

CRYPTOCURRENCES: THE NEXT DISRUPTOR IN THE FINTECH INDUSTRY



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*Cryptocurrencies: The Next Disruptor in
the FinTech Industry*

2017

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AN INTRODUCTION TO CRYPTOCURRENCIES

Sofiane Boukhalfa

Cryptocurrencies are roughly 20 years old. Today, the market cap for all cryptocurrencies is \$200 billion which exceeds the market value of the American banking giant CitiGroup.

According to CryptoCurrency Facts, a cryptocurrency is defined as:

“A digital currency that uses encryption (cryptography) to generate money and to verify transactions. Transactions are added to a public ledger – also called a Transaction Block Chain – and new coins are created through a process known as mining.”

Nick Szabo’s “bit gold” was the first decentralized digital cryptocurrency, an early precursor to Bitcoin, and can be traced back to 1998. In 2008, Satoshi Nakamoto (an anonymous person and/or group) released a paper detailing what would become Bitcoin shortly thereafter. Today, numerous cryptocurrencies, such as Bitcoin, are well known, used, and exchanged globally by individuals and financial institutions.

How Do Cryptocurrencies Work?

A cryptocurrency is “an encrypted decentralized digital currency transferred between peers and confirmed in a public ledger via a process known as mining.” In order to enable a cryptocurrency, it requires:

- 1 **A public ledger** that records transactions (this is achieved transparently, securely – through encryption, and accurately – by using transaction blockchains)
- 2 **Transactions** occurring between various parties
- 3 **Miners** that confirm the transactions and store them in the public ledgers by solving a complex mathematical problem (a process known as proof of system)

Through the use of cryptography and encryption techniques, the identities of the owners of these cryptocurrencies remain unknown throughout the transactions. Moreover, mining can be achieved by anyone as it is open source. After each transaction occurs and is recorded in the public

ledger via mining, the transaction blockchain (the ledger) grows by one block (transaction) and can not be altered again, as it is confirmed by everyone viewing the ledger.

Another way of thinking about this process with respect to traditional currencies is that it performs the same function that governments do when they print money. The act of mining creates new currency just as printing new money creates that currency.

In order to optimize this system and to make it scalable, cryptocurrencies are decentralized and enacted on peer-to-peer networks. This bypasses the traditional economic currencies that usually required the oversight of a central bank. However, the system does have to deal with cybersecurity threats like all other digital technologies. In April 2016, according to Etienne Goffin and Toon

Vanderschueren at Needle Strategy “a decentralized venture fund called the DAO raised \$150 million using an initial coin offering. Hackers found a weakness in the code and exploited it, stealing about \$60 million in the process.”

Since Bitcoin’s inception in January 2009, thousands of cryptocurrencies have emerged. Though the individual currencies may not remain, the concept is here to stay. The potential impact of cryptocurrencies on the financial sector is immense. This technology is designed to be decentralized, with various “layers” cooperating to create a platform on top of which one can build products and services. Currently, the two most widely adopted cryptocurrencies are Bitcoin and Ether (the currency that is used to power the Ethereum blockchain).



Millennials Embrace Cryptocurrencies

While regulators are putting the brakes on cryptocurrencies, a new generation of consumers – the millennials – are excited to adopt this new technology which offers many of the features they have come to expect. Businesses can use new technologies to provide enhanced accessibility and experiences to these customers. As Ryne Landers of Reap Marketing has stated:

“Greatly improved software designs and user experiences, fast internet bandwidth, and the universal adoption of smartphones has provided real-time access to financial information and transactions at a level never before possible. This has led to the rise of omnichannel payments processing, mobile banking, peer-to-peer payments, and even new ways of evaluating credit applications.”

Moreover, cryptocurrencies provide transparency and security that will appease all stakeholders. The New York Times recently explored the appeal of cryptocurrencies to millennials:

“Unlike previous generations, many of these greenhorn investors don’t have pensions or 401(k)’s, are mistrustful of socking money away in mutual funds and are fully accustomed to owning digital assets that have no concrete properties. As traditional paths to upper-middle-class stability are being blocked by debt, exorbitant housing costs and a shaky job market, these investors view cryptocurrency not only as a hedge against another Dow Jones crash, but also as the most rational – and even utopian – means of investing their money.”

How Will Millennials Benefit?

Cryptocurrency presents investment opportunities and enhanced financial products and services for millennials. It is seen as a way to cut costs and decrease risks for the financial sector and provide new opportunities to decrease opacity in this market for regulators.

