

# Evaluation of Blockchain in Capital Market Use-Cases

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## ABSTRACT

This article describes the “Blockchain” which is an upcoming technology in the current leading world and which serves as a capital market use-cases for many of the global Fintech industries across the world, is a distributed ledger of economic transactions which not only used for recording financial transactions but mostly everything of value in this world. In the current world, mostly all the transactions are done through online which mainly includes the bank as a “middle man,” which could be untrustworthy at times. Blockchain comes into the picture which eliminates the need of a middle man or third party between the users who are involved in the transactions. Represents a financial ledger entry of data structure which consists of record of transactions which is digitally signed and cannot be tampered as authenticity is ensured in which the ledger is considered to be of high integrity. One of the leading and highly valued platform of blockchain is “Hyperledger Fabric” which is meant for securing transactions and serves a powerful container technology for smart contract development in the global capital firms. The potential of Blockchain and DLT in capital markets in this upcoming world could remove many of the inefficiencies and costs inherent in the global capital markets across the world and could be considered as a viable technology which enable to settlement.

## KEYWORDS

Blockchain, Hyperledger Fabric, Ledger, Smart Contract

## 1. INTRODUCTION

The global markets across the world are increasing day by day and all are looking for a technology where transactions could be done without the need of a centralized authority between the dealer and the buyer. Since capital is a very critical component which is used for generating the economic outputs, Capital markets includes primary markets and secondary markets, where primary markets consist of stocks and bonds which are issued and sold to investors and secondary markets consists of the trade existing securities. Capital firms are markets mainly meant for buying and selling equity and debt instruments which are securities in the global world or in other words which facilitates the buying and selling of financial instruments. Capital markets involve issuing of stocks known as equity securities and issuing bonds known as debt securities for medium-term and long-term durations (Condos, Sorrell, & Donegan, 2016). It includes various participants as the individual investors, municipalities, governments, companies, organizations, banks and financial institutions. As the blockchain acts as a catalyst for the evolution of various new applications and is a next-step from computing architectural concepts needs to take care of five key concepts – blockchain, decentralized consensus, trusted computing, smart contracts and proof of work or stake. Built-in-robustness is one of the major advantage of Blockchain technology as it helps in storing blocks of information that are same across its network. Another advantage of the distributed ledger is that it cannot be controlled by

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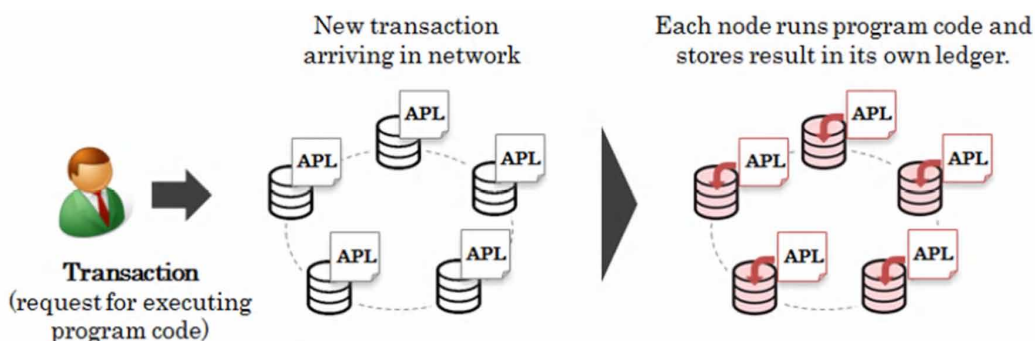
any single entity and has no single point of failure. The blockchain network also results in transparency as the information is embedded within the network and it is public. It cannot be corrupted at any cost as alteration of any data on the blockchain would result in the usage of a huge amount of computing power to override the entire process. The blockchain makes up a network of computing nodes which solves the problem of manipulation. The global network of nodes use the blockchain network as helps in solving the problem of transactions of stocks or bonds among the capital firms, where it verifies, validates and authenticates each and every user with their own credentials and records transactions in the ledger which is distributed among all the participants in the trade (Buehler et al., 2015).

DLT or the distributed ledger technology has become has attracted a lot of people from various industries which has explored a lot of applications in which the centralized consensus process is replaced by DLT. Application of DLT to capital markets is one of the areas attracting people's attention. Global exchanges, CCPs, CSDs, banks, dealers, and market facility providers have productively explored DLT applications through PoC (proof of concept), and venture in technology income producer or participating consortiums. Cost reduction is one of the inherent advantages of exploiting DLT for capital market framework. DLT enables network partners to validate the transference of rights between each other and share those records in an changeless manner by applying cryptographic technology (Swanson, 2015). DLT consists of five technological features such as database to report ledger, cryptographic hash function to abstract data, public key cryptography, P2P network, and consensus algorithm. A 'smart contract' function facilitate users to generate business applications that can be deployed and accomplished on distributed nodes only to devoted parties or a sole entity. Due to the difference in openness policies, appropriate consensus algorithms differ. Since anyone can produce new blocks in public DLTs, assignments like proof of work (PoW) are recurrently built into the consensus algorithm to avoid venomous participants overwriting past facts (see Figure 1).

Consortium or private DLTs can confine block creation to designated shareholders. It is also possible to restrict tenancy of multiple nodes to a single individual or entity. These access control deliberation enables use of a swift consensus algorithm where a chief node nominated by a simple rule bring about a new block, and then the block is approved by a predefined proportion of nodes (Underwood, 2016).

This paper proposes about the potential of bringing up the blockchain technology and how it can lead a great impact on the FinTech industries and how it is designed to solve the problems of double spending, issue of trust, Consensus on the latest correct version of the transaction history and not allowing anyone to make changes upon an agreed chain of transactions (Paech, 2016). Global capital market are financial markets which are equity securities known as stocks and debt securities which are known as bonds. In other words, they are meant for buying and selling stock and bond financial instruments. Capital market firms consists of issuing equity securities and debt securities for long-term and short-term durations as in the contract of one year or more depending on the

Figure 1. Working of DLT among the peer nodes (Source: Swanson, 2015)



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