10 Financial Institutions and their Distributed Ledger Endeavors

EXECUTIVE SUMMARY

This industry report focuses on the blockchain initiatives currently underway at ten of the world's largest financial institutions: Goldman Sachs, J.P. Morgan Chase, Citigroup, Banco Santander, UBS, Barclays, State Street, Bank of America, Credit Suisse, and Wells Fargo. As these projects are still in the research and development phase for the most part, there is not a lot of information available to the public about each bank's specific initiatives.

With the exception of State Street and Goldman Sachs, the financial institutions on this list are interested in blockchain technology itself, rather than digital assets native to any blockchain protocols such as bitcoin. Most banks mentioned on this list are working with other financial institutions, startup companies, and tech firms. Several of the banks are also working together in various blockchain consortia. These consortia will be covered in a forthcoming report.

BACKGROUND

If distributed ledger technology (blockchain) hopes to live up to the hype surrounding it and the perception that anything can be solved with a blockchain, mainstream tech firms and financial institutions must give their seal of approval that the blockchain is both useful and valuable.

Many of the largest and most prestigious finance and tech companies are exploring a multitude of different uses for distributed ledgers, from secure data storage to undergirding trade settlement in securities markets. The sure sign that these institutions do in fact see value in this technology is the money they're channeling into blockchain

R&D. Bloomberg estimates the financial services industry is spending $1.7 billion dollars annually to investigate blockchain.

The first use of blockchain technology was to underpin the Bitcoin network (and, later, other digital currency networks). While it's important to note that the underlying blockchain technology is distinct from, and applicable beyond digital currencies, this is the application that made "blockchain" a household word.

This industry report will first focus on five of the largest financial institutions that are currently developing blockchain solutions, before delving into three of the many various consortia exploring distributed ledger technology.

FINANCIAL INSTITUTIONS:

Goldman Sachs

While financial institutions have been cautious (or even downright dismissive) in their positions on digital currencies, they've kept a more open mind towards the alternative uses of distributed ledgers. Some, notably Goldman Sachs, have even gone so far as to accept digital currencies as a new asset class and are working on establishing trading desks for these assets.

Goldman Sachs recently made headlines when the finance giant announced it was planning on setting up a trading desk that would focus on trading derivatives contracts based on digital currencies like Bitcoin. These derivatives could be used by Goldman's clients to bet on BTC without either party in the transaction having to actually hold Bitcoin.

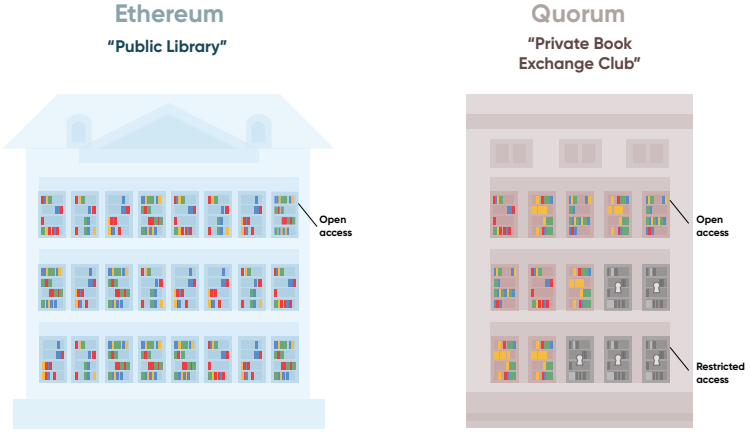
If the derivatives experiment is a success, the investment bank will likely move towards trading Bitcoin directly, although there are some hurdles to doing so. For Goldman Sachs to begin trading Bitcoin directly, they would need approval from the Federal Reserve and the State of New York. Also, the bank would have to find an industry-standard means of maintaining custody of the Bitcoin it held, as currently custody solutions are not up to Wall Street standards.