Cryptocurrencies can enable a new simpler decentralized financial system that removes layers of intermediation. According to HBR, cryptocurrencies could help insure against risk, and through moving finances in various ways, they could open up the possibility for a number of different financial products. Cryptocurrencies could also open up the financial system to those who are currently excluded, lower the obstacles impeding entry, and allow more competition. HBR believes that “regulators could remake the financial system by rethinking the best way to achieve policy goals, without diluting standards.”

Beyond the potential financial rewards, many view cryptocurrencies as a vehicle for social change, and have been encouraged by governments and financial institutions around the globe. The new opportunities enabled by cryptocurrencies may radically alter not only the fintech landscape, but the way modern society operates in the years to come.

THE DISADVANTAGES OF CRYPTOCURRENCIES

Sofiane Boukhalfa

Much time has been spent lauding blockchain and cryptocurrencies in this paper. However, cryptocurrencies suffer from several drawbacks that have led many (such as famed investor Warrant Buffet) to refer to them as the next “bubble”. As such, it is important to identify and to understand the drawbacks and obstacles that may refrain mainstream adoption of these technologies.

DRAWBACK #1: Scalability

Probably the biggest concerns with cryptocurrencies are the problems with scaling that are posed. While the number of digital coins and adoption is increasing rapidly, it is still dwarfed by the number of transactions that payment giant, VISA, processes each day. Additionally, the speed of a transaction is another important metric that cryptocurrencies cannot compete with on the same level as players like VISA and Mastercard until the infrastructure delivering these technologies is massively scaled. Such an evolution is complex and difficult to do

seamlessly. However, some have already proposed several solutions, including lightning networks, sharding, and staking as options to overcome the scalability issue.

DRAWBACK #2: Cybersecurity issues

As a digital technology, cryptocurrencies will be subject to cybersecurity breaches, and may fall into the hands of hackers. We have already seen evidence of this, with multiple ICOs getting breached and costing investors hundreds of millions of dollars this summer alone (one of these attacks by itself resulted in the loss of \$473 million). Mitigating this will require continuous upkeep of security infrastructure, but we are already seeing many players dealing with this directly, and using enhanced cybersecurity measures that go beyond those used in the traditional banking industries.

DRAWBACK #3: Price volatility and lack of inherent value

Price volatility, tied to a lack in inherent value, is a major problem, and one of the specifics that Buffet referred to specifically a few weeks ago when he characterized the cryptocurrency ecosystem as a bubble. It is an important concern, but one which can be overcome by linking the cryptocurrency value directly to tangible and intangible assets (as we have seen some new players do with diamonds or energy derivatives). Increased adoption should also increase consumer confidence and decrease this volatility.

DRAWBACK #4: Regulations

Buffet also touched on this problem in his recent talk:

“It doesn’t make sense. This thing is not regulated. It’s not under control. It’s not under the supervision [of] any...United States Federal Reserve or any other central bank. I don’t believe in this whole thing at all. I think it’s going to implode.”

Even if we perfect the technology and get rid of all the problems listed above, until the technology is adopted by federal governments and regulated,



there will be increased risk in investing in this technology.

In fact, several governments are already moving to block cryptocurrencies due to the decentralized nature. China in particular has decided to push back on the consumer enthusiasm of cryptocurrencies until it can understand and regulate the technology better. Despite this, however, Bitcoin has continued to grow despite the recent Chinese ban on conducting or participating in initial coin offerings (ICOs) that aim to raise funds for launches of token-based currencies. In total, ICOs have raised \$2.32 billion to date, with \$2.16 billion of that being raised in 2017, according to the cryptocurrency analysis website CryptoCompare.

This may only be a temporary move, as regulators work to better understand the technology and all its implications for the modern economy. According to Zennon Kapron, the director of the Shanghai-based financial technology consultancy Kapronasia,

“China, in many ways, is no different than the U.S. or Singapore in saying, ok, we need to push back on these for now until we figure out how to deal with them...I think it will be slightly a temporary measure.”

Other concerns with the technology are mostly logistical in nature. For example, changing protocols, which becomes necessary when the tech is being improved, can take quite a long time and interrupt the normal flow of operations.

The Takeaway:

With all the potential barriers to mass adoption, it is logical that experienced investors like Warren Buffet choose to err on the safe side of this technology. And yet, we know that cryptocurrencies (and the blockchain technology) will be here to stay. They offer too many of the advantages that consumers seek in a currency today; decentralization, transparency, and flexibility being chief among these. Expanding the discussion to everything that blockchain can accomplish across numerous industries doubly reinforces this point.

THE TOP 5 CRYPTOCURRENCIES AND BLOCKCHAIN-ENABLED TECHNOLOGIES ON THE MARKET

Sofiane Boukhalfa

An exploration of cryptocurrencies and the blockchain technology would not be complete without looking at the various players currently operating within this diverse market. Ranging from cryptocurrencies to payment and digital platforms, the possibilities are varied and increasing rapidly. Most people will have heard of Bitcoin and Ethereum, but with more than 900-1200 cryptocurrencies available as of July 2017 for trade in the global marketplace, and with new companies entering the market continuously to capture the explosive growth that is anticipated, navigating this market can be quite tricky.

