Is Bitcoin Moving from Fad to Mainstream?
Cryptocurrency Series, Part 1

As interest in cryptocurrency has increased, so has curiosity about its role in the global marketplace and its key merits and risks. In this paper, our first in a series on cryptocurrency, we focus on the evolution of the digital coins and the blockchain technology that supports cryptocurrency-related transactions.

Defining Cryptocurrency
With the launch of Bitcoin (BTC) in 2009, a new class of digital assets was created. Because cryptography helps secure digital currencies, the burgeoning currency became known as cryptocurrency. BTC is a decentralized vehicle to conduct transactions online securely and cost effectively, independent of third-party intermediaries and government regulation.

BTC is just one of many digital currencies, but it is the most well-known and widely used. Like the dollar and other currencies, it has no intrinsic value and cannot be redeemed for a commodity such as gold. But unlike the dollar, it is not considered legal tender in most countries and has no physical form.

Cryptocurrency would not be enjoying this rise in interest if it weren’t for blockchain, the technology that allows users to carry out cryptocurrency-related transactions. Blockchain can:
- track and secure not only digital coins but almost any asset of value;
- help reduce the cost of digital transactions;
- increase transparency; and
- generate a record that can’t be altered.

Many mainstream investors and corporations recognize the potential economic benefits of the blockchain technology, which has served to heighten curiosity about cryptocurrency. Although the digital coins have traditionally been free from government regulations, the uptick in interest has not gone unnoticed by regulatory agencies. Widespread trade speculation and an increase in computer hacks, fraud, and tax evasion have drawn the attention of the U.S. Securities and Exchange Commission (SEC), other federal and state regulators, and government institutions worldwide, leading to greater oversight in the global markets.

Because cryptocurrency carries a high level of risk, industry expansion has been driven primarily by institutional money from venture capitalists and private equity funds and by traders attempting to profit from extreme price volatility. Given the lack of solid regulation in the United States, we currently view cryptocurrency as a speculative asset and would not recommend it as a viable investment. We believe digital currency will face numerous challenges in its growth, including complex supply/demand dynamics and the potential tax and regulatory consequences of holding the coins as a security in a portfolio.

Evolution of Blockchain Technology
Exchanging information online requires an intermediary, which may cause delays, unexpected expenses, and risks to individuals and businesses. Such third-party validation should give clients confidence that a company is correctly completing a transaction. But it could also lead to a concentration of sensitive data online, potentially opening the door to identity theft, phishing, fraud, spam, and malware. The need for intermediaries is especially critical for web transactions because digital assets can be easily replicated. This has resulted in the double-spending problem, which has traditionally prevented the peer-to-peer (P2P) transfer of digital coins.

Double-spending is a potential flaw in a digital cash scheme in which the same single-digital token can be spent more than once. Such double-spending can lead to inflation by creating a new amount of fraudulent currency that did not previously exist.
Currently, there are multiple ways to transfer funds via the internet. Most people are familiar with using credit cards, but newer payment options that offer P2P transfer of funds allow parties to send money directly online from their bank account to another bank account, avoiding writing checks or paying with cash. Examples of this technology include Zelle, Square, Venmo, and PayPal. But these methods are not free from third-party intermediaries; banks or other custodians still verify and reconcile the transfers.

Enter blockchain, an alternative to intermediaries that provides a secure platform for storing and exchanging cryptocurrencies online. Blockchain is essentially a decentralized public ledger that maintains an irrevocable record of transactions between entities on a given blockchain network. The ledger has a system of replicated databases designed to operate via the internet.

**A network includes all individuals and entities conducting transactions online via a specific blockchain.** Anyone can be a miner, including individuals, corporations, and groups. They all currently exist in the blockchain network. It’s visible only to members of the network exchanging the cryptocurrency.

When a transaction is executed, it is grouped in a cryptographically protected “block” with other transactions that have occurred around the same time and sent out to the entire network. Members of the network who add these transactions to the BTC public ledger are called miners. New blocks (that is, the most recent transactions) are added to a blockchain and linked to older blocks, creating a history of every transaction made in that particular blockchain. It is continually updated so that every ledger is the same, giving each member the ability to prove who owns what at any given time. The blocks are protected using written code, making hacking difficult. The blockchain has no central administrator and does not require an intermediary. Chart 1 (page 3) outlines the blockchain process.

