



BLOCKCHAIN AND THE IMPLICATIONS FOR CONSUMER LENDING

Blockchain technology will significantly impact consumer lending through improved security, faster transactions, and reduced costs.

BY STEVEN SCHIPPER, CFA
Founder and Managing Director, LendTrade



Blockchain technology could become one of the defining innovations of our time.

It was introduced to the world as the tech underlying Bitcoin and other cryptocurrencies, but its value extends far beyond that realm.

Even as speculation about digital currencies rages on — advocates believe it will be a global game-changer while naysayers call it a scam — blockchain technology itself is being integrated into a wide range of industries, including those far afield of financial services.

Beyond merely supporting crypto assets, blockchain offers opportunities for innovation in everything from data security to smart contracts. “The number of use cases and applications of blockchain is growing every day and spanning across retail and corporate banking,” said Sonia Wedrychowicz, Managing Director, Head of Technology Transformation Consumer and Community Bank at JPMorgan Chase & Co., has said publicly. “At times it seems to be truly unstoppable.”

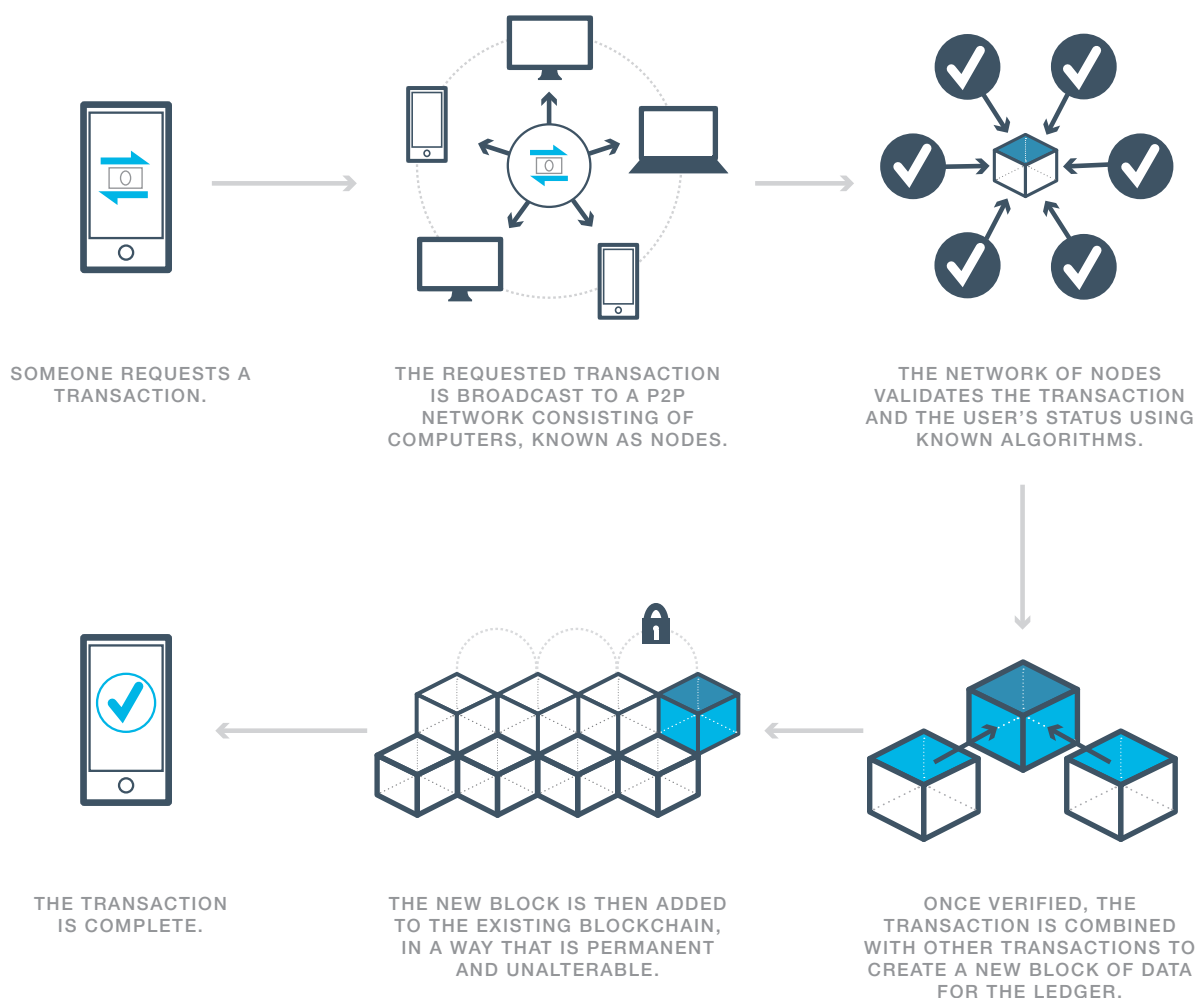
For the purposes of this whitepaper, we will focus on its implications in consumer lending, including what could change behind the scenes and in the customer experience.



