



The blockchain revolution, smart contracts and financial transactions

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By:

Originally developed as the technology underpinning bitcoin, blockchain has been heralded as an innovative technology with wide-ranging application beyond digital currency (or cryptocurrency), including as a platform for so-called smart contracts – self-executing, autonomous computer protocols that facilitate, execute and enforce commercial agreements between two or more parties.

As discussed below, blockchain-based smart contracts have enormous potential to streamline financial transactions and reduce the counterparty risk associated with monitoring or enforcing contractual obligations.

What is blockchain?

Blockchain technology refers to the use of a distributed, decentralized, immutable ledger for verifying and recording transactions. The technology enables parties to securely send, receive, and record value or information through a peer-to-peer network of computers. When parties wish to conduct a transaction on the blockchain, the proposed transaction is disseminated to the entire network. The transaction will only be recorded on a block once the network confirms the validity of the transaction based upon transactions recorded in all previous blocks. The resulting chain of blocks prevents third parties from manipulating the ledger and ensures that transactions are only recorded once.

The smart contract

Although the blockchain was developed to facilitate cryptocurrency transactions, entrepreneurs are now developing the technology for use in smart contracts. To develop a smart contract, the terms that make up a traditional contract are coded and uploaded to the blockchain, producing a decentralized smart contract that does not rely on a third party for recordkeeping or enforcement. Contractual clauses are automatically executed when pre-programmed conditions are satisfied. This eliminates any ambiguity regarding the terms of the agreement and any disagreement concerning the existence of external dependencies.

One of the most important characteristics of the blockchain as it relates to smart contracts is **the ability to enter into “trustless” transactions**. Trustless transactions are transactions that can be validated, monitored, and enforced bilaterally over a digital network without the need for a trusted third-party intermediary. Multi-signature (or multi-sig) functionality can be incorporated into smart contracts where the approval of two or more parties is required before some aspect of the contract can be executed (e.g., an escrow agreement between two parties and an escrow agent). Where a smart contract’s conditions depend upon real-world data (e.g., the price of a commodity future at a given time), agreed-upon outside systems, called oracles, can be developed to monitor and verify prices, performance, or other real-world events.

Using smart contracts in financial deals

Financial transactions are one potential way to use smart contracts. Smart derivatives contracts could be coded so that payment, clearing, and settlement occur automatically in a decentralized manner, without the need for a third-party intermediary, such as an exchange or clearinghouse. For example, a smart derivatives contract could be pre-programmed with all contractual terms (i.e., quality, quantity, delivery) except for the price, which could be determined algorithmically from market data fed through an oracle.[1] Margin could be automatically transferred upon margin calls and the contract could terminate itself in the event of a counterparty default. The blockchain would perform the recordkeeping, auditing, and custodial functions traditionally performed by intermediaries, resulting in transactional cost savings for the contracting parties.

With financial technology startups continuing to develop smart contracts for financial transactions, securities and derivatives regulators will ultimately need to formulate an approach for regulating their use. Several regulators have already signaled their intention to examine the use of blockchain technology in the financial sector.

Smart contracts are potentially attractive to regulators, since they increase transaction security and reduce the risk of manipulation. But prudent observers note that their implementation may raise difficult legal and compliance challenges.

Find out more about the potential uses of smart contracts in financial transactions by contacting your regular DLA Piper lawyer.

[1] Houman B. Shadab, Written Statement to the Commodity Futures Trading Commission Global Markets Advisory Committee: Regulating Bitcoin and Block Chain Derivatives (Oct. 9, 2014), *available here*.