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# Journal

THE CAPCO INSTITUTE JOURNAL OF FINANCIAL TRANSFORMATION

New Entrants

Get Bold with Blockchain

Benjamin Jessel, Tommy Marshall

**RISK**

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# Get Bold with Blockchain

**Benjamin Jessel** – Managing Principal, Capco

**Tommy Marshall** – Partner, Capco

## **Abstract**

Distributed ledger is a technology that offers the potential to significantly disrupt the financial services industry through a new paradigm that could ultimately result in the trade and settlement cycles across many assets shrinking from days to seconds. As with many new technologies, the hype cycle is in full effect, with many highlighting the huge potential of the technology without any references to the fact that market infrastructures evolve through decades not years, and where regulation often lags several years behind technology advances.

The technology for distributed ledger has been – for the most part – proven, and many financial institutions have begun to understand that it can be applied as a technology design pattern that can enable a small network of invited participants to collaborate over a secure network. Key recent developments such as the DTCC’s

announcement of a Repurchase Agreement (Repo) proof of concept and the trail of the technology by the Australian Stock Exchange and Japanese Stock Exchanges demonstrate that this technology is beginning to be taken seriously.

The debate fundamentally comes down to interoperability and the “network effect” – can banks cast off their conservative philosophy, and risk averse approach to new technology and work together to build distributed ledgers or will we have to wait until there are outside pressures from regulators or the fintech community before this evolution starts in earnest? In this article, we urge consultancies and financial institutions to be “bold” about blockchain; specifically to develop their thinking away from the headlines and high level narrative and objectively assess the use cases for the technology in detail.

There is no doubt that distributed ledgers and the technology that fuels it, “blockchain,” is a hot topic. There is also a growing consensus amongst credible, senior members of the financial services industry that this technology, be it centralized, decentralized, or federal ledger, will have a profound and lasting effect on their industry.<sup>1</sup> Many say we are witnessing the beginning of a true democratization of finance – a period during which the closed network of correspondent banks and counterparties could be replaced by an open, more transparent, and perhaps even safer system (as depicted in Figure 2).

This approach has the potential to reduce costs through commoditization of contracts, increased process speeds and reduced settlement risk while increasing trade transparency. But when will banks put blockchain to the test? Who is going to Get Bold with Blockchain?

## IS BLOCKCHAIN PAYING ITS WAY? BLOCKCHAIN AND PAYMENTS

Initially, the focus on distributed ledger and blockchain use cases was firmly on cross border payments, on the basis that bitcoin was a technology that enabled payments transfer. This is not surprising given that the recent rise in bitcoin price has been predominantly cited on capital flight from countries such as China.

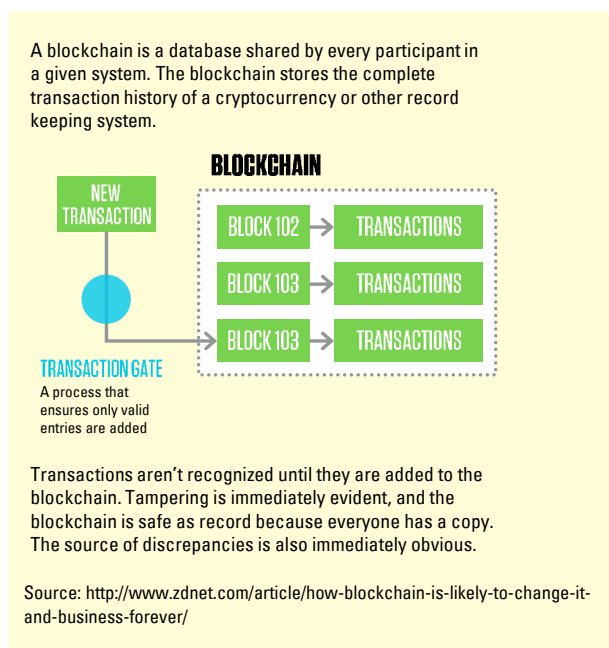


Figure 1 – How blockchain works

We have seen companies like Ripple™ striving to replace cumbersome traditional network of correspondent banks with blockchain inspired solutions that provide the promise of faster, simpler and cheaper payments.<sup>2</sup>

This technology has the promise of allowing users the ability to prioritize payment methods based on criteria such as optimization of speed, compliance, counterparty risk or exchange rates. This could be a game changer for financial services institutions not able to fine tune business decisions in this way before. We also are beginning to see banks experiment with crypto-finance payments on blockchain rails. Pioneers, like FIS's Clear2Pay,<sup>3</sup> and start-ups like Earthport™<sup>4</sup> are busy forming partnerships to explore what banks, and blockchain, could do together. Yet still, sweeping change remains elusive.

