Blockchain in Banking: A Beginner's Guide

Executive Summary

In the last six months, blockchain technology has gone from a complex and arcane topic to increasingly mainstream as the digital technology evolves from concept to use. In July 2020, the OCC allowed banks to provide custody services for digital currencies. In late 2020, Fed Chair Jerome Powell spoke at an IMF conference on digital currency saying, "Given the dollar's important role globally, it's essential that we remain on the frontier of research and policy development." A month later, Brian Brooks is appointed acting Comptroller of the Currency, and a month after that the OCC approved banks use of digital currencies in payment activities. The political environment is shifting too, as key leaders in the new Administration – Gary Gensler (SEC) and Michael Barr (OCC) – have extensive experience with these new payment technologies.

While blockchain has been around for a few decades, these developments move blockchain into the mainstream.

What is blockchain? Blockchain is a distributed public ledger stored in a shared database. Blockchain is the system of recording entries in a manner where all parties can confirm entries. As such, no entries can be changed to reverse transactions. This makes data stored in the blockchain as trustworthy as wire confirmations from the Fed. Blockchain technology enables new "payment rails" that don't flow through central banks.

Blockchain has four key attributes: 1) security, 2) transparency, 3) decentralization, and 4) efficiency. By virtue of its architecture, blockchain is secure. Therefore, currency recorded in a blockchain is just as surely "money" as a dollar bill. The blockchain technology stands in the place of the Federal Reserve providing the *trust* needed for the financial system to function. In addition to security, blockchain is transparent – all entries are in a *public* ledger. Perhaps the biggest difference between blockchain and the Fed is that blockchain is robust because it is decentralized, whereas the Fed's authority comes from its role as centralized clearinghouse. Finally, and perhaps most important, blockchain is designed to enable financial transactions to be recorded in real time at low cost. This efficiency is likely to be the attribute that drives blockchain penetration in the United States.

Blockchain is used in Bitcoin but not just Bitcoin. Digital currencies are the most prevalent application of blockchain technology. To date, digital currencies have been treated as an investment rather than currency. That is, owners of Bitcoin are buying in anticipation of a rise in the value of Bitcoin relative to dollars – not to facilitate financial transactions. That said, the future of Bitcoin is currency.

Other banking applications for blockchain include: 1) KYC/BSA/AML, 2) payment systems/transaction settlement, 3) maintenance of loan files and 4) ownership ledgers. These applications are addressed below.

Digital Currency

Digital currencies like Bitcoin were the first application of blockchain. Blockchain technology is so secure that it can stand in the place of an institution like the Federal Reserve to create money. That said, "money" is used as a medium of exchange – a means of payment for goods or services that enabled mankind to move beyond barter economies. Bitcoin is different. It is a "fiat" investment – created out of thin air – that can be used to hedge other investments. For digital currencies to be money, they need to be stable like the next generation of digital currency "stablecoin." So far, there are about a dozen dollar-based stablecoins and almost as many backed by other currencies or commodities. Eventually we will use these stablecoins for everyday purchases.

Unlike Bitcoin, stablecoin is designed to minimize volatility. Stablecoins solve a key problem for digital investments by providing a medium of exchange for the period between the digital currency trade and settlement. Now an investor seeking Bitcoin exposure can deposit dollars in a bank, take back stablecoin, and use it to buy Bitcoin. The sale process simply goes in the opposite direction. Many stablecoins are backed by dollar deposits, thereby ensuring stability. At the beginning of 2021, the OCC issued guidance formally approving banks serving as depositories backing stablecoins.

As bankers, we often ignore "near money" and focus on "money" that is controlled by the Fed – M1 is cash and check deposits and M2 is MMDA and savings. Near money includes numerous other assets that can be monetized. Many of these offer clear business opportunities to banks. My first example of near money is prepaid debit cards that are functionally equivalent to debit cards linked to checking accounts without overdraft privileges. Looking beyond the Visa and Mastercards, a balance on a Starbucks card is no less "money" than the same amount in a checking account. Focusing on internet retail, balances in PayPal or at Amazon are also near money. By allowing banks to back stablecoin balances, regulators are maintaining some influence over this form of near money.

Many other assets serve as "near money." It has been nearly 50 years since deregulation of financial services ushered in the concept of "cash management accounts" to hold both long term investments and more liquid cash equivalents. In this environment, all investments are near money. Of course, fixed income securities are nearer than equities; public nearer than private; securities nearer than real property. But all of these bear attributes of money, and bankers can profit by servicing debit cards, providing lockboxes and contracting with investment advisors. Banks need to work with money and near money in order to remain relevant to customers.

It is natural for banks to manage digital currency accounts. If a customer chooses to be paid in Bitcoin and then shops using Bitcoin, someone will need to balance all of the debits and credits. Banks are well positioned to provide this service.

Customer Identity – KYC/BSA/AML

Blockchain can create a decentralized database of known customers (KYC). This directly addresses the criticism, and still widely held belief, that digital currencies are only used for nefarious purposes like financing terrorism or criminal activities.

