Robert Genetski

ClassicalPrinciples.com

107 Park Street Saugatuck, MI 49453 312-565-0112 rgenetski@classicalprinciples.com

Blockchain, Cryptocurrencies and Fintech

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There is a tsunami heading toward the financial world. The introduction of Bitcoin and Ethereum and the blockchain protocol are on the verge of reshaping the financial industry. It will prove as disruptive to the financial system as the Internet has been in to so many other businesses.

With one exception, every major bank has begun experimenting with blockchain technology. They will be fighting a defensive battle against this new technology. This battle has important implications for the financial industry, impacting transactions, investments, loans, government policies and even money itself.

Bitcoin, blockchains and cryptocurrencies—is this stuff real?

Bitcoin is the first digital currency. It emerged in 2008 from a 9-page whitepaper. A whitepaper provides information on a revolutionary new protocol, presenting its objectives and what it intends to achieve. Think of a whitepaper as a prospectus for a new company.

Bitcoin's whitepaper described a protocol that would make it technologically feasible to create an electronic cash system that would be able to transfer currency from one person to another without going through a financial institution. To accomplish this, the system would have to do several things that are currently done by governments and financial institutions. It would have to create a currency, verify that the currency belongs to its owner and has not already been spent, provide a means for verifying currency transactions without the aid of a centralized financial institution and keep a ledger of all such transactions.

Bitcoin's whitepaper describes a blockchain technique used to accomplish these ambitious objectives. The chain of blocks would use a combination of cryptography, math and the power of various independent computers to accomplish the above objectives. In 2008, this entire protocol was a theoretical concept.

The theory was put into practice for the first time in 2009 when the Bitcoin protocol was first put to use. At that point, a bitcoin was worth a fraction of a penny. As the years went by, Bitcoin's protocol was validated as the system achieved its main objectives. With each subsequent validation, the attraction of this system drew in more people, more transactions and an explosive increase in the value of the Bitcoin currency.

Although Bitcoin was designed strictly as a digital currency, its blockchain protocol for achieving its objectives had potential uses well beyond that of a currency. In 2013, a Russian mathematician and programmer named Vitalik Buterin presented a whitepaper for Ethereum. It spelled out a new protocol for expanding Bitcoin's blockchain to provide a basis for uses far beyond those of a digital currency.

Ethereum's expanded protocol would be used as a base on which other programs could run. It would allow programmers to develop individual programs, such as apps are developed. These programs would accomplish whatever specific objectives were important to various businesses. Programs could be written to instantaneously verify the identity of both parties conducting business, verify the exchange of currency for goods and services, execute a contract between the parties and maintain a flawless ledger of all transactions, all decentralized.

As with Bitcoin, Ethereum was an untested theory. Similar to Bitcoin, Ethereum would have its own currency—the Ether. Ether would be required to run the programs on Ethereum and would also be paid to those who were running the computers to verify transactions and maintain the ledger of previous transactions.

The theory was put into practice in 2015 when Ethereum became operational. At that time, the Ether sold for less than a dollar. As with Bitcoin, Ethereum encountered several glitches. Most of the glitches involve vulnerabilities in programs written to run on the Ethereum system or to safeguard Ether. As with Bitcoin, Ethereum has verified its ability to achieve its stated objectives. These objectives have attracted thousands of businesses to create programs to run on its protocol.

Some businesses and consortiums have chosen to develop their own blockchains either independently or to run on the Ethereum protocol. In a manner similar to Ethereum, Bitcoin has recently adjusted its protocol so others can use it to build their own specific programs.

In the summer of 2017 the Russian airline S7 announced it was using its own blockchain run on Ethereum for reservations, ticketing and receipt of funds. It teamed up with Russia's Alfa-Bank to start a blockchain platform automating these operations. According to Alfa-Bank, the new technology simplifies payments and has quicker settlement times between airlines and agents. A process that used to take two weeks can now be done in seconds.

Is blockchain technology real? Yes.

How Blockchain Will Impact the Financial Industry

As of August 1, 2017 Delaware made it legal for corporations to use blockchain technology for stock trading and record-keeping. At the same time, a digital currency trading platform has been authorized to provide clearing services. As reported in rt.com:

> The legislation allows state corporations to *"use networks of electronic databases (examples of which are described currently as 'distributed ledgers' or a 'blockchain') for*

the creation and maintenance of corporate records, including the corporation's stock ledger."