J.P. Morgan Chase

As mentioned earlier, financial institutions are primarily interested in the blockchain technology that underpins virtual currencies, rather than the virtual currencies themselves. J.P. Morgan Chase, who's CEO Jamie Dimon is infamous in the crypto-space for calling Bitcoin a "fraud" in September 2017 (a statement Mr. Dimon later said he regretted making), has filed a patent for an interbank payment system that uses blockchain to enable real-time, fully auditable payments between financial institutions.

J.P. Morgan has even set up an internal division devoted to working with distributed ledger technology called The Blockchain Center of Excellence (BCOE).

The BCOE's stated interests in blockchain technology revolve around Treasury Services, Capital Markets, Custody Services, and Financing Solutions. J.P. Morgan has even created their own fork (a term which here means a new cryptocurrency derived from an existing one) of Ethereum—it's called Quorum, and it's designed to be an enterprise-focused version of Ethereum.



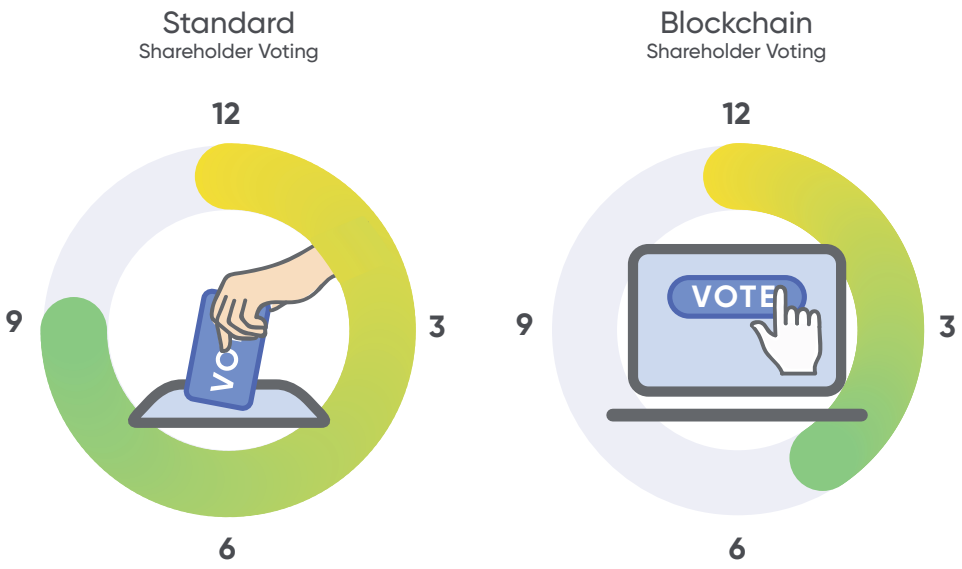
Quorum is an open-source platform for creating private, permissioned blockchains for enterprise use-cases. While some cryptocurrency purists may feel that a bank-created cryptocurrency is an oxymoron, the wider consensus in the industry is that these forays by traditional financial institutions are necessary for achieving widespread adoption.

Citigroup

Citigroup has also been exploring the potential application of distributed ledger technology for payment solutions through CitiConnect for Blockchain, a startup launched through the Citi Ventures startup accelerator D10X. CitiConnect for Blockchain has partnered with the Nasdaq Linq platform—another blockchain project from Nasdaq that uses a distributed ledger to record private securities transfers—to enable end-to-end securities transactions via blockchain. Citi and Nasdaq partnered with Chain, a ledger-as-a-service company, to build the distributed ledger system to be used in securities transactions.

Banco Santander

Banco Santander partnered with the fintech firm Broadridge Financial Solutions, as well as J.P. Morgan Chase and Northern Trust to test-run blockchain-based investor voting at their annual general meeting (AGM) in May. The pilot blockchain voting was conducted alongside the AGM, with a blockchain being used to store a "shadow" registry of proxy votes. Santander hopes that utilizing blockchain in this fashion will enhance proxy voting transparency and lead to greater efficiency and a more secure voting process.



Banco Santander is the largest bank in the Eurozone in terms of market capitalization and has more than four million shareholders. More than 60 percent of the bank's capital belongs to institutional investors, who had the opportunity see how quickly blockchain technology could confirm and tally shareholder votes. Using traditional methods, calculating shareholder votes takes approximately two weeks—with blockchain-based voting, shareholders could see the possibility of instantaneous calculation.