## BLOCKCHAIN FROM FRONT TO BACK OFFICE: WHERE'S THE POTENTIAL IN CAPITAL MARKETS?

In trading, clearing, and settlement, proponents of blockchain technology predict a complete replacement of what many feel is an antiquated system, full of human processes and trapped funds. Imagine one sleek design, which mitigates current challenges/risks, such as settlement time and custodial risk (as identified in Figure 3) while putting to rest the snarl of private, bi-lateral ledgers that record asset ownership and liabilities in equities, bonds, and derivatives markets. Industry focus then centers around whether the present structure of capital markets trading gives way to a centralized shared database of trades built on crypto-finance principles. Some industry experts believe that the concise clarity of blockchain technology, and the options we have in adopting it, could have saved us from the lethal crisis of confidence that fueled our last market collapse by providing a full auditable view of ownership of all assets and liabilities. Distributed ledger and the blockchain could potentially take out systemic market risk and make markets safer.

1 Centralized ledger: transactions are recorded centrally by one party. This is most analogous to the current banking system where there is a central bank /depository/ custodian recording transactions and ownership (e.g., the DTCC today). Distributed ledger: each participant owns a copy of the ledger, which is updated each time a transaction is made and then confirmed. A consensus (eg 51%) needs to be reached in the group to confirm ownership. Federated ledgers (sidechains/altschains): similar to distributed ledger but with a degree of exclusivity built in. Depending on how they are set up, either these can take the form of private blockchains only available to a selected few, or alternatively access is open but participants can choose whom they transact with.

