

Cryptocurrencies and blockchain technology

Bitcoin and several of its more prominent cryptocurrency brethren have made headlines, with their popularity as high-risk investments steadily increasing. However, it's hard to evaluate their risk and return potential as investments without first understanding their use and viability, including their underlying distributed ledger system – blockchain technology.

Cryptocurrency

Cryptocurrencies are similar to traditional currencies, such as dollars or euros, in that you can use them to purchase some goods and services. However, that's where the similarities end. Unlike dollars, you can't hold cryptocurrencies in your hand. They are completely electronic, global, generally unregulated and almost completely anonymous to transact. Although a growing number of merchants are accepting them as payment because of their attractive transaction fees and irrevocable nature, widespread adoption is a long ways away. Lastly, the extreme volatility of cryptocurrencies makes them very much unlike traditional currencies, which are meant to provide a reasonably stable store of value.

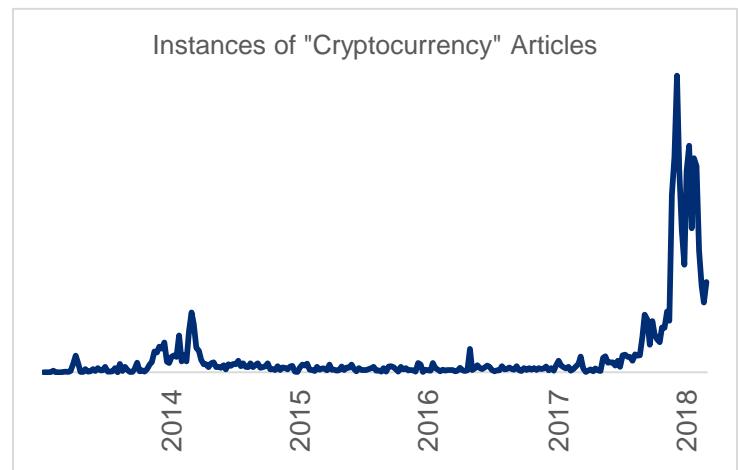
Despite their unusual properties, there are some practical uses for cryptocurrencies, particularly in developing economies where distrust for banks, high banking fees, high inflation and heavy government capital controls make a currency outside government control popular (similar to how U.S. dollars are highly prized in developing nations, but without the need to physically smuggle them past the border). Unfortunately, because cryptocurrencies are pseudo-anonymous, they are also attractive for those engaging in illegal activities, which is why they often carry a negative stigma. Since governments cannot fully track the flow of money with cryptocurrencies, their ability to tax and prosecute illegal activities is limited, which makes them more likely to limit the widespread use of digital currencies. Still, there appears to be plenty of room for niche usage.

Cryptocurrencies have had incredible rallies, which seem to be disproportionately weighted toward speculators hoping to make a profit, rather than toward those using it for more conventional purposes. Businesses have been cashing in on the hype, too – when the unprofitable Long Island Iced Tea Corporation renamed itself Long Blockchain Corporation, its stock price rose 289%. Similarly, KFC Canada briefly accepted Bitcoin as payment for bucket meals.

Notwithstanding the ongoing debate surrounding the long-term viability of cryptocurrencies, there have been a number of attempts to create more tradeable investment vehicles to help increase their liquidity, including Bitcoin futures contracts which launched in December 2017. Directly buying cryptocurrencies continues to carry some risks – major exchanges have been hacked, resulting in billions of dollars in losses with little recourse as owners are anonymous by design.

As an investment, cryptocurrencies can be categorized as high risk with a large amount of uncertainty, including existing and potential government controls, capacity restraints on their networks and fraudulent behaviour. Bitcoin's price fell significantly based on reports of a plan to ban domestic cryptocurrency trading in South Korea, a large source of global demand. South Korea is not alone – the U.S. Securities and Exchange Commission has increased regulation on cryptocurrency exchanges and hedge funds, Vladimir Putin has expressed his desire for greater cryptocurrency regulation and Japan appears to be cracking down on exchanges with poor practices.

