MARCH 17, 2025

DECODING CRYPTOCURRENCY: THE FUNDAMENTALS AND EVOLVING LANDSCAPE

Executive Summary

- Unlike traditional currencies such as the U.S. dollar, whose circulation and supply are managed by the Federal Reserve, Bitcoin and other cryptocurrencies are not controlled by any bank, government, central authority, or other middleman.
- Investors are increasingly inundated with news about cryptocurrencies and potential applications for blockchain technology across business sectors and industries. Many wonder if digital currency may be a suitable addition to their long-term investment portfolios.
- A primary factor driving Bitcoin's volatility is a lack of consensus on how to value it—a challenge impacting most cryptocurrencies. That said, we are keenly watching developments in this space as the change in Washington has provided optimism. The industry is maturing, institutional interest is increasing, and the technologies and regulatory landscape are evolving.
- Individual investors should do their due diligence before investing in crypto assets given that the industry is still quite opaque and unregulated.

Niladri 'Neel' Mukherjee
TIAA Wealth Management
Chief Investment Officer

John Greene
TIAA Wealth Management
Manager, Investment Content

January 2024 marked the first trading month for the inaugural 11 Bitcoin (BTC) exchange-traded funds (ETFs) available to investors, which came in the wake of landmark approval from regulators. On the opening day of trading, the largest Bitcoin ETFs saw more than $4.6 billion in trading volume. By year-end 2024, Bitcoin ETFs had over 1 million Bitcoins under management with a total net asset value of over $120 billion.

One year on, the approval and ensuing success of spot Bitcoin ETFs in 2024 has buttressed the digital currency's broader acceptance and maturation as an asset class. With a new administration in Washington that has been directionally bullish on cryptocurrencies, a series of downside-protected Bitcoin ETFs is set to be introduced throughout 2025, which will attract a new cohort of investors who were previously deterred by BTC's choppy volatility.

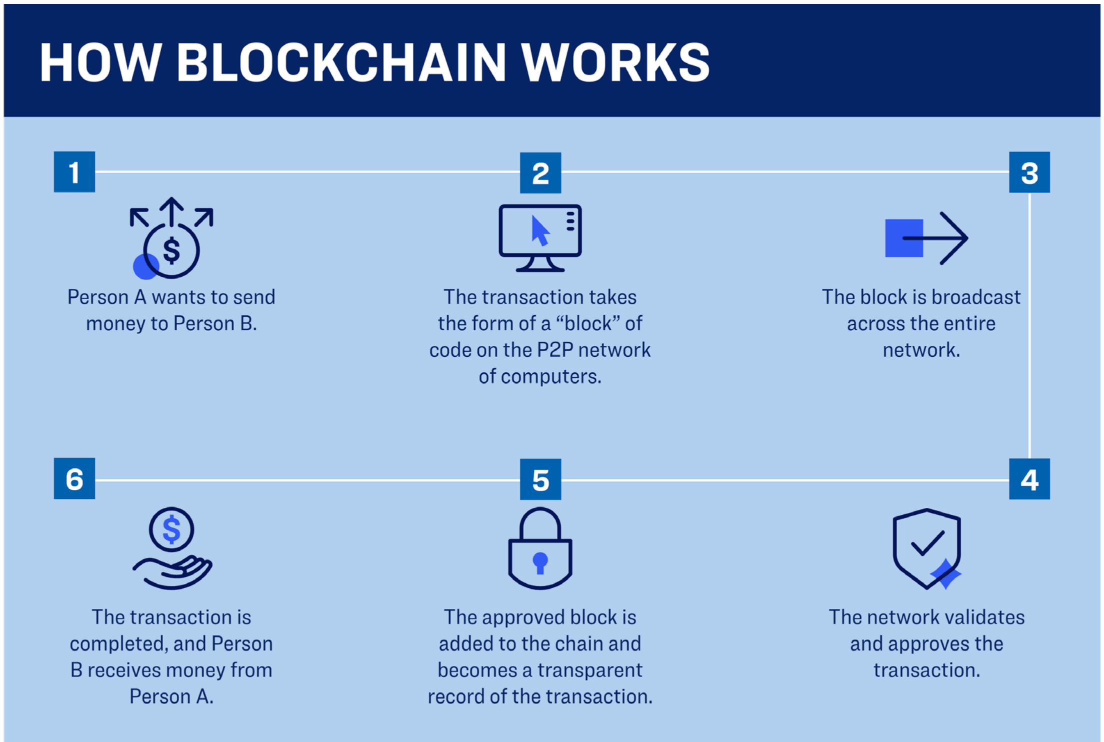
As digital currencies like Bitcoin (and its related ETFs) continue to capture the attention of the public, investors have several valid questions.