2 <https://www.ripplelabs.com>

3 <http://www.fisglobal.com/C029864>

4 <http://www.earthport.com>

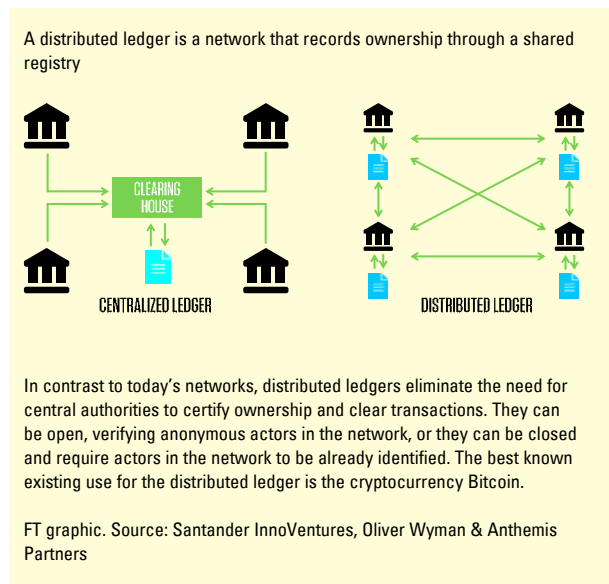


Figure 2 – Embedding distributed ledger technology

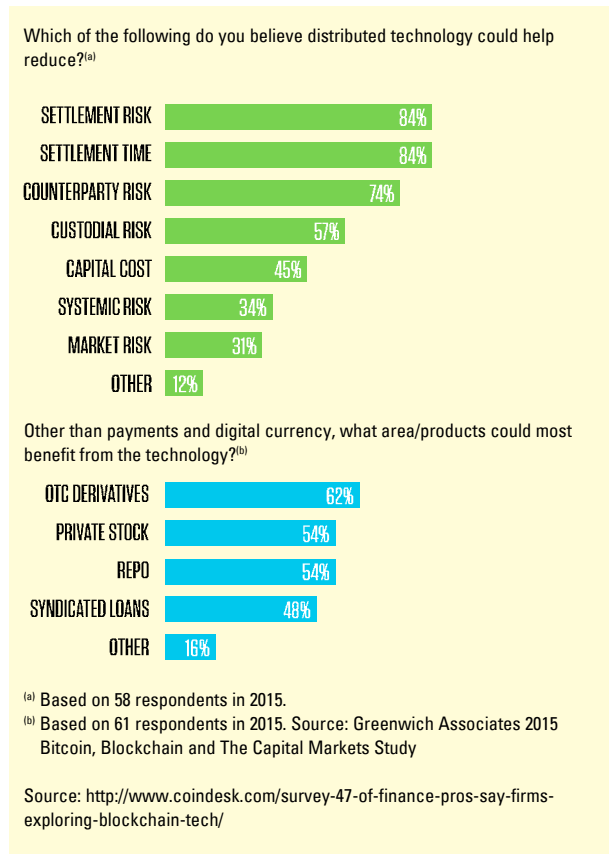


Figure 3 – Distributed ledger technology benefits

The ability to be able to reduce – and in some cases eliminate – clearing is appealing to financial institutions given the current cost of reconciliation of trades. Furthermore settlement could be significantly speeded up. A key new paradigm of the technology is that “the trade is the settlement.” In other words, because the change in ownership of assets can occur at trade time, so can the change of ownership of the assets involved in settling that trade.

That is significant implications for capital – the velocity of capital on banks’ balance sheets accelerates, meaning that capital no longer has to sit on the sidelines awaiting the settlement of a trade. The capital impact of moving from T+3 to T+0 across asset classes would be a significant prize. Yet, many counter this argument and claim that it is not necessarily a technology constraint that we cannot move to shorter settlement times, but how the market is structured today. Moving to shorter settlement times in many cases actually introduces more problems than it solves.

## POTENTIAL ENERGY

But these are scant few examples when compared to the size of the financial services market as a whole. So what is less clear is when – and specifically how – blockchain technology will work with traditional core systems at global banks. 47% of finance professionals say their firms are exploring opportunities in the area, including a number of the use cases referenced in Figure 4.<sup>5</sup>

Most top tier banks now have distributed ledger labs or are actively engaged in the R3CEV forum or the open ledger forum group, but few have been able to move to an actual business proposition or actionable plan. Many are waiting for the outcome of the tests from the R3CEV group.

With preliminary testing having proved the potential of the technology, the financial services industry is now poised to put blockchain and distributed ledger to the test.

## WHAT’S IN THE WAY?

There are a number of things holding back the cataclysmic changes predicted to transform financial services due to blockchain technology.

<sup>5</sup> <http://www.coindesk.com/survey-47-of-finance-pros-say-firms-exploring-blockchain-tech/>



