

# How to Think About Bitcoin

*Bonnie Dovid and Christian Floro, Barings Investment Institute*

## What is bitcoin?

Bitcoin was introduced in 2008 as a decentralized, electronic global payment network where transactions do not flow through traditional bank intermediaries, in contrast to systems like PayPal or other e-wallets that do operate through bank transfers. The bitcoin network instead relies on a technology that allows for proof and transfer of ownership without the need for a trusted third party. When the first *block*, also known as a record, was produced in January 2009, there was no value to bitcoin; in 2011, bitcoin's value reached \$1.

By 2017, interest had surged, from water cooler conversations to money managers. This year, bitcoin hit a watershed validation moment on April 14, with the first listing of a major cryptocurrency exchange through Coinbase's \$76 billion debut on the NASDAQ.

At time of publication, one bitcoin equals about \$55,000.

## Where does blockchain fit in?

All transactions are recorded in a massive, transparent ledger, called the [blockchain](#). This ledger is maintained by miners, the name given to a collection of users on the network who run software that solves complex mathematical equations to authenticate bitcoin transactions. Miners are rewarded with bitcoins to ensure participation to the validation process.

The word blockchain refers to how the technology operates: it links blocks of around 500 transactions with information that references previous blocks. This iterative process, which utilizes [cryptographic hashing](#), is done through collective verification. The network prevents deletion and alteration of previously validated transactions, offering traceability and security without the need for a central administrator.

## What's driving bitcoin prices?

The supply of bitcoin is designed to escape human decision. Hard coded in the bitcoin network source code is a cap of 21 million coins that can ever be minted. The goal of its still-unnamed inventor, known only as the presumed pseudonym Satoshi Nakamoto, was an alternative intermediary of exchange to the fiat currency printed by central banks and de-multiplied through bank credit. A fixed supply is aimed at eliminating the inflation risk associated with fiat money. It's assumed that once all bitcoins are created, miners will want to keep processing transactions on the blockchain for the fees they receive.

Bitcoin creation is programed to slow with time. For every 210,000 blocks mined, rewards granted to miners are halved (called halving), which occurs roughly every four years. Chopping the mining reward in half ensures that the bitcoin supply doesn't grow too quickly. As a result, while about 19

28 April 2021 / Research Note

million coins have already been minted, it will take more than 100 years to reach the pre-determined limit.

The rules behind bitcoin supply make demand the only determinant of bitcoin price. Making price the only adjustment variable to changes in demand also results in the high volatility of bitcoin prices in the early stage of its market development. A small percentage of accounts hold most of the bitcoin in circulation—95% of bitcoin is controlled by just 2.4% of the accounts—giving the impression that ownership is highly concentrated. Nevertheless, as adoption increases, there has been a shift towards [more dispersed](#) ownership.

### **What are economists saying about bitcoin?**

If there is nothing but trust behind fiat money, their issuers are, for the most part, credible institutions. Its purchasing power doesn't vary much over time or deviate from a sort of fair value determined by economic fundamentals related to demand and supply for the currency. Inflation, if anything, has remained lower than desired in the past few decades. Stability and predictability are what give a currency value.

Since the value of bitcoin has not shown any of these characteristics, economists question its usefulness. Bitcoin is neither anchored on an underlying valuable asset, like gold, nor is it supported by the reputation of a credible issuer, such as a large central bank. Stablecoins attempt to solve this problem by being a different type of unit of account, similar to bitcoin, which can be converted at a fixed rate to a legal tender, like the U.S. dollar. Bitcoin's value is all but stable since it fluctuates with demand on a thin market, where any large transaction has a large impact on its price. This leads a majority of economists to dismiss bitcoin as a fad—or a financial artifact used by a margin of the population to rebel against the system.