In terms of size, the largest blockchain networks are (in order), Bitcoin, followed by Ethereum, the recently forked Bitcoin Cash, Ripple, and Litecoin. A brief description of these cryptocurrencies follows:

Bitcoin

The original cryptocurrency and the largest with an 8 year track record, Bitcoin was released in

2009 by an anonymous individual or group known as Satoshi Nakamoto. In August 2017, bitcoin split into two derivative digital currencies, the classic bitcoin (BTC) and the Bitcoin Cash (BCH). Another fork followed, only a few months later, that gave rise to Bitcoin Gold that was launched November 12, 2017. Today, Bitcoin is available for trade globally, and is experiencing a massive boom in valuation, reaching above \$9000 after recent upgrades and the fork.

Ethereum

The second most well known blockchain-enabled technology is Ethereum. Ethereum is, according to Open Source,

“A decentralized platform that runs smart contracts. The project was bootstrapped via an ether pre-sale during August 2014 by fans all around the world. It is developed by the Ethereum Foundation, a Swiss nonprofit, with contributions from great minds across the globe.”

Beyond a tradeable cryptocurrency, ether (Ethereum's cryptocurrency) can be used to pay for transaction fees and services on the Ethereum network. Many experts predict that Ethereum will overtake Bitcoin as the world's top cryptocurrency soon.

Litecoin

Litecoin was launched in 2011, in an attempt to rival Bitcoin by using algorithms that allowed for mining on regular, unspecialized hardware. As one of the early cryptocurrencies, Litecoin benefits from name recognition and strong network effects.

Ripple

Ripple is both a digital currency (XRP) and an open payment network within which that currency is transferred. As Coindesk puts it:

“Ripple positions itself as a complement to, rather than a competitor with, Bitcoin.”

Launched a few years ago, Ripple is now being used by commercial institutions around the world, and focuses on deploying scalable blockchain technology to connect payment providers, banks, digital asset exchanges and businesses through RippleNet to provide a frictionless experience when sending money globally. Backed by major venture capital firms like Andreessen Horowitz, FF Angel IV, Lightspeed Venture Partners, Vast Ventures and the Bitcoin Opportunity Fund, Ripple's use and value should continue to appreciate.

Dash

Dash is a cryptocurrency focused on improving the speed of transactions and anonymity. Aimed as a direct competitor to Bitcoin, Dash has advanced capabilities, including instant transactions (InstantSend), private transactions (PrivateSend), and decentralized governance (DGBB). Dash's decentralized governance and budgeting system makes it the first decentralized autonomous organization. Dash works on a two tier architecture that includes miners and “masternodes” to offer these advanced capabilities. Focused more on improving user experience and privacy, Dash's innovations will help evolve the marketplace.

The Takeaway:

This profile has only focused on some of the major players in this sector. With more than 1000 cryptocurrencies, and even more blockchain-enabled applications and services available globally, navigating and analysing this marketplace is a complex task. The only certainty is that these technologies will change the way we process transactions, whether they be for financial applications or for others (e.g. voting).

CRYPTOCURRENCY FORKS

Sofiane Boukhalfa

In this section, we will focus on cryptocurrency forks, like the one Bitcoin underwent a few months ago.

On August 1st, at 18:24:41 UTC, the blockchain for bitcoin “forked” into two cryptocurrencies – bitcoin and bitcoin cash. Bitcoin Cash (BCH) became at that moment a completely new cryptocurrency available to those who have already held bitcoins. BCH is aimed at replacing cash and facilitating transactions with merchants globally. The “fork” created a duplicate version of the existing bitcoin blockchain based on the previous transaction history of the bitcoin blockchain, but allows for future transactions to be separate and different from those of the bitcoin chain. Similar blockchain forks have occurred for many different cryptocurrencies in the past. However, due to bitcoin’s fame and popularity in the media, this fork has gotten a lot of attention.

For most current bitcoin holders, this meant that after the fork, they received access to both

bitcoin, and bitcoin cash. Some bitcoin providers (e.g. Coinbase) do not plan on distributing bitcoin cash to their users, so the access to bitcoin cash differs from provider to provider.

In addition to the fork, the bitcoin core also underwent a change in its code entitled BIP 148, which is the result of negotiations among various bitcoin stakeholders, and which should facilitate its adoption globally. The new bitcoin cash code has the controversial SegWit code removed. Similarly, you can expect all cryptocurrencies to go through such forks in the future, in order to implement new features as technology progresses, or to create new cryptocurrencies as Bitcoin did. Unfortunately, such forks and changes to the system can take a long time to occur, leaving users without any options during this time. This is one aspect many critics of cryptocurrencies have referred to specifically as a concern.

