

In this issue of “Perspectives” we offer our thoughts on Bitcoin.

## What is Bitcoin?

Bitcoin is a cryptocurrency, a digital asset which utilizes encryption techniques to regulate exchange and generation of units. This encryption is used to ensure the currency cannot be faked, altered or impersonated.

Bitcoin is created using a process known as “mining,” a decentralized, digital activity which serves to create a ledger of all Bitcoin transactions. This ledger is referred to as a “blockchain” and consists of individual “nodes” containing transaction data. Bitcoin miners compete for the right to connect a new node to the existing blockchain – this connection process, called “hashing,” involves solving a complex algorithm. The winning miner (or group of miners) who solves the algorithm is awarded with 12.5 newly-created Bitcoin, as another node is added to the blockchain. This process repeats itself approximately every ten minutes. The payout for new block creation is halved approximately every four years, meaning that over time the amount of Bitcoin in existence will decrease exponentially, leading to a finite supply of Bitcoin ultimately being created (approximately 21 million).

Bitcoin transactions are similarly encrypted. Each Bitcoin transaction requires a public and private “key,” unique to every account holder, to verify and process. There exist numerous digital exchanges on which Bitcoin can be traded, one of the more prominent ones in the US being Coinbase.

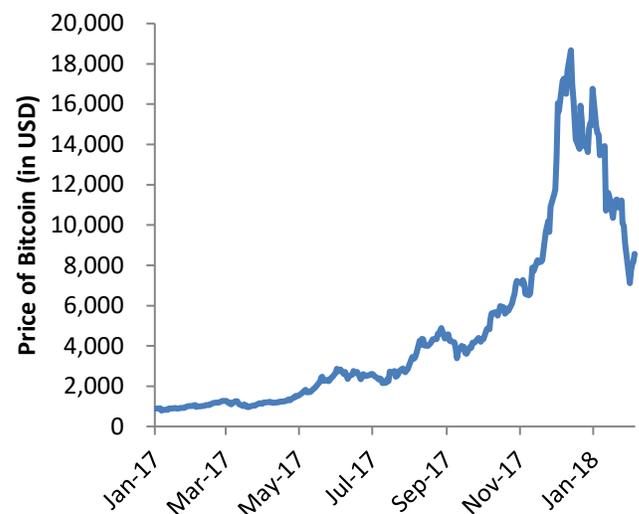
## What is a currency? Is Bitcoin a currency?

Currency is broadly defined as having three qualities:

- Medium of exchange
- Store of value
- High degree of liquidity

The United States Dollar (USD), for example, possesses the three aforementioned qualities. US residents can pay for goods and services using USD, as any merchant operating within the US should accept payment in USD. Just as importantly, those who live and work in the US are expected to pay taxes in USD. US residents can hold cash in USD, both physically and in savings accounts held at banking institutions, with the knowledge that these holdings will not depreciate in value.

**Exhibit 1:** Bitcoin rose in value significantly in 2017, before declining more recently



Source: Bloomberg

Based on these characteristics, it is difficult to make the case that Bitcoin is a currency. Between January and December 2017, Bitcoin rose in value from below \$800 to above \$19,000 before dropping below \$7,000 more recently. Currencies do not typically exhibit such extreme price movements, making it difficult to characterize Bitcoin as a store of value. Instead, it appears to be a vehicle for speculation.

Furthermore, Bitcoin is severely lacking in liquidity. Most merchants do not accept Bitcoin as payment for transactions; indeed, many credit card

companies (Chase, Citi, Bank of America, Lloyds) have banned cryptocurrency purchases on their cards. These actions, combined with the limited number of exchanges and high costs of Bitcoin transactions, severely curtail Bitcoin's effectiveness as a means of exchange.

### **Why has Bitcoin taken off, and why has it fallen recently?**

The meteoric rise of Bitcoin in 2017 can be explained by a number of factors, though as with any asset lacking intrinsic value, it can largely be attributed to speculation. As Bitcoin began to enter the public consciousness to a greater degree, many latched onto the idea that it would become a more popular means of exchange, through increased merchant participation and more exchange platforms. Many also foresaw that with Bitcoin's heightened profile, there would be more opportunities created to invest in Bitcoin (futures contracts, exchange-traded funds, etc).

Similarly, the more recent fall can be attributed to an adjustment of expectations. As mentioned previously, merchants have been hesitant to accept Bitcoin as an acceptable payment method, given the large fluctuations in value, which combined with a ban on Bitcoin transactions implemented by certain credit card companies has caused concern about the rate of adoption of Bitcoin as a broadly-used means of exchange. Furthermore, the heightened profile Bitcoin has garnered has caused central governments to take increased notice. China recently embarked on a crackdown on Bitcoin trading, blocking access to all Bitcoin exchange websites. Russian President Vladimir Putin also commented that actions must be taken to curb Bitcoin trading within that country. Even in the United States there is a push for more transparency in trading for tax reporting purposes, with the IRS commenting: "Taxpayers who do not properly report the income tax consequences of virtual currency transactions can be audited for those

transactions and when appropriate can be liable for penalties and interest."

### **What are the applications of Blockchain technology?**

While uncertainty remains surrounding the future of Bitcoin, one major innovation surrounding it (which has also entered the public consciousness to a greater degree) is the Blockchain. This digital ledger, created by people across the globe simultaneously and requiring intense computational power to store encrypted transaction records, is intriguing due to its potential applications. One example is the Blockchain in Transportation Alliance (BiTA), created by over 200 companies, including BNSF Railway, UPS, and FedEx. This network is designed to keep records on vehicle maintenance/performance and transaction information, with the belief that a decentralized, shared record created by multiple users will benefit all involved.

While the true value of Blockchain technology may not become apparent for many years, one important quality of the Blockchain is the ability for users to create permanent, unalterable records within the digital ledger. This is different from a database, in which an administrator has the ability to edit records post-creation and control user input. Databases have existed for decades and, while useful, do not represent innovation in record-keeping in the same manner as Blockchain.

For more information, contact:

**Kevin Seabury, Director of Business Development**  
**508-855-3112**  
**[kseabury@opusinvestment.com](mailto:kseabury@opusinvestment.com)**

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