### **Then why is there such demand for bitcoin?**

The name *cryptocurrency* associated with bitcoin may be the source of confusion about the significance of its demand. A currency, or money, is defined by the three functions it fulfills: 1) as a unit of account; 2) as a medium of exchange, and; 3) as a store of value. Because its value lacks stability, bitcoin cannot play the role of a currency. Only in a few instances, for example in countries where the official currency is even more unstable than bitcoin and subject to hyperinflation, has the population made use of it. In Zimbabwe, where foreign units of account such as the U.S. dollar are banned, bitcoin is used to transact. In Venezuela, savings are made in bitcoin to preserve the value. Elsewhere, its volatility represents a major obstacle for its adoption.

More generally, the value of bitcoin can only emerge from the service it provides. Today, we observe demand from a small number of holders using bitcoin to perform peer-to-peer transactions outside the traditional banking system. As more people have been buying it, including a few asset managers who announced entry into the market, a network effect is attracting speculative interest.

### **Is it easy to use bitcoin today?**

PayPal [has made it easier](#) for U.S. customers to use certain cryptocurrencies as a form of payment. There is also a [growing list](#) of vendors that accept bitcoin payment, including Wikipedia, Microsoft and AT&T. Adoption remains in its infancy given bitcoin's lengthy transaction times (bitcoin can

28 April 2021 / Research Note

process 4.6 transactions per second; Visa can process 1,700 per second) and high transaction costs averaging \$20 per transaction.

### **And a big question: is bitcoin an asset class?**

Simply put, cryptocurrencies may be useful as a diversifier in a portfolio.

### **So, Bitcoin or Ethereum?**

The market for cryptocurrencies is large, with more than \$2 trillion at market value; bitcoin represents [over 50%](#) of this market.

**Ethereum** (ETH) is the second-largest cryptocurrency on this market. It is also built as a decentralized operating system of assets, with the advantage that applications can be built on top of it. Many cryptocurrency tokens are issued over the Ethereum network.

### **What about those NFTs?**

Non-fungible tokens (NFTs) are certificates of ownership of digital assets verified on the blockchain. Powered by smart-contract technology on Ethereum's blockchain network, NFTs provide a digital trail of ownership, much like a property deed confers ownership to any real estate asset. Most recently, NFTs have been used as a way of creating [tradable digital assets](#). Crypto Punks—a series of unique 24x24 pixel art images—were among the first NFTs released in 2017. The market has since evolved to include GIFs, video clips, tweets and even entire website pages. The artist [Grimes](#) made headlines recently after selling \$6 million worth of digital art. In theory, anything can be turned into an NFT. While NFTs are an amazing proof of concept for blockchain, it is not without flaws. The infrastructure it is built on may be trustworthy (i.e. blockchain) but the applications currently built around it may not. For example, the digital files behind NFTs may be duplicated flawlessly, so nothing stops anyone from obtaining a copy of the digital asset in an NFT. As a result, while NFTs show proof of ownership and authenticity, there is yet to be an enforcement mechanism to confirm actual ownership. While blockchain may say you own it, will courts agree? NFTs have left the conventional art world stunned, and there is no denying this new form. And there could be more areas of society that blockchain could change.

### **What about the energy use bitcoin requires?**

It is now recognized that bitcoin requires a tremendous amount of energy, through use of data centers miners rely on to continually verify secure transactions, as well as to power the network on which they exist. By Bank of America estimates, the bitcoin network's annual energy consumption rivals that of small developed countries, such as the Netherlands and Czech Republic, or more than some corporations, like American Airlines. As bitcoin gains further popularity, it's also estimated that a \$1 billion of inflow into bitcoin is equal to 1.2 million internal-combustion engine cars being driven over the course of a year. A counterargument is that bitcoin uses a small fraction (10% by some reports) of the energy required to operate traditional financial systems (which also serve a larger proportion of the population). The debate will likely continue, with the expectation that technology will make all systems more efficient through increased use of renewable energy.

**What's ahead for this technology?**

The renewed interest in cryptocurrencies and the rise of NFTs only help legitimize the underlying technology: the blockchain. Remember, this requires no trust in any of the counterparties one is transacting with; one only needs to rely on the algorithm instead. This decentralized structure means it has the ability to disrupt banks, clearinghouses, payment processors, notaries, and any third party guarantying a transaction or providing authentication services.