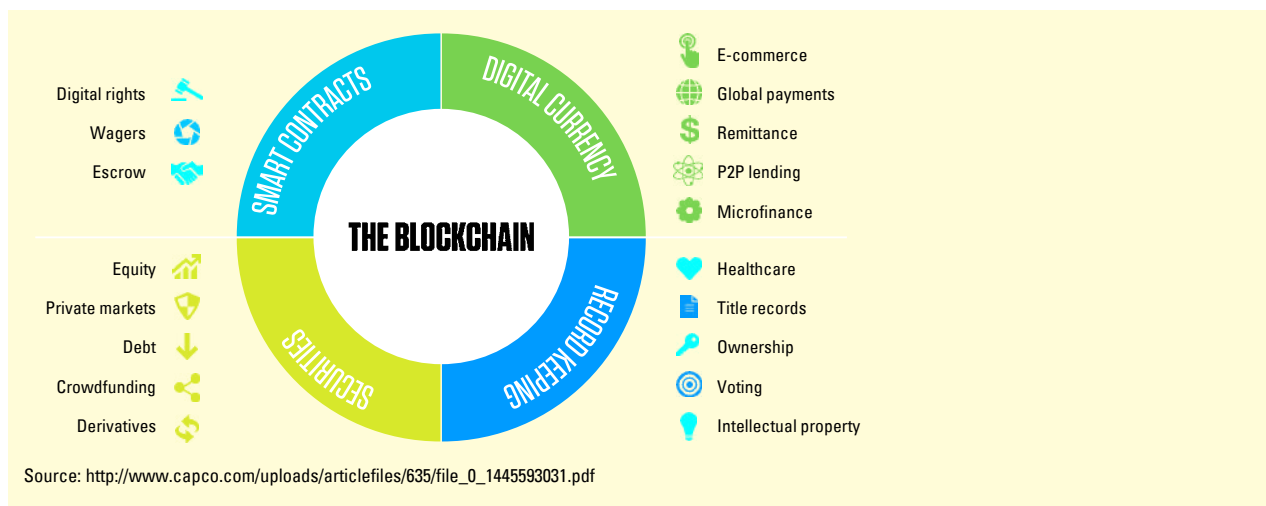


Figure 4 – Blockchain use cases

First, the short-term market opportunity appears small for large banks. Tight margins and strained budgets encourage IT executives to tweak the status quo until the returns on investments for blockchain are clearer. In the clearing and settlement space, there is as yet not the appetite – or clear financial incentive – to dismantle and replace the current banking infrastructure, a costly and risky undertaking.

Second, a key adoption hurdle for the technology is the requirement for a number of industry participants to adopt a common standard and technology. With the large number of market participants involved in equities trading, clearing, and settlement, the likelihood of these organizations all adopting a new data and technology standard soon is low.

The automation potential of the distributed ledger and blockchain is significant. Financial instruments can be digitized into “smart contracts” that are effectively financial contracts translated into computer programs that could remove vast swathes of operational roles currently conducted by humans. However, not only does this require an agreement and adoption between financial institutions to a standard, but also an acceptance by compliance contracts to run computer programs between financial institutions that directly integrate the financial systems of financial organizations. Even if computer code is audited, concerns about compromise and security will be hard to overcome. Another key challenge is to determine to what extent contracts are similar enough to enable them to be encoded without the need for many different types of contracts to be built.

Finally, the industry market infrastructure has been designed around a trading and settlement process of days rather than seconds – financial institutions are simply not yet designed and geared

for concepts such as real-time netting of positions, and having capital to settle transactions within seconds of trade rather than days.

But where we are seeing interesting opportunities is where there is less of a market infrastructure established, where it is consolidated, or where there are few market participants involved in the trade lifecycle. For instance, R3CEV – a distributed ledger consortium of over 40 banks – is actively trialing commercial lending use cases, which is a market without a significant infrastructure in place today, with few market participants. Other examples include the Australian Stock Exchange, which is an exchange that is unique in the degree to which it has a consolidated hold on the market – it operates a central securities record-keeping or ledger-keeping service and is responsible for the totality of the settlement and clearing process.

Finally, the DTCC announced earlier last month a trial of distributed ledger in the repo market. This is a market with a small number of market participants, with a relatively standardized asset. In this market, rapid clearing and settlement isn’t the desired outcome – repos already settle on a T+0 basis. Instead, the opportunity is a more optimal allocation of capital and the ability to achieve trade compression, which should improve liquidity ratios. Given that the DTCC has been skeptical on distributed ledger in recent months, this – to us – signifies the heralding of a new age in the story of distributed ledger technology.

This development, combined with the developments in the open ledger / hyper ledger project, Digital Asset Holding’s announcement of a proof of concept with the Australian Stock Exchange, and IBM’s announcement of a trial of distributed ledger technology with

the Japan Exchange Group suggests that distributed ledger has moved from the theoretical into the practical.