HOW BLOCKCHAIN WORKS

Before we look at blockchain's role in consumer lending, it's important to understand how it works. Blockchain is a type of distributed ledger technology, which means that rather than storing data in a central database, information is distributed across a series of computers. These computers are called nodes, and a network might include hundreds and even thousands of nodes.

New information is stored in "blocks" of data, each of which is given a unique hash number. These hashed blocks are chained together via cryptography, hence the term "blockchain."



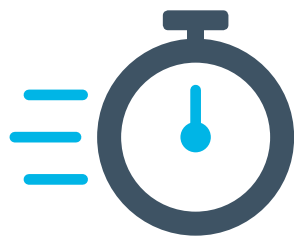
Blockchain technology is revolutionary for three reasons:

1. Security



Blockchains are difficult to hack because they are effectively tamper-proof. There's no central database, and therefore no central owner, so one party can't change transactions that have already occurred and been recorded. In fact, the parties involved in a given process or transaction will have cryptographic keys to access the data, and both must approve the actions. If someone attempts to alter the transaction record without the appropriate keys and permissions, the program will simply reject the attempt.

Reuters describes it this way: Should someone alter a block of data, the associated hash would change. But the program would reject the updated information because the hash would no longer be reconciled to what had previously been approved and recorded. A hacker or other malicious actor would need to recalculate every hash to conceal the change, which would be highly resource intensive.



2. Speed

Blockchain transactions can happen much faster than they would under traditional infrastructures. The lack of a third party intermediary managing the transaction means that actions can be initiated right away, according to Deloitte. A money transfer, for example, often passes through a bank before reaching the intended recipient. The bank might take several days to process the transaction, and it will charge a fee for its services. Blockchain-based transfers eliminate the need for the bank, reducing transaction times and costs.



3. Cost

The removal of middlemen services lowers costs for companies not just in processing fees but overhead as well. Smart contracts can replace cumbersome legal processes and expenses, and blockchain identification systems can provide secure alternatives to centralized databases — which in turn could lower the chances of data breaches and therefore the costs associated with hacks.

Ripple, a currency exchange, settlements and remittance company, reported that companies piloting its XRP platform for international money transfers saw cross-border transaction times drop from days to seconds. Ripple also reported a 40-70% reduction in transaction costs among the businesses using XRP.

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THE IMPLICATIONS IN CONSUMER LENDING

Distributed ledger technology will impact consumer lending in a number of ways, including increased efficiency and transparency. KPMG reported that blockchain records eliminate redundancies and out-of-sync files. All information is stored on the blockchain, and anyone who needs access to it will have a cryptographic key to do so. This means that all relevant parties will work off the same data sets, reducing the potential for error and miscommunication.