So how does this fit into the global picture? Cryptocurrencies are currently widely available, but it is the number of people that actively use it

that will determine how effective they are. One of the limitations to Bitcoin is its transaction limit (currently capped at ~3/second, compared to ~15/s for PayPal, and ~2000/s for VISA). The bitcoin fork led to greater adoption of bitcoin globally, but such a market response should not be expected from all forks. So far, the results for the Bitcoin fork have been positive, with bitcoin trading at an all-time high above \$9000. Brad Chun, CEO of blockchain startup Mooti Digital Identity, told CoinDesk:

“For early tech adopters who can’t fathom a market cap of over \$50 billion or \$100 billion for bitcoin, they haven’t seen anything yet. While we might see profit taking short-term, I view any dips as buying opportunities.”

Institutional money should begin investing in bitcoin rapidly with these prospects.



THE NEXT GENERATION OF CRYPTOCURRENCIES

Sofiane Boukhalfa

Today's major cryptocurrencies have finally entered the mainstream. Bitcoin, Ethereum, Litecoin, and many others are creating a vibrant ecosystem of cryptocurrencies. As the space continues to evolve, innovative players are tailoring their approach to differentiate themselves from competitors and gain momentum and acceptance. The strategies these players have adopted, which range from backing up their cryptocurrencies with tangible assets or commodities, to the emergence of decentralized ICO platforms, all make use of the opportunities unlocked by blockchain technology.

New Cryptocurrencies Backed Up With Tangible Assets:

One factor many critics cite as a potential risk with cryptocurrencies is that they are not backed up by tangible assets, as many currencies around the world have done in the past (most often with gold). This augments the price volatility and the potential risk to cryptocurrency holders of their cryptocurrency's value deflating.

Sparkle Coin, Inc.

Some innovative players have addressed this risk directly. For example, Chicago based Sparkle Coin, Inc. introduced its eponymous cryptocurrency in September 2017 that was described as being the first cryptocurrency of its kind to be backed by diamonds.

Sparkle Coin is a hybrid providing rapid adoption through mining of Sparkle Coin as well as long-term sustainability through minting. Each Sparkle Coin is backed by \$5 worth of GIA certified diamonds which can be immediately redeemed the day after the Sparkle Coin ICO in increments of \$500. Diamonds are a safe investment, as they have been shown to steadily increase in value over time more than other assets such as gold.

Victor Wong, founder and CEO of Sparkle Coin, Inc., stated in a press release released September 5, 2017:

“Sparkle Coin bridges the gap between cryptocurrencies and traditional business by developing an economic ecosphere comprised of an asset-backed cryptocurrency, transacted through a powerful currency exchange, with an outward facing cryptocurrency payment gateway allowing virtually all merchants to accept cryptocurrency through an online shopping mall or directly on their own websites.”

Bilur

Sparkle is not the only player seeking to reduce risk by backing up their cryptocurrency to a valuable asset. Bilur is backing up its value with stored physical energy, tying in its price to that of energy commodities. Bilur chose to use energy commodities to back up its cryptocurrency as energy is a commodity that will always be needed by humans.

According to Steemit:

“1 bilur equals 1 TOE (Ton of Oil Equivalent), which in turn is equal to around 11.6 MWh of energy. By definition, for bilurs to be issued, oil or other energy commodities must be purchased first. For the initial issuance, 1 million barrels were purchased, which entitled the issuance of 52.9 million USD worth of bilur (154,297 bilurs).”

Additionally, the Bilur team touts the opportunity for non-professionals to become active investors in the energy commodities market.

Komodo

Komodo is another innovative player targeting the needs of many to have a decentralized ICO platform. According to ICO Bench, this platform enables coin developers to “launch a transparent coin offering while maintaining investors’ privacy through Komodo’s built-in privacy features. For the first time in crypto history it’s possible to issue and distribute native cryptocurrencies without a trusted third party.” Effectively, this means that anyone can raise an ICO anonymously using Komodo’s platform. Capitalizing on the desire for privacy in an increasingly connected world, Komodo has already partnered with strategic partner Monaize to use this technology.

Future Possibilities:

These are just a few examples of the exciting possibilities next generation cryptocurrencies will offer. With government institutions (such as the Bank of England) now realistically thinking about the future integration of cryptocurrencies into the national economic infrastructure, it will be the collaboration between regulators and innovative players like Sparkle and Komodo that will determine what form the 21st century economic system will adopt.



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