What is blockchain, and how is it related to cryptocurrency?

Introduced in 2009, Bitcoin was the first among thousands of digital currencies that are distributed, traded, and stored with the use of a ledger system known as a "blockchain"—a decentralized global peer-to-peer network comprised of millions of individual computers. Blockchain is the key technology underpinning most cryptocurrencies and, while it can be used to store all kinds of information, its most common use is in recording cryptocurrency transactions. Once a transaction is made, it's entered on this public ledger and after verification, the transaction becomes permanent (Figure 1).

FIGURE 1

Overview of how blockchain technology works.



Source: TIAA Wealth Chief Investment Office.

Unlike traditional currencies such as the U.S. dollar (USD), whose circulation and supply are managed by the Federal Reserve, digital or “cryptocurrencies” are not controlled by any bank, government, central authority, or other middleman. Instead, they are managed through the blockchain. Each of these currencies is backed by the blockchain’s digital code versus a central authority or a physical commodity like gold or silver, and the code is what allows users to trust each other when conducting transactions. Each block is connected to all the blocks before and after it, making it difficult to tamper with a single record.

However, blockchains in their current iterations do not offer a “payment” panacea. While the underlying technology has the potential for broad and beneficial application, cryptocurrencies are not yet a widespread and accepted medium of exchange like the USD, the Yen, or the Euro. As such, cryptocurrencies have scalability restraints, especially compared to embedded payment systems like credit cards. Since they are decentralized by nature, blockchains and their cryptocurrencies also pose some degree of security risk, making them vulnerable to hacking attempts, fraud, and scams.

Why are cryptocurrencies so volatile?

The lack of transparency underpinning many cryptocurrencies makes them speculative by nature, which also means they are subject to extreme volatility.

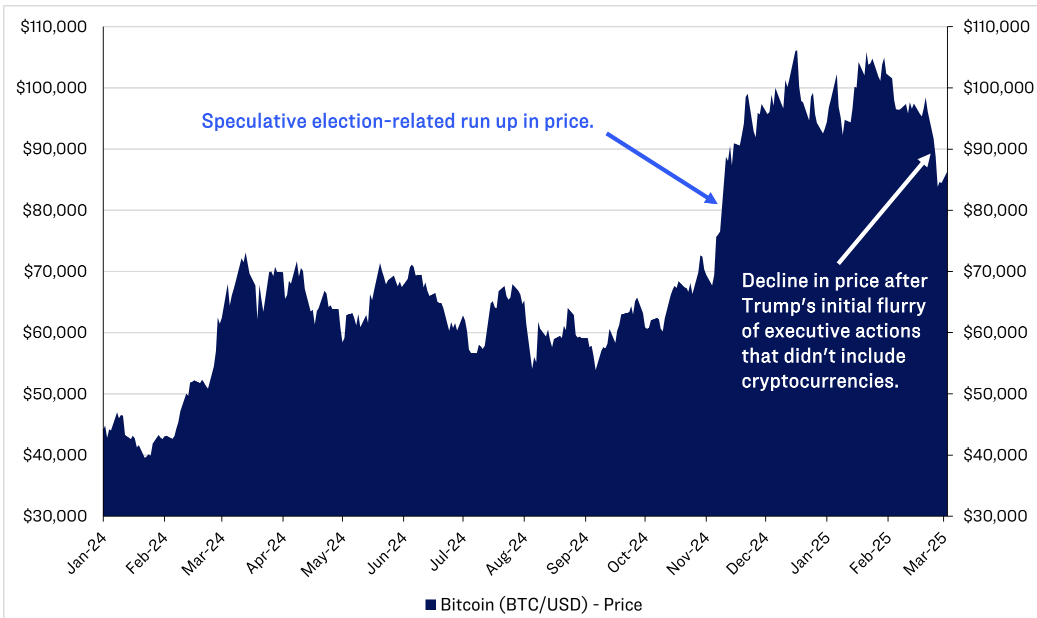
- In 2017 alone, Bitcoin experienced declines of 30% or more five times.
- From Q1 2023 to Q1 2025, there have been a dozen Bitcoin corrections of 10% or more.
- Two key speculative events have impacted Bitcoin price movement over the last several months.

1. **November 2024:** Speculation that President Trump would pave the way for less regulatory friction and more widespread adoption of the cryptocurrency fueled a significant run-up in price that occurred in the wake of U.S. elections—BTC jumped 34% from election day through the end of the year. Bitcoin price briefly touched a record high of over $109,000 when President Trump was sworn in on January 20, 2025 but retreated when crypto was absent in a flurry of executive actions during his initial days in office.

