amount of a contract or the fact of a person’s birth. The power of the blockchain, and what differentiates a blockchain from other digital ledgers, is primarily found in two key attributes: (1) that a blockchain is a Distributed Ledger Technology (“DLT”), meaning that there is no single, centralized place where the

¹ *Emerging Theme Radar*, Goldman Sachs (Dec. 2, 2015), available at: <http://www.goldmansachs.com/our-thinking/pages/macro-economic-insights-folder/what-if-i-told-you/report.pdf>.

² *Financial Institutions Move Closer to Realizing a Blockchain Solution for Syndicated Loans*, Ipreo (May 30, 2017) (“Ipreo Press Release”), available at: <https://ipreo.com/press-releases/financial-institutions-move-closer-to-realizing-a-blockchain-solution-for-syndicated-loans/>; see also *Major Banks, Startups Advance Blockchain Syndicated Loan Pilot*, Coin Desk (May 30, 2017), available at: <http://www.coindesk.com/banks-startups-blockchain-syndicated-loans/>.

information is stored or controlled; and (2) that blockchain technology works in such a way that once a piece of data is stored it cannot be changed, and the history of such data can be easily tracked. Each of these two attributes will be discussed below.

Distributed Ledger Technology

A blockchain is a ledger that is distributed simultaneously among its many users, which are also called nodes. Unlike almost any other ledger, which is controlled by a single party, with DLT, there is no single party that maintains the ledger. Rather, the technology enables each user to simultaneously access and approve any changes. As such, the nodes in a blockchain are self-policing and enforcing. Instead of a central manager deciding and communicating with the involved parties which data is correct or that a transaction has taken place, the information is disseminated automatically through the chain and established as correct through the acceptance by the multiple parties in a complex authentication process. Since the blockchain is stored on all nodes simultaneously, all users have instant access to the newly modified blockchain. **As a result, the blockchain eliminates issues related to version control, document dissemination, and corruption or loss of a single, central record.**

Authentication and Immutability

The other key attribute of blockchain technology is that all data goes through a rigorous authentication and encryption process that makes it immutable—and almost impossible to corrupt. In order for a block to be added to the chain, as mentioned above, it must first be authenticated by each of the nodes on the blockchain. For example, before a new block indicating that an asset was transferred from one party to another on a specific date can be added to the chain, the information must first be verified by each computer that is holding a full copy of the blockchain. It can be thought of as being a bit like Wikipedia, in that the veracity of the data is upheld by a group of outside users rather than an authoritative editor. However, unlike Wikipedia, where information is manually reviewed, the authentication process for a blockchain can best be thought of as each node

needing to solve the same complex encryption formula. If even one computer fails to reach the correct result, which would indicate that something in the new information was inaccurate or suspect, the new block cannot be added to the chain. Once information is authenticated, it is linked to the chain, in a permanent and encrypted form that is nearly impossible to tamper with. No regulatory body is necessary to protect or manage the information in the blockchain because in order for a chain to be changed after it was approved, the computer code in each of the nodes in the chain would have to be changed in such a way that is so statistically improbable as to be functionally impossible. This means that with a blockchain, we have for the first time the ability to have an unchangeable record of what happened to an asset or set of data.

Applications of Blockchains

Though certain obstacles, including the slow speed of the authentication process, will need to be overcome for blockchain technologies to be adopted more widely, the technology has the potential to create efficiencies that are impossible to achieve in extant systems. Blockchain technology's potential is greatest for applications where at least one of the following conditions are met: (1) the traditional system is operationally highly inefficient or nonexistent; (2) there is a strong advantage to having a decentralized registry, or a central registry isn't practical; or (3) there is a strong risk of the centralized register being corrupted. They are also likely to be developed as private blockchains, rather than the public blockchains on which digital currencies operate.

Private Blockchains

The digital currencies that are most commonly associated with blockchain technology operate on public blockchains that are freely available for anyone with sufficient computing power. Although the information is secured and is highly encrypted, it is publicly accessible and difficult to regulate. Such a format is not ideal for records that contain sensitive or confidential information, or ones in which at least some degree of control is important, such as those involved in financial transactions.



Private or permission-based blockchains provide increased transparency, efficiency, and security, only allowing certain computers to become nodes. While public blockchains may contain information related to a variety of different types of transactions, all encrypted together in a single chain (much like disparate websites share the same Internet) private blockchains can be built to serve only a single purpose. Private blockchains are somewhat controversial among digital currency enthusiasts because they include an administrator, thus diminishing the role of self-governance of the participants. However, because they provide the ability to regulate access and provide confidentiality, any blockchains implemented in the near future are likely to be private. Use of private blockchains in the financial services industry will more than likely be closer to current models than it appears at first glance—in some ways, the governance structure of a private blockchain could be similar to current industry protocols, such as SWIFT.

Syndicated Loans

The syndicated loan market, also called the leveraged loan market, is an area in which blockchain technology could have tremendous potential. In the syndicated loan market, companies obtain a loan from a financial institution, which is then typically sold to and held by a group of lenders who from time to time transfer portions of the loan on the secondary loan market. There are currently billions of dollars in syndicated loans outstanding in the United States. Unlike bonds, syndicated loans are manually transferred by an administrative agent in a time-consuming process. Even with the Loan Syndication Trading Association (“LSTA”) doing a good deal to speed up settlement times, loans settle slower than any other major asset class. This settlement delay limits liquidity and is of particular concern to regulatory bodies. It is also administratively cumbersome and expensive to manage.

