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# Blockchain: The Transformation of Accounting

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# BLOCKCHAIN

## The Transformation of Accounting

By Ryan Quade

Failure to meet accounting standards has cost US banks $200 billion in fines since 2009.[1] Meanwhile, internal fraud—the very fraud accounting standards seek to prevent—has cost businesses globally over $4 trillion in 2018 alone.[2]

Blockchain, the technology of decentralized transactions on a shared ledger, promises to solve these problems and save corporations billions along the way. Although it is only in the early stages of adoption and development, blockchain fundamentally changes accounting in three ways: enabling triple-entry bookkeeping, transforming the role of auditors, and improving global tax systems.

## Building Trust with the Third Ledger

In 1494, Luca Pacioli formed the double-entry bookkeeping system.[3] Industrial-age accountants went a little farther with the establishment of accrual accounting.[4] Although improved, double-entry accounting was—and still is—flawed.

Under the double-entry system, sellers complete a transaction and record it on their own books. Buyers receive the transaction and record it on their own books. Because each party books the transaction independently, internal pressures can lead to illegal misstatements. As the Enron and Worldcom scandals show, double-entry can allow for manipulation when pressure is high.

After 500 years of technological revolutions, the world has a better system. Blockchain transactions are shared, peer-to-peer transactions. Once entered, transactions are distributed to all nodes (PCs or servers) in the blockchain. These decentralized nodes make up the "third ledger" which can either be public or private (permissioned). The principles of blockchain can be easily understood through a transfer of cash, as seen in Figure 1.

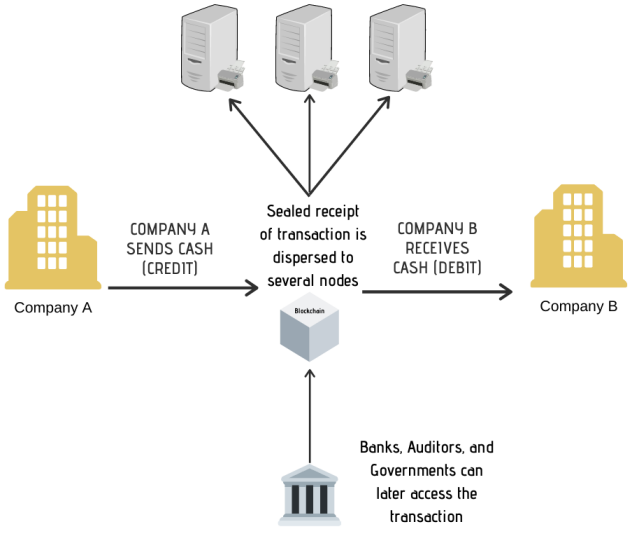


Figure 1

In Figure 1, Company A sends cash via the blockchain. Because the transaction is sent to several nodes via a cryptographically sealed receipt, it's unchangeable. Company A's blockchain ledger would receive a credit (reduction), and Company B's blockchain ledger would receive a debit (increase). Both the credit and debit would be stored in a third entry in the "third ledger" of the shared blockchain. Banks, auditors, tax authorities, and courts could later view the exact transaction through the shared blockchain.

With blockchain, the entire ecosystem of businesses is responsible for the trust of transactions.[5] Transactions are only modified if approved by all the parties on the transaction.[6] To avoid being indicted of fraud, involved parties would block any intentional misstatements or miscalculations.

What about hackers? Because the transaction is stored on hundreds or even thousands of nodes, hackers have no central ledger to hack. By design, fraud is impossible with third ledger accounting.[7]

## Transforming the Roles of Auditors

For years, the audit process has stayed largely the same. Auditors take samples of their client's accounting documents, like invoices, statement balances, and journal entries. After combing through these samples with forensic analysis, auditors issue an opinion on their client's compliance with accounting standards.

With blockchain, traditional auditing has changed from taking a few months to a few seconds. Consulting firm EY has termed blockchain auditing the "plug-in" or "always-on" audit. Because every transaction is stored in the blockchain, auditors may use code to instantaneously check the entire ledger without being limited to just a small sample.[8]

The speed of blockchain auditing is interesting, but the real impact lies in the purpose of audits. If intentional misstatements are impossible on the blockchain due to third-ledger accounting, what will auditors be looking for? Inaccuracy.[9]

As a new technology, blockchain needs independent audits to ensure it is working as designed.[10] Auditors also need to check for the client's control of the risks associated with blockchain, as required under the International Standards on Auditing.[11]

Along with the expansion in system auditing, traditional auditors will need to pivot their focus to providing expertise on internal controls and financial planning.[12]

Hurdles in legal, compliance, risk management, and corporate controls are slowing blockchain implementations.[13] However, day by day, as firms resolve these issues, blockchain will become the standard for audits. Already, PwC and EY offer blockchain-based audits in their product lines.[14]

> ***With blockchain, traditional auditing has changed from taking a few months to a few seconds.***

## Improving Tax Systems

Unlike audit and bookkeeping, blockchain for tax remains relatively unexplored. However, blockchain can improve tax collection methods across the world through two methods: internal government transactions and market-wide blockchain implementations.

Blockchain could automate internal government systems, cutting costs and narrowing the tax gap.[15] Such a government blockchain is being developed by the United Arab Emirates (UAE) under its "Emirates Blockchain 2021 Strategy." By moving 50% of government transactions to blockchain, the UAE expects a savings of 11 billion AED ($3 billion USD).[16] If this strategy works, other governments will likely follow the UAE's lead and begin internal blockchain implementation.

In a more profound way, entire systems of tax collection could be transferred to blockchains. For example, a European-wide value-added tax system was recommended by the UK Government Chief Scientific Adviser in a pre-Brexit report.[17] Such a system

would require every transaction to be logged in a public blockchain. Tax payments would flow automatically through "smart contracts"; each transaction would simply be coded to remit the appropriate amount. With a market-wide blockchain, governments would have a constant revenue flow rather than waiting for intermittent payments.

As blockchain thought leader David Deputy said in 2016, "Blockchain could potentially mark the end of corporates needing tax advisers to file their tax returns."[18]

## Responding to the Change

In 2016, Goldman Sachs gave an estimate of what's at stake. Banks and broker-dealers have a potential to save $2 billion in overhead expenses, $500 million from clearing costs, and $5 billion in compliance costs of "suspicious transactions." That's $7.5 billion of cost savings in the banking sector alone.[19]

Eighty-four percent of surveyed executives have some form of blockchain implementation in their business.[20] Early adopters have working blockchain solutions, like IBM's oil accounting system and TaxToken's cryptocurrency taxation system.

With billions of dollars to save and criminal activity to stop, the question is not if but when will you join the blockchain revolution?

***Layout by Sarah Romney***

## Notes

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