Whether cryptocurrencies eventually morph into a currency or a commodity (like gold, another popular investment vehicle during times of uncertainty), it is worth noting that neither currencies nor commodities offer a baseline yield in contrast with stocks and bonds. That said, one attractive quality of cryptocurrencies from an investment standpoint is that they show very little correlation with other asset classes. This is desirable in the same way that the low correlation between stocks and bonds is helpful in reducing volatility in an investment portfolio. However, extremely high volatility renders cryptocurrencies questionable to use as investment vehicles at this early stage.

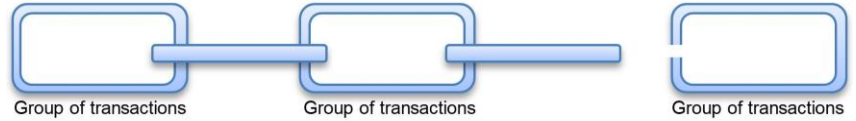


Source: Bloomberg.

Blockchain

If you've heard of blockchain, it was probably in the same breath as cryptocurrency. Although blockchain is a core component of many cryptocurrencies, it potentially has many applications beyond them.

Simply put, a blockchain is a digital record of transactions (a ledger). If you're a visual learner, imagine a physical chain where every link is a group of transactions. As transactions occur, they're timestamped and then added to the chain as a new link (a block) where they can't ever be changed, leaving a long list of transactions that can't be altered. However, the leading advantage of blockchain is arguably the network it uses.



First, consider an example of a traditional **centralized** network like Facebook, which has a master database of its users' information. Facebook is responsible for protecting the database from hackers while allowing legitimate users to post and edit, which is one reason why it requires extremely advanced cybersecurity. On the other hand, the centralized network has the advantage of allowing Facebook to closely monitor data and activity, since data flows through one mandatory point. Centralized networks have a single point of failure because there's one breakpoint or place in which all records are stored. A breach of this point has the potential to take down the whole network.

Blockchain operates on a **decentralized** network which, unlike a centralized network, does not have a single point of failure. Instead, the blockchain (recall: a record of transactions) is shared between the participants. For example, consider peer-to-peer file sharing. To retrieve a file, network participants download pieces from other computers on the network rather than from a central database. This decentralization has certain advantages. It eliminates the need for a middleman to clear transactions. A decentralized network is also very strong as it doesn't have a single point of vulnerability.

Many companies are experimenting with blockchain technology (including RBC) for a number of uses. It seems as though the main applications will pertain to payment and trade processing, although the scope of potential uses continues to evolve. For now, having a basic understanding of blockchain can be an asset as it continues to be adopted.

Popular cryptocurrencies

Despite regulatory clouds hanging over the space, there is no denying that the effects of the crypto-craze have been ground-breaking. You can see this demonstrated in the chart below, which outlines the recent surge of money into initial coin offerings (ICO). In an ICO, funds are raised for a new cryptocurrency idea with a percentage sold to early backers in exchange for fiat currency or other cryptocurrency. This can be thought of as an unregulated initial public offering (IPO) for cryptocurrency ventures, allowing them to bypass the legal loopholes associated with traditional financing options. In light of this increased interest, we think it is important to highlight some of the leading cryptocurrencies and blockchain platforms in more detail.

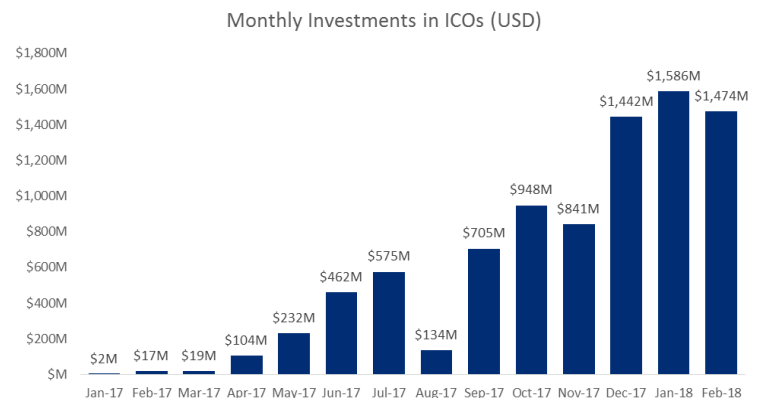
Bitcoin

Bitcoin is the largest and most popular cryptocurrency. The idea was first published in a white paper on October 31, 2008, by Satoshi Nakamoto, whose identity remains a mystery to this day.