Traditionally, corporations have relied on intermediaries like clearinghouses, custodians, exchanges, fiduciaries, or banks to settle transactions. Each intermediary had to verify transactions with their own ledgers, which adds time and cost to each transaction.

With the blockchain, a ledger is shared among a large group of peers who collectively record all transactions digitally and validate transactions without the need for a third party. Since the blockchain is shared among such a large number of peers, who each maintain a complete ledger with a full history of transactions, and that record is constantly being updated, it would be nearly impossible to manipulate.

Without the need for a third party, a corporation can also verify transactions anywhere in the world without the need for any fees. Transactions that would take days or even weeks with traditional ledgers can be settled in minutes with the blockchain.

Up to now, banks have remained involved in the blockchain revolution. They are working with companies as well as with consortiums of other banks to determine how best to take advantage of the technology. As of the beginning of 2018, the only major bank that has not reported to be working on blockchain projects is PNC. Interestingly, even as JPMorgan CEO Jamie Dimon calls bitcoin a "fraud," his bank has been one of the most active in pursuing blockchain technology.

The financial system is ripe for innovation. According to entrepreneur Andy Gordon:

Remarkably, cost, speed and security are about the same now as they were 50 years ago. The major innovations have been in convenience, thanks to the ATM and advances in online banking. But ATM use can come with fees. And online banking still has some surprising bugs.

I recently found this out firsthand after learning that the online account balance I see is different from the online account balance my bank (PNC) sees. Totally confusing.

Global trade and cross-border payments are also surprisingly clunky. For example, letters of credit involve several banks, hefty fees and long waits. When I ran my global trade and finance business about a decade ago, I avoided the wait by doing something called "import factoring." It cost me a precious 2% to 3% to get the cash quickly, but it was worth it.

> The beauty of blockchain? With it, all but a small fraction of that 2% to 3% would go away. Trade finance, security clearance and settlements, cross-border payments, and insurance are all areas where blockchain technology can make a big difference.

Banks are also involved in the many apps allowing individuals to use their debit cards to transfer money instantly from one person to another. These types of peer-to-peer transfers make cash and checks obsolete. However, banks as well as some centralized entity (Facebook, Google or PayPal) are still integrated into the process. Eventually, blockchain will obviate the need for this integration.

Why blockchain will continue to disrupt the financial system

Blockchain technology allows for the creation of a digital currency as well as true peer-to-peer secure transactions in transferring currency or assets. It has the potential to reduce not only the government's role in creating money, but also many of the financial system's current functions involving the transfer of currency and assets and maintaining ledgers.

The use of the blockchain has already led to a massive funding of new companies. Hacked.com reports ICOs (initial coin offerings) raised $2.8 billion in 2017, more than venture capital. ICOs involve companies offering digital coins instead of stocks as a source of funding. Currently, most ICOs use the Ethereum protocol issuing their coins and running their programs.

In spite of efforts to contain, limit, control or regulate it, blockchain technology is simply so powerful it is doubtful it can be stopped. When China attempted to shut down and control cryptocurrency, the exchanges moved to Japan. China is reconsidering its opposition.

Initially, banks and other mega companies will be able to benefit from this technology. However, through its ability to automate and more efficiently perform most financial functions, blockchain technology will take on progressively more of the system's functions. The power over information that is currently in the hands of major banks, and mega-tech firms and even government, will eventually shift to individuals.

Information about individuals is the motherlode of wealth created by the Internet. Those who created the Internet failed to profit from this information. Instead, those companies that understood the value of this information are those who profited the most from the Internet.

A decentralized blockchain changes the way the Internet operates. Individuals will have the potential to own and control their identities and their information. They will also have the potential to profit from new innovative applications. Owning digital coins for the most effective uses of the decentralized blockchain means holding the valuable real estate upon which these future applications are built. Such coins will enable their owners to tap into the motherlode of newly created wealth.

Financial institutions as well as mega-tech companies that now control currency transactions and information will have to adjust. They will have to focus on offering services that provide unique value to their customers, value that cannot be easily automated through a decentralized blockchain.