Thus, to the extent market participants still trust their counterparties and all involved in a transaction, the push toward blockchain may not provide enough incentive in light of the costs associated with its use. Highly opaque markets, such as physical over-the-counter ones, may stand to benefit, as blockchain creates a central clearing hub that is more transparent and trustworthy.

There has been growing innovation in payment systems mixed with technological progress and new valuable ways of providing payment services. The rise of both applications puts into question the market share of traditional banks, central banks and payment processors by introducing a decentralized transaction system, completely outside the traditional banking system and, for now, government control. If nothing else, both bitcoin and blockchain continue to prove themselves as the great disruptors.

28 April 2021 / Research Note

#### IMPORTANT INFORMATION

Any forecasts in this document are based upon Barings opinion of the market at the date of preparation and are subject to change without notice, dependent upon many factors. Any prediction, projection or forecast is not necessarily indicative of the future or likely performance. Investment involves risk. The value of any investments and any income generated may go down as well as up and is not guaranteed. Past performance is no indication of current or future performance. **PAST PERFORMANCE IS NOT NECESSARILY INDICATIVE OF FUTURE RESULTS.** Any investment results, portfolio compositions and or examples set forth in this document are provided for illustrative purposes only and are not indicative of any future investment results, future portfolio composition or investments. The composition, size of, and risks associated with an investment may differ substantially from any examples set forth in this document. No representation is made that an investment will be profitable or will not incur losses. Where appropriate, changes in the currency exchange rates may affect the value of investments. Prospective investors should read the offering documents, if applicable, for the details and specific risk factors of any Fund/Strategy discussed in this document.

For Professional Investors/Institutional Investors only. This document should not be distributed to or relied on by Retail/Individual Investors.

Barings LLC, Barings Securities LLC, Barings (U.K.) Limited, Barings Global Advisers Limited, Barings Australia Pty Ltd, Barings Japan Limited, Baring Asset Management Limited, Baring International Investment Limited, Baring Fund Managers Limited, Baring International Fund Managers (Ireland) Limited, Baring Asset Management (Asia) Limited, Baring SICE (Taiwan) Limited, Baring Asset Management Switzerland Sàrl, and Baring Asset Management Korea Limited each are affiliated financial service companies owned by Barings LLC (each, individually, an "Affiliate"), together known as "Barings." Some Affiliates may act as an introducer or distributor of the products and services of some others and may be paid a fee for doing so.

#### NO OFFER:

The document is for informational purposes only and is not an offer or solicitation for the purchase or sale of any financial instrument or service in any jurisdiction. The material herein was prepared without any consideration of the investment objectives, financial situation or particular needs of anyone who may receive it. This document is not, and must not be treated as, investment advice, an investment recommendation, investment research, or a recommendation about the suitability or appropriateness of any security, commodity, investment, or particular investment strategy, and must not be construed as a projection or prediction.

In making an investment decision, prospective investors must rely on their own examination of the merits and risks involved and before making any investment decision, it is recommended that prospective investors seek independent investment, legal, tax, accounting or other professional advice as appropriate.

Unless otherwise mentioned, the views contained in this document are those of Barings. These views are made in good faith in relation to the facts known at the time of preparation and are subject to change without notice. Individual portfolio management teams may hold different views than the views expressed herein and may make different investment decisions for different clients. Parts of this document may be based on information received from sources we believe to be reliable. Although every effort is taken to ensure that the information contained in this document is accurate, Barings makes no representation or warranty, express or implied, regarding the accuracy, completeness or adequacy of the information.

These materials are being provided on the express basis that they and any related communications (whether written or oral) will not cause Barings to become an investment advice fiduciary under ERISA or the Internal Revenue Code with respect to any retirement plan, IRA investor, individual retirement account or individual retirement annuity as the recipients are fully aware that Barings (i) is not undertaking

\*As of December 31, 2020

21-1624221