## DÉJÀ VU ALL OVER AGAIN

The catalyst for change will likely take a radical regulatory edict, such as a move to a T+0 (Trade + 0 day) settlement protocol. “In the 1970’s ‘Paper Crisis,’ firms were choking on a backlog of paper orders caused by a spike in equity trading volumes,” recalls a market veteran. “Regulators, like the Federal Reserve and the SEC, came in and said, ‘Guys, clean up your customer order confirmations or you’re out.’ A lot of firms closed their doors due to lack of technology. Those who invested too late didn’t make it. Those who did make it were the ones who invested in automation before it was absolutely necessary. I look at blockchain and it feels like it’s déjà vu all over again.”<sup>6</sup>










## COMPLIANCE OR COMPLACENCE?

Another hurdle is that the future regulatory environment remains unclear as the pace of regulation continues to lag behind the speed of technological innovation. Because early Bitcoin exchanges demonstrated the risks involved in being on the wrong side of ambiguous regulatory guidance, would-be industry participants are spooked and cautious. Compliance departments will have to do a lot of due diligence before becoming comfortable with their financial institutions getting on the blockchain train. But with precautions understood, are financial institutions being too casual with their “wait-and-see” attitude toward blockchain? Are questions around vague compliance allowing banks to be complacent?

## FIRST TO BE SECOND

The road forward will not be easy. For starters, many of the new entrants that may provide liquidity on blockchains in the future are not going to be traditional financial institutions. In addition, new models, unfamiliar processes, and unknown exchanges will pose challenges for banks trying to calculate counterparty risk in a foreign environment. As we all know, people do not like change and financial services professionals are no different. Industry consortia are failing to push potential use cases and shape regulation due to an inability to agree on standards as well as a tendency to play it safe. When it comes to blockchain, it seems as if everyone wants to be first to be second.

### Other major areas of enhancement include, but are not limited to:

-  Instantaneous confirmation and settlement
-  Lack of need to warehouse “Physical” assets but rather record securely using blockchain technology
-  Immediate pricing transparency from point of execution
-  Enhanced settlement security
-  Increased market liquidity with immediate settlement
-  Simplified Dodd Frank reporting via real time auditing transactions posted to the blockchain
-  Reduced counterparty and delivery risk
-  Reduced indirect transaction costs
-  Reduced in back office operations overhead

Source: <http://www.capco.com/insights/capco-blog/will-blockchain-kill-clearing-part-ii>

Figure 5

## WHERE IS THE OPPORTUNITY?

But for the bold of heart there are opportunities that are ready to be realized by blockchain today. Innovators are excitedly pointing toward new markets to kick the tires, as Nasdaq has committed to do by leveraging the blockchain platform to facilitate the issuance and transfer of shares of privately held companies.<sup>7</sup> Markets where automation is still limited are also likely to see fast adoption. Industry insiders like Symbiont<sup>TM</sup> are starting to whisper about anticipated inroads into the corporate debt markets first.<sup>8</sup> Analyst houses like Greenwich Associates have their eye on all manners of leveraged and syndicated loans as the primary feeding ground for blockchain disruption.<sup>9</sup> Further, the open ledger forum, which includes IBM, the Linux foundation and Digital Asset Holdings, are now starting

6 <http://www.capco.com>

7 Read more: <http://www.nasdaq.com/press-release/nasdaq-and-chain-to-partner-on-blockchain-technology-initiative-20150624-00446#ixzz3ILfPhHP>

8 <http://symbiont.io>

9 <https://www.greenwich.com>

to deploy distributed ledger components to enable the distributed ledger movement transition from the theoretical to the practical.

With regulation from Dodd Frank's Volcker rule pushing dealers away from taking principal positions toward a pure agency model, blockchain technology may be just what dealers are looking for to lower transaction costs in a growingly restrictive trading environment.

## **WINNER TAKES ALL? TACKLING BLOCKCHAIN**

Consulting professionals are ringside center in trying to assist global banking clients to navigate the new territory blockchain unfolds. A number of areas of enhancements, as noted in Figure 5, are sought after, but as one proponent stated: "Everyone is scrambling to be in this field for fear of missing out...but few have a clear view as to the differentiation and competitive advantage that the technology will bring to their business, let alone a plan to actually implement and monetize its possibilities."

Of course, the full implications of blockchain on financial services will not be realized until the majority of players are using the technology, but it is becoming clear this is not a good enough reason to sit on your laurels. As another expert said: "By all means develop a proof of concept as a first step in the process, but you have to be bold. Define a proposition that you believe is truly game changing for your organization, and the industry, and proceed aggressively in that direction. Take the risk. To my mind, this is not a game of feature parity. It could just be that it's winner-takes-all."

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