Bitcoin is the most commonly accepted cryptocurrency by merchants, although it's still far off from widespread adoption. Some notable retailers that accept Bitcoin as payment are Microsoft, Dell and Expedia.

The supply of Bitcoin is capped at 21 million, with new fractions released to the market through a process called "mining." However, as the supply moves toward 21 million, it becomes harder and harder to mine. Currently, only the most expensive computer hardware can mine Bitcoin above marginal cost. There has also been criticism surrounding the environmental impact of the enormous amounts of energy used to mine Bitcoin.

Despite its status as the largest and most liquid cryptocurrency, many other electronic currencies have emerged to take advantage of other niche uses.



Source: Coindesk.

Ethereum

Ethereum is a cryptocurrency blockchain that varies from Bitcoin as it runs “smart contracts” that allow for more than just transacting value. Smart contracts not only define the rules and penalties surrounding an agreement, but also automatically enforce the obligations.

Here’s an example of how a smart contract works for selling concert tickets whose ownership record is digitally stored on the blockchain. First, the buyer sends funds on the Ethereum network, which are publicly verified as legitimate. After the verification is complete, ownership of the tickets is electronically transferred, completing the transaction without a middle-person or concern about whether the tickets are real.

Individuals who want to access and interact with smart contracts on the Ethereum blockchain do so with the Ether cryptocurrency. The market has recognized the future potential of Ethereum by driving up the market cap of Ether to the second-highest ranking in the cryptocurrency market, behind Bitcoin. Even more impressive is that Ethereum now processes more transactions than all other cryptocurrencies combined, including Bitcoin.

Ripple

Ripple is a payment network that uses blockchain technology to enable financial institutions to send and receive international payments and settle transactions. The primary benefit to banks is Ripple’s ability to move large amounts of currency quickly. Ripple payments settle in four seconds – substantially faster than the Bitcoin blockchain which can take an hour and traditional systems which take days. Another advantage of Ripple is its scalability as it currently has the capacity to handle 1,500 transactions per second, putting it close to the average volume managed by the likes of Visa.

One of the distinctive services Ripple offers is xRapid, which is designed to offer real-time liquidity in foreign currencies. For instance, a bank would be able to sell CAD 1 to buy XRP – the cryptocurrency of Ripple’s payment network. The XRP would then be transferred to the desired foreign digital asset exchange where it is sold to purchase the local currency. Despite XRP’s role only as a settlement token, many see potential in the Ripple payment network, driving its price up over 32,000% in 2017.

KodakOne

Eastman Kodak Company, the 130 year-old photography firm, recently announced its entry into the world of cryptocurrencies. Kodak entered Chapter 11 bankruptcy six years ago and emerged with a focus on digital printing and packaging. The company’s new strategy struggled to gain momentum until it announced the launch of KodakOne, a new digital photography blockchain platform with an accompanying cryptocurrency, KodakCoin. Kodak envisions using the blockchain to help photographers claim ownership of their photos and properly track royalty payments. The market initially celebrated the news as Kodak shares tripled the week of the announcement. However, as details of the plan emerged and skepticism mounted over the magnitude of the stock’s movement – including from Kodak’s own CEO – it has recently given back some of those gains.

In conclusion

It’s unlikely that cryptocurrencies will take over the world of banking, but there are many benefits an organization can gain in adopting the underlying technology. To date, cryptocurrency and blockchain developments are only in their early stages. While the future is not clear, it is increasingly apparent that regulators want their say in maintaining a grasp on the flow of money.

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