Blockchain will also enable faster, more secure Know Your Customer (KYC) protocols. KYC compliance has represented a massive cost for financial firms, particularly because the standards have long been broad and vague. Thomson Reuters found in its Cost of Compliance 2017 report that 53% of firms surveyed expected their compliance budgets to increase and anticipated increased spending on senior compliance personnel in the coming year. Thirty-three percent said they expected to bring compliance concerns to bear on evaluations of new financial and regulatory technology.

Blockchain could also improve credit reporting, a function that is integral to consumer lending. Credit scores and reports directly impact whether consumers are approved for financing, as well as how much they can borrow and at what interest rates. However, the current credit reporting system suffers from a number of flaws, including data insecurity and inefficiency, as described in an article published by Seagate Technology.

Currently, consumer credit data is stored centrally with the major credit reporting bureaus. But centralized databases are easier to hack than decentralized networks — as evidenced by the Equifax breach in 2017. In that case, hackers accessed the personally identifiable information (PII) of 143 million Americans, as well as 209,000 people's credit card numbers, and other sensitive data. The breach highlighted the vulnerability of the current credit scoring system.

Then there are common inaccuracies that occur on consumers' reports and could impact their borrowing abilities if not caught and corrected. The Consumer Financial Protection Bureau (CFPB) cited several common inaccuracies, including:

MIXED FILES: in which a report includes data on someone other than the consumer about whom the report is supposed to have been compiled

OMITTED RECORDS: in which a consumer finds that details have been left out, reported in a separate file, or have been mixed into another person's report

INACCURATE ACCOUNT INFORMATION: in which details about the consumer's history with a particular creditor do not reflect the true account activity dates, credit lines, and other important information

The CFPB notes that there are a number of reasons for these inaccuracies, including data entry. An incorrectly entered name or Social Security Number can cause files to be mixed. Family members who have similar names may also see a mixing of files if there isn't sufficiently distinct information recorded for each individual. Other causes include previously corrected inaccuracies reappearing in files, identity theft, and the creation of synthetic identities using partial PII from victims.





Another issue with credit reporting is the lack of control and visibility afforded to consumers.

While the data collected and shared has significant ramifications for their financial well-being, they can't easily access their data at any time. They can request their credit reports annually, and some credit card companies offer tools for checking their credit scores at any time. However, those credit scores don't always reflect the full extent of information being shared with lenders. As the Seagate article states, lenders often see reports tailored to their given interests. What a lender sees when a consumer applies for an auto loan may differ from what another lender sees when they apply for a mortgage or personal loan.

Blockchain could help address all of these concerns. Because of the way data is recorded and stored, lenders would be able to access more accurate streamlined records of customer credit data. They'd also be able to improve their KYC measures through blockchain-enabled identity verification. Encrypted, self-sovereign identities, as one Forbes contributor describes them, give users control over their information and who else is able to see it.

Additionally, permissioned access to a customer's credit records would allow each consumer to monitor the activity and reports associated with their names, as well as enable lenders to pull relevant information immediately when making credit assessments.

Smart contracts will prove particularly transformative for consumer lending as well. The involved parties can record the details of the agreement using a blockchain system, including specified actions that should happen automatically based on different circumstances being met, according to McKinsey & Company.



BLOCKCHAIN IN ACTION

A number of blockchain applications are already in use across consumer lending types:

Mortgage Lending:

PricewaterhouseCoopers (PwC) predicted in 2016 that blockchain could impact every level of the mortgage business. Automatic verification and recording of data on a blockchain could reduce the number of middlemen involved in the borrowing process, therefore reducing the amount of time needed to complete each step. From tracking payments to securing up-to-date ownership records to tracking payments, blockchain could become integral throughout the life of the mortgage, according to PwC.

The startup Homelend is already taking advantage of smart contracts and distributed ledger technology. It's built a peer-to-peer lending platform based on efficiency and transparency, lowering transaction times and enabling investors and borrowers to work together more directly.