The second use case for blockchain is to improve KYC/BSA/AML compliance. With blockchain technology, it is possible for participating institutions to differentiate known customers from others. Such status could be

portable, so when the customer attempts to transact with another bank, that bank need only check the blockchain registry. In fact, FinCEN rules allow banks to rely on information gathered by third parties. Such a process would avoid the duplication of effort now required as every bank gathers the same photocopies of a drivers license and other personal information. More importantly, the attestations that are central to the concept of a known customer are best maintained by banks. No one else has a greater and deeper web of trusted information to verify customer identity.

KYC protocols can be burdensome for community banks, especially relative to the benefit of reducing illicit activities. Participation in a blockchain-supported network sharing KYC data may be the best way to ensure compliance at the lowest possible cost.

Digital currency companies face similar regulatory requirements to banks. Endurance Advisory recently commented on OFAC's sanctions on BitGo related to compliance violations (the punchline is that fines can be multiples of revenue, so it is important for everyone to get this right). Financial regulators will not allow near money or digital currency to bypass. Know Your Customer and Anti-Money Laundering regulations.

Payment Systems and Transaction Settlement

Blockchain technology is able to disintermediate the Fed's wire system. Trust is the lynchpin of the financial system. Wire transfers are the most trusted transaction: no bounced checks, no returned ACH debits. Blockchain technology provides a similar level of trust. Most importantly, blockchain maintains a trusted record of all transactions submitted in any currency – whether dollars, foreign currency (disintermediating SWIFT too) or digital currency. For banks, this provides the possibility of real time, low-cost transfers – akin to real time ACH.

Federal Reserve technology has not kept pace with innovation in financial services. As a result, numerous services have stepped up to provide payment services that do not go through the Fed. "Same day ACH" and "on us" payment processing are examples of financial institutions using payments technology to cross transactions, leaving only the net amount to clear through the Fed. Better yet, by paying Fed Funds on the net balance, such a payment platform can operate without the Fed at all.

Maintenance of Loan Files

Blockchain's public ledger need <u>not</u> include personal identifying information about customers. Since blockchain is decentralized, many believe that customer data would be at risk on these decentralized computers. In fact, the blockchain ledger records the existence of the information but not the information itself. This architecture is critical. Blockchain is efficient because the ledger is public but not the customer data. Ledger information is tiny and easily stored in multiple, decentralized databases. Customer data, by contrast, is often cumbersome (scanned images of hundreds of pages), but it need not be transferred from one party to another.

Mortgage loan files are the most obvious application of this use case. In the mortgage business, origination is often separated from servicing and servicing is often separated from the ownership of the loan. Hence, it is critical for many parties to share information and certify that the loan file is complete. Shipping the physical loan file risks loss in transit. Shipping the digital loan file can be time consuming. For example, a $100 million servicing transfer can include as many as 50,000 loans and loan file transfer can take days even with multiple

simultaneous uploads. With blockchain technology, the loan file can be encrypted and stored in a single location. A transfer would then require transferring the encryption key and nothing else.

Verifiable consumer credit report data can disintermediate the credit bureaus and give consumers greater control over their credit scores. The credit profile could include confirmed payment histories for all debts of the consumer. Payment histories can even be reconciled with bank account transactions. The profile could also be locked down, thereby ensuring lenders that the consumer has not incurred additional debt that does not appear on the report.

Blockchain enables peer-to-peer lending with blockchain encrypted loan files and verified credit reports. Loan requests can be posted to exchanges without revealing personal identifying information until the winning lender is identified.

Ownership Ledgers

Blockchain can be used to record the creation and ownership of digital currencies. Ironically, many digital currency investors hold balances in online accounts that are not protected by blockchain technology. There have been several high-profile thefts of digital currency, including the "biggest theft in the history of the world" – the 2018 attack on Coincheck (a Japanese exchange) which cost it $534 million. With a blockchain ownership ledger, it would be possible to track ownership of an asset (whether digital currency or some other investment) to eliminate (or at least reduce) theft or fraud losses.

One such application would be the recording of real estate mortgages and ownership. The current process for recording real estate transactions is not standardized, leading blockchain innovators to propose an alternate process that would be more secure and efficient.

Summary

Blockchain is a powerful technological tool with numerous financial applications. These applications range from digital currencies to normal banking activities like payment processing, file transfers and ownership ledgers.

Blockchain offers an alternative to centralized government control of financial transactions. Institutions like the OCC and Fed are not designed to lead change; they prefer to opine on the innovations of other market participants. With the traction that blockchain established in 2020, it is critical for most banks to be positioned as either leaders or fast followers to avoid customer attrition as these new technologies are implemented.

Our team at Endurance Advisory Partners can help. Endurance serves as an independent advisor who will work alongside the Bank to assist with understanding and implementing blockchain and other technology solutions for banks.

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