Although blockchain was initially devised to exchange digital coins, it has become a tool for companies with significant recordkeeping, storage, and contractual demands. Certain aspects of the original blockchain, such as the need for anonymity, are less relevant in newer blockchain applications. The technology has the potential to disrupt the standard way of doing business in any industry that involves an intermediary, such as real estate, banking, insurance, health care, and the public sector. Blockchain can be programmed to record identities, wills, deeds, titles, licenses, intellectual property, financial instruments, and other things of value without the need for complicated and costly databases that require heavy investments in back-office support. By design, no one party can modify the ledger without consensus.

The blockchain operates similar to other online payment companies, offering lower fees in some cases and almost instantaneous settlement. Further, fees are not based on the monetary amount of the transaction but by the size measured in bytes.

### The Dawn of Altcoins

Cryptocurrency was introduced with the idea that it would have a limited supply to help prevent, what the founders of BTC perceived to be, the unchecked U.S. expansion of the federal money supply. Many initial buyers viewed BTC as a safe-haven asset, much like gold, and free of central bank interference. Only 21 million coins can be mined in BTC’s lifespan, with mining becoming less profitable and more difficult over time. It’s projected that 94% of BTC will be mined by 2024, with the last coin generated in 2140, essentially locking in its total supply.1

There are many advantages of BTC, including the ability of transactions to be completed securely and cost efficiently and lack of interference from central banks. However, there are key drawbacks, such as the intense computer power required for mining, the centralized nature of the mining activity, and relatively higher fees and slower processing times.

A new form of digital currency — alternative coins, or altcoins — was introduced to address some of these issues. Ripple (XRP) was one of the first altcoins launched after BTC, followed by Namecoin, TeneBrix, Ether (ETH), and Litecoin.

More alternative payment systems allowing the use of both traditional and cryptocurrencies that do not...

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conditions are met in a given contract. This helps reduce the risk of human error and carries a lower cost per transaction. However, the more popular coins have more **pricing power**.

Today there are more than 1,600 different coins with an aggregate market value of roughly $200 billion; prior to 2016, there were fewer than 40 different coins in circulation, according to CoinMarketCap.com. While BTC continues to dominate market share, altcoins are steadily chipping away at BTC’s lead.

### Digital Coins as a Medium of Exchange

Will digital coins be accepted as a valid medium of exchange to pay for goods and services? In theory, a U.S. company could receive digital coins for items it sells, but it would then need to remit all taxes in the dollar. The company would be taking on exchange rate risk with the possibility that the dollar gains in value relative to the digital coins. Similarly, if a company paid employee expenses with the digital coins, its workers would be subject to exchange rate risk.

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**Pricing power**: The more popular coins like BTC can charge more for transactions because it is so widely used and perceived as a more stable cryptocurrency.

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Several central banks have begun developing their own digital currencies. In Sweden, cash payments in the retail sector fell from close to 40% in 2010 to about 15% in 2016, and two-thirds of the country’s consumer base say they don’t use cash for purchases. Further, more than half of Sweden’s bank branches have removed the option of over-the-counter cash transactions due to an absence of demand. In Japan, a group of banks announced a plan to issue the J-Coin before 2020. The digital coin would be available on a centralized exchange and convertible at a one-to-one rate with the yen. If successfully implemented, holders will be able to use the J-Coin to purchase goods and services and transfer money using smartphone apps and Quick Response codes in retail stores.

Final Thoughts on Cryptocurrency

With the cryptocurrency market in its early stages, we suggest that investors interested in a direct investment proceed with caution. We believe the industry lacks the stability, transparency, and safeguards of the more traditional asset classes, despite the recent upturn in regulatory efforts. We view it as a speculative asset, with BTC’s advance in 2017 trumpping the asset bubbles of Japanese equities in the 1980s, technology stocks in the 1990s, and the U.S. housing crisis in the 2000s. Bubbles are rarely sustainable for long, and the digital coin’s rapid descent in early 2018 illustrates the riskiness of the investment. We would caution investors to be patient until there is more clarity around SEC regulations, since these laws may have a significant bearing on how the industry will be governed.

We have a more favorable outlook on blockchain, which has proven to be a disruptive force beyond just cryptocurrencies. Blockchain has the potential to transform business models, conventional market strategies, and regulatory practices. Corporate leaders across numerous industries have made it a priority to investigate blockchain’s feasibility or risk falling behind as the competition successfully adopts this technology. Financial institutions in particular have backed the technology as a way to improve transactional networks, offering new opportunities for innovation and growth while reducing risk and costs. Understanding that blockchain is still in its initial development stages, investors should take an equally thoughtful approach when considering an investment in this area.

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Look for our next paper in the series on the role of cryptocurrency in the United States and global markets and how regulatory agencies are addressing digital currency.


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