Home Equity Loans:

In addition to mortgage lending, blockchain is also being used to improve home equity borrowing. Figure, a startup led by the founder who also started the student loan financing company SoFi, is using blockchain to reduce approval and closing times dramatically. PYMNTS reported that Figure borrowers can receive loans in less than a week, compared with the standard 45 days it typically takes to close with a conventional lender.

The company's goal is to lower the barrier to borrowing home equity products, which consumers sometimes avoid due to the substantial documentation and notary requirements. Although the loan terms are more favorable on home equity products than on personal loans and credit cards, the cumbersome borrowing process puts people off, Figure's chief marketing officer has said. But the use of blockchain and artificial intelligence enables Figure to deliver a better, digitized customer experience. American Banker reported that the company uses blockchain to secure and track loan data, and it also provides eSignature options for the application and web conferencing set-ups for speaking with notaries.

Education Financing:

As college tuition costs balloon and student loan debt has soared to \$1.56 trillion in the U.S., people are seeking alternative methods of financing their educations. One option is income share agreements (ISAs), in which investors provide funding for students' schooling and are repaid once the students reach an agreed-upon income level, a concept outlined in the working paper "Picotte: A Model for Post-Secondary Education Income Share Agreements Based on Blockchain Smart Contracts" by Lih-Hann Chiu. While this approach may not appeal to everyone, some may find it preferable to taking out traditional student debt.

Blockchain can facilitate these student-investor relationships by enabling immutable smart contracts and allowing permissioned access to the students' academic and employment records. Everyone involved would be able to see the guidelines laid out in the contract and ensure that all parties are adhering to the agreement. A smart contract could also be used to set up automatic payments based on the student's monthly salary.

Personal Loans:

Although blockchain doesn't exist solely to support cryptocurrencies, these assets can also play a powerful role in financial services. The company SALT, for instance, offers personal loans using cryptocurrencies such as Bitcoin and Ethereum for collateral.

Like Homelend in the mortgage space, the company Lendoi is also using blockchain to support decentralized, peer-to-peer lending. The Lendoi platform uses smart scoring functions to allow borrowers to apply for financing directly from individual lenders. The lenders can remain anonymous if they choose, as transactions are handled via smart contracts and personal wallets and are not subjected to intermediary services.



IMPLICATIONS FOR SECONDARY MARKETS

Blockchain also has significant implications for the secondary markets for consumer loans and residential mortgages. For example, any change in ownership of an asset will be permanently recorded in the blockchain. Additionally, buyers and sellers know that the data is secure and accurate. Having secure data in a trusted repository will substantially improve the liquidity for loan portfolios.

BLOCKCHAIN BEHIND THE SCENES

Despite its groundbreaking potential, blockchain technology largely operates behind the scenes from the customer's perspective. The average consumer likely doesn't understand the intricacies of the technology, nor are they likely to care. They're interested in applying for a mortgage, purchasing a house, buying a new car, maybe taking out a home equity loan, and they want a convenient, safe way to do that. As long as lenders provide that, it doesn't really matter to the customer how it happens.

At least, that's ostensibly true. Customers don't necessarily care about the underlying technology, but they do care about its results. A lender that offers consumers faster, cheaper, more secure products and services holds a strong advantage over slower adopters in the market. Customer experience becomes more important all the time, because consumers demand fast, personalized service lending options.

Although blockchain is still a fairly new technology, its applications are significant and consequential. The potential for cost reductions, security, and improved customer experience are substantial, and lenders should be exploring now the ways in which they can leverage it for their clients' and customers' benefits.

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Steve Schipper, CFA, is the Founder and Managing Director of LendTrade, which specializes in helping financial institutions trade whole loans in the secondary market. LendTrade has successfully traded more than \$1.5 billion in loans and has advised banks on securitizations of residential and consumer loans. Reach Steve at (515) 778-0199 or steven@lendtrade.com.