2. **March 2025:** President Trump signaled an increased commitment to his pro-crypto stance by announcing plans for a U.S. Crypto Reserve—including Bitcoin and a handful of other cryptocurrencies—following the President's campaign promise to make the U.S. the "crypto capital of the world." Trump's announcement received a mixed response from the crypto community, causing Bitcoin's initial surge in the wake of the news to quickly run out of steam.

FIGURE 2

Bitcoin's speculation-driven price movements over the last year.



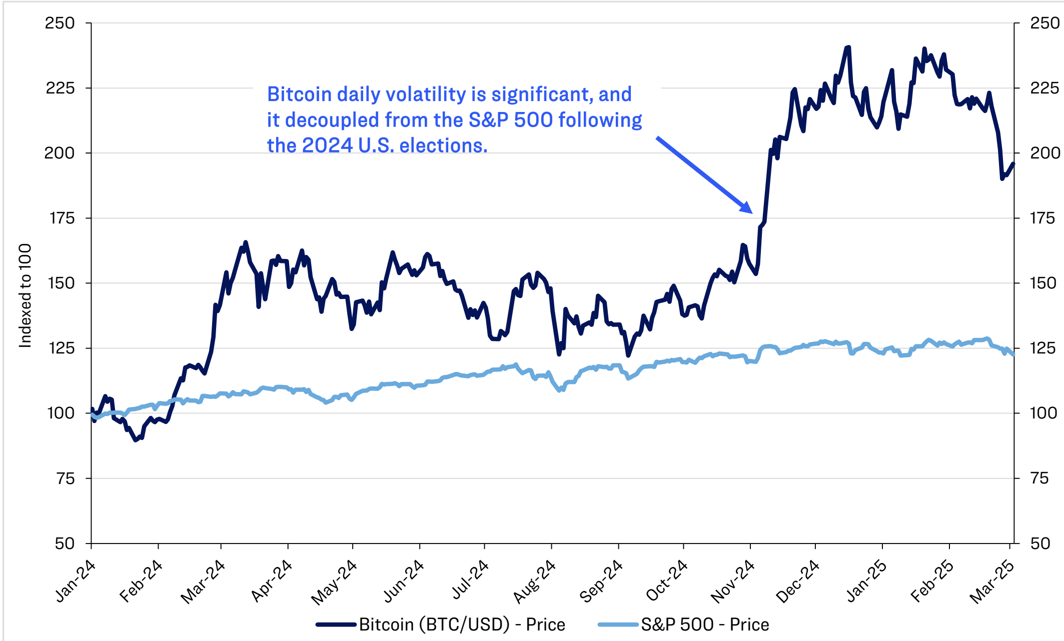
Source: FactSet Financial Data & Analytics, TIAA Wealth CIO. Data through March 3, 2025.

It is true that stocks have also demonstrated some level of volatility since November 2024, but the underlying drivers of stock and cryptocurrency returns are not the same.

While the performance of stocks and Bitcoin since 2020 has suggested the two are broadly correlated (i.e., when stocks rise, Bitcoin also rises and when stocks fall, Bitcoin typically falls), that was not always the case. Between 2010-2020, there was a weak negative correlation between the S&P 500 and Bitcoin. Price performance of the two in a more compressed timeframe illustrates daily volatility for Bitcoin runs significantly higher than the S&P 500, and Bitcoin seems to have decoupled from the index following the U.S. election in November 2024 (Figure 3).

FIGURE 3

Daily performance of the S&P 500 and Bitcoin (indexed).



Source: FactSet Financial Data & Analytics, TIAA Wealth CIO. Data through March 3, 2025.

A primary factor driving Bitcoin's volatility is the lack of consensus on how to value it—its price is solely determined by the market's perception of what people believe it's worth on any given day. The current challenges impacting cryptocurrencies—a combination of nonexistent cash flow, volatility, and a lack of regulatory oversight—have thus far proven problematic for long-term investors who will rely on income from their portfolios to meet their lifestyle expenses in retirement.

Is the regulatory environment changing?

The introduction of "stablecoins" in recent years has the potential to bring new levels of transparency and stability to the larger crypto market by addressing its inherent volatility problem. At a high level, stablecoins function as digital currencies designed to maintain a stable value by pegging to a specific reference asset, making their value drivers identifiable. These assets can be broad and include everything from fiat currencies (e.g., the USD or EUR) to commodities (e.g., gold) to U.S. Treasuries. In the case of a stablecoin pegged to the USD, for example, the coins available on public blockchains carry a 1:1 parity with fiat reserves held outside of the blockchain. The stablecoin issuer is responsible for ensuring that the number of coins "on-chain" does not exceed the dollar value of its "off-chain" reserves. In theory, this 1:1 parity helps the stablecoin avoid the wild price swings seen in many other crypto assets.