In total, 21 percent of the participants in Santander's AGM participated in the shadow blockchain vote. The Spanish bank hopes that a blockchain-based voting mechanism will encourage more shareholders to vote, which would further democratize the institution's decision-making procedures. At last year's AGM, almost 65 percent of Santander's shareholders voted—a new record for the financial institution. Santander hopes that introducing blockchain-based voting will only push that number higher.

Offering blockchain-based voting also serves as a business venture for Santander's Global Corporate Banking division, which functions as issuer's agents in AGMs of more than 50 of the bank's important clients.

Being able to tally votes in real-time will help Santander meet the updated European Directive on Shareholder Rights, which will come into effect in June of 2019 and will require information to be shared between intermediaries on the same business day.

UBS

In 2015, UBS launched an in-house program for the exploration of blockchain technology called "Crypto 2.0 Pathfinder". Some of the notable experiments to come out of this program include bond securities regulated by smart contracts. Essentially, these are programmable debt instruments that are issued via a blockchain-based automated system which automatically calculates interest, makes coupon payments, and handles the maturation process with the need for intermediaries.

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To perform this experiment, the team at Crypto 2.0 Pathfinder actually created a new distributed ledger network with its own native cryptocurrency, which they called "BondCoin".

After the creation of BondCoin, Crypto 2.0 Pathfinder developed a "Utility Settlement Coin", a virtual token designed to serve as a universal settlement method between otherwise separate blockchain systems.

Standard Security Transfer

(time consuming)

Bondcoin Transfer

(time efficient)

Barclays

The UK-based financial institution Barclays has partnered with the blockchain startup Wave to transfer trade documentation via distributed ledger. Wave is a graduate of Barclays startup accelerator TechStars and receives non-financial support from the bank.

The trial-run trade deal took place between agriculture cooperative Ornua and food product distributor Seychelles Trading Company. Barclays Head of Trade and Working Capital Baihas Baghdadi said that a distributed ledger system can remove one of the biggest "headaches" associated with trade finance—the movement of the paperwork that tracks and authenticates transactions.

Baghdadi said, "That is why we've been very keen to partner with Wave in using blockchain technology to save time and money for our clients, and potentially transform trade finance for businesses around the world."

Barclays will also be partnering with another of its accelerator startups, the compliance firm Chainalysis, to ensure that the bank's financial crime and transaction monitoring divisions are equipped with the cybersecurity tools necessary to bank cryptocurrency companies.

The co-founder of Chainalysis Jonathan Levin said that this move positions Barclays as one of the few mainstream financial institutions willing to work with digital asset-related firms, many of which lack access to basic banking services.

Levin said, "This is the first time a top-tier bank has integrated a compliance solution that would enable them to bank bitcoin and blockchain companies."

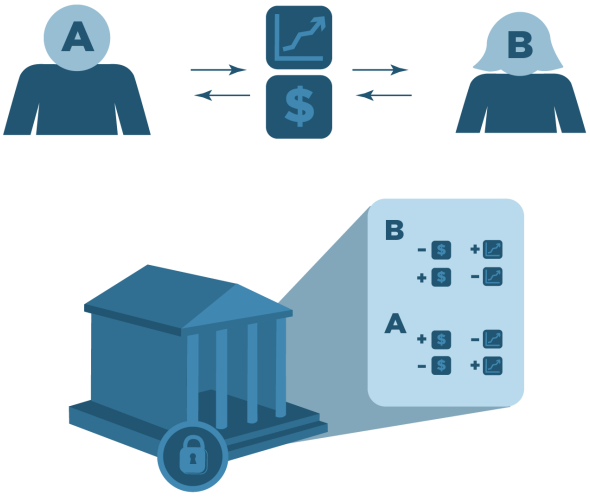
Barclays has also elected to bank Circle Internet Financial, the peer-to-peer crypto and fiat online payment system.

State Street

Like Goldman Sachs, State Street is notable on this list for its interest in digital assets such as Bitcoin as well as blockchain technology more generally.