Blockchain technology may be able to solve many of the systemic issues facing the syndicated loan market by eliminating or reducing the need for third-party involvement in transactions, thus lowering costs and increasing efficiency. Transaction security could be increased through the authentication and encryption processes. Blockchain

technology also enhances convenience by allowing multiple users to simultaneously hold always-accurate records updated in real time.

The successful testing in May 2017 of the Synaps blockchain technology solution for the syndicated loan market was an important step in the use of the technology. Synaps is a joint venture backed by blockchain startup Symbiont and Ipreo, a FinTech firm co-owned by Goldman Sachs and Blackstone. Several of the banks that participated in the demonstration³ expressed their belief Synaps has developed “the majority of the functionality needed to implement blockchain technology at scale in the syndicated loan market.” Supporters of the Synaps technology believe that over the coming months they will be able “to implement the remaining functions to allow for [blockchain technology] to support a syndicated loan facility from origination to payoff.”⁴ Although it may take several years to go from a proof of concept to commercial adoption, this is a big step.

Smart Contracts

One application of blockchain technology of great interest to the syndicated loan market is the smart contract, which was a portion of the functionality recently tested by Synaps. Smart contracts are digital contracts that are embedded with computer code that automates their effectuation based on the occurrence of a predetermined event or events. In place of natural language, code is used to set forth the contract. Smart contracts will be able to define and match terms presented by both sides, verify their integrity, and automatically settle transactions.⁵ For example, a smart options contract could be programmed to be automatically effectuated when the shares price reaches a set value. **One of the many advantages of blockchain technology and**

³ Nineteen firms participated in the demonstration, including Barclays, BBVA, Credit Suisse, Danske Bank, Goldman Sachs, Royal Bank of Scotland, Scotiabank, Societe Generale, State Street, U.S. Bank, and Wells Fargo. Buy-side firms AllianceBernstein, Eaton Vance Management, KKR, and Oak Hill Advisors were also involved in the initiative

⁴ *Id.*

⁵ See Joanna Diane Caytas, *Developing Blockchain Real-Time Clearing and Settlement in the EU, U.S., and Globally*, Columbia Journal of European Law (Jul. 12, 2016), available at: https://papers.ssrn.com/sol3/papers.cfm?abstract_id=2807675.



smart contracts is that assets can be linked to the chain and transferred automatically, rather than needing to go through a separate process to transfer assets. For example, in the shipping industry, tracking collateral is a huge concern. The industry is studying the use of smart contracts on a blockchain that would link the collateral immutably to the contract.⁶

Loans have longer settlement times than any other asset class, along with a dire lack of transactional efficiency. For example, counterparties are required to authenticate and effectuate clearing and settlement by independently verifying information related to the transaction. In contrast, a smart contract using a blockchain could be programmed to manage the entire process—from entering into the loan contract, collecting interest payments, calling a default, and even to seizing collateral—all without human involvement.

KYC/Digital Identity

Another application of blockchain that could be beneficial to the syndicated loan market is the creation of a central “know your customer” (“KYC”) database or other identifying documentation. One of the leading causes of delay in the settlement of syndicated loan trades is that to purchase a loan, each counterparty needs to get approval from the administrative agent. In theory, every party should be asking for the same KYC information. However, in practice, loan market participants typically need to go through a separate KYC process for each transaction, at significant cost and delay. This situation demands a centralized approach. A KYC database does not necessarily need to be on the blockchain and could be operated out of any secure database. However, the more complete access to information as well as the increased security of a private blockchain makes this a potentially promising application of blockchain technology in the secondary loan market.

⁶ <https://www.chainofthings.com/cs3chainofshipping/>.

Conclusion

Blockchain technology has the potential to transform the way business is transacted, and holds great long-term promise in the syndicated loan market. However, it is important to acknowledge the hurdles that must be overcome for the technology to reach its full potential. These legal and practical issues include memorializing transactions using blockchain technology with the same accountability and security that are provided by the current systems. Before blockchain technology can be used effectively in the syndicated loan market, industry participants and regulators will need to discuss how to properly regulate the technology. The conversation should focus in part on how to confirm the security of the technology and how to address new ethical considerations that arise when an algorithm replaces human judgment.⁷ It appears likely that blockchain technology will eventually revolutionize many industries, including the syndicated loan market.

Any firm that is planning to use blockchain technology in the syndicated loan market should proceed with caution. Due to the lack of clearly defined guidance with respect to how blockchain technology will be treated under the laws, rules, and regulations applicable to the syndicated loan market, it is important that you engage experienced counsel to assist you in navigating the regulatory requirements that may apply to the use of the innovative technology. ■

⁷ This debate between justice and forbearance predates smart contracts and is quoted in an ancient Jewish commentary on the book of Genesis: “Ideally the world would be solely based on strict judgment; however, since such a world would not survive, compassion was added as a ‘partner’ with judgment.” (Berashit Rabbba 16, 12)



For More Information

For questions regarding this alert or to learn more about how it may impact your business, please contact one of the authors, a member of our **Financial Technology (FinTech) and Regulation** practice, **Debt and Claims Trading** practice, or [Richard B. Levin](#) or [Stephen Rutenberg](#).

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