The Boston-based financial recently stated its interest in expanding its custody services to include digital assets. This would position State Street as the only tradition financial institution to offer such services, and this would likely encourage the entrance of more institutional capital into the crypto-space. Institutional investors have cited the lack of qualified custodians as one of the primary reasons why they are hesitant about entering the space.

Role of Custodians



Custodian Bank

State Street is also in the process of testing ten blockchain protocols that could automate various features of the bank's operations. According to the bank, half of these proof-of-concept (PoC) projects have already passed through the prototype phase and are in the process of being taken live.

While State Street has not revealed the details of all of its blockchain endeavors, the bank has given three broad categories that its various distributed ledger projects fall into—internal operations, business-to-business transactions, and multi-party transactions.

Bank of America

Bank of America holds more blockchain patents than any other entity in the world. The CTO of Bank of America, Catherine Bessant, said at a fintech conference, "We've got under 50 patents in the blockchain/distributed ledger space. While we've not found large-scale opportunities, we want to be ahead of it we want to be prepared."

While a majority of the content of these patents is not known, we do know that one of the patents contains the proposal for a blockchain-based data storage solution involving automated data authentication via distributed ledger.

The patent application stated, "Embodiments of the invention utilize a private blockchain to store various types of records to be conveyed to the service providers. In this way, the individual or entity may securely store on the blockchain all records relevant to service providers, then provide the service providers with secured access to said records such that the providers may access only the specific records for which they are authorized, e.g. a healthcare provider may access only the healthcare records on the blockchain."

Credit Suisse

In March, Credit Suisse and ING Group announced that they had completed the first live transfer of securities via blockchain. The two financial institutions successfully swapped a basket of securities worth approximately 25 million euros using the Corda blockchain created by the R3 Consortium (more on this group will be available in a following industry report focused on consortia specifically).

Normally, securities trades and transfers take several days, however with a blockchain, the process is instantaneous. Also, the transparency provide by distributed ledger

technology allows all parties involved to monitor the transaction in real time, ensuring security.

Ivar Wiersma, the Head of Wholesale Banking at ING, said, "What's really different is that it gives the regulator the opportunity to get direct access to the ledger and see the entire digital history of the transaction, from where it originated to its ownership and attributes. In the over-the-counter environment, which is traditionally not that transparent, it could make the entire financial system more resilient."

Wells Fargo

Wells Fargo, in partnership with Credit Suisse, U.S. Bancorp, and Western Asset Management, has been testing distributed ledger technology for the purpose of standardizing and tracking data regarding securitized mortgages. The banks see blockchain technology as a means to improve transparency and simplify the securitization process.

Penny Morgan, Global Securities Operations Manager at Western Asset Management, said, "Distributed ledger technology will increasingly improve security around data, not just for capital markets but across numerous other industries."

It is worth noting that this exact same process of mortgage securitization is what turned the housing market crisis of 2008 into a global financial crisis—commercial banks made "subprime" loans to borrowers who would not be able to repay their mortgages, then immediately sold those loans to investment banks which packaged them into mortgage-backed securities and sold them on the public debt markets.

CONCLUSION

This industry report has focused on five financial institutions and three consortia exploring potential applications of distributed ledger technology within various fields. With the notable exception of Goldman Sachs, the general consensus within the financial services industry is that cryptocurrencies should be avoided while applications for the underlying blockchain technology should be explored to their fullest possible extent.

Indeed, the majority opinion across every industry from healthcare to telecom to aerospace appears to be "blockchain, not Bitcoin". Just a few years ago, blockchain was nothing more than the infrasture underpinning Bitcoin. While there was plenty of speculation surrounding the potential applications of the technology, it was difficult to divorce the concept of the blockchain from its initial application within cryptocurrency. Today, cryptocurrencies are quickly being overshadowed by the underlying distributed ledger technology, leading us to believe that it will, in fact, be "blockchain, not Bitcoin" that has a transformative effect on society, governance, finance, and commerce.

ABOUT THE AUTHOR

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ABOUT blockmatics

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