The transactional benefits of a "digital dollar" can be powerful: Stablecoins can serve as a digital substitute for the USD and allow for real-time, cross-border payments enabling faster payouts. They can also help reduce the costs associated with currency volatility by providing a stable form of value, and help protect savings from the effects of currency devaluation. These features have helped to drive rapid global adoption; the adjusted transaction volume in stablecoins—most of which are pegged to the USD—over the last 12 months was an estimated $6 trillion.

The regulatory landscape around cryptocurrencies—approval requirements and provisions, supervisory and enforcement mechanisms, etc.—is in its infancy but is expected to evolve quickly to address growing interest and demand. In the U.S., the bipartisan GENIUS Act was introduced in early February to create a blueprint for stablecoin regulation and in the EU, Markets in Crypto-Assets (MiCA) took effect in late 2024 to provide similar parameters, including reserve requirements and transaction caps. Similar frameworks are also in development throughout key Asian innovation hubs.

In our view, these are essential policies that will need to be developed and improved upon for the adoption of cryptocurrencies at scale—as both a method of payment and as an investible asset class.

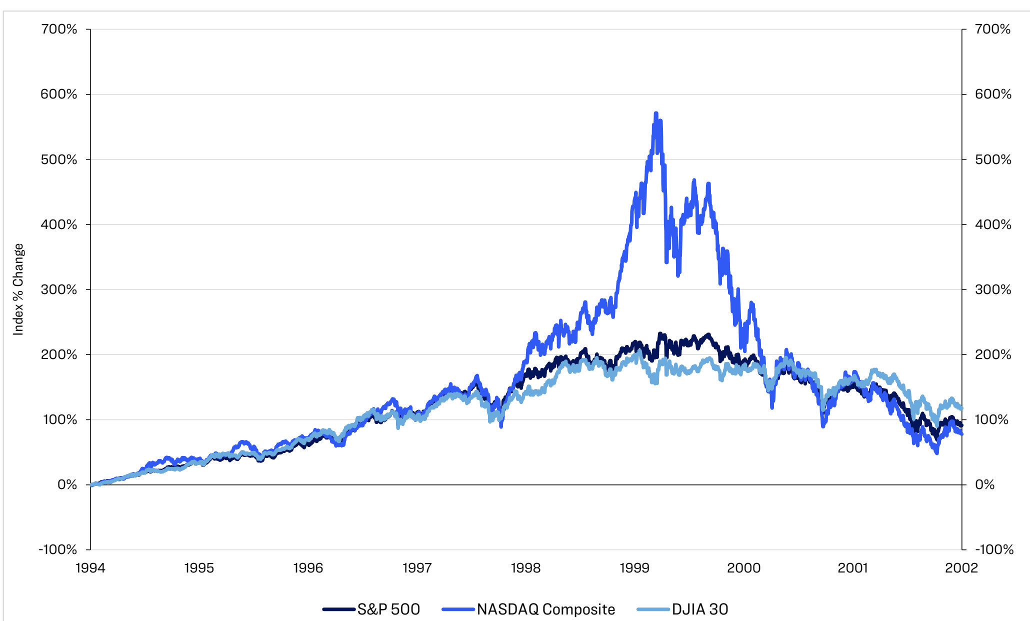
Conclusions

As investors are increasingly inundated with news about cryptocurrencies and potential applications for blockchain technology across business sectors and industries, many wonder if digital currency may be a suitable addition to their long-term investment portfolios.

History provides a suitable analog here, as the current crypto environment is reminiscent of the advent of internet stocks in the 1990s. Initially, it was unclear how the flood of burgeoning tech companies could make money from something as intangible as the internet. But speculation fueled feverish excitement and investments poured in. In reality, most of the companies trying to stake a claim in the nascent internet space had zero earnings, no sales track record, etc.—all they had were ideas. This dynamic created a bubble and as capital began to exit the tech space in 2000, the exuberance diminished, and the Nasdaq plunged by 78% over the next two years (Figure 4).

FIGURE 4

The dot-com bubble of 2000; Nasdaq compared to the S&P 500 and DJIA.



Source: Morningstar Direct, TIAA Wealth CIO. Daily price index from 1995-2002.

Today, tech stocks make up an important part of a well-diversified investment portfolio, but these stocks didn't go from speculative to mainstream overnight. Many companies that were household names in the 1990s and early 2000s either failed or were absorbed by other companies through mergers and acquisitions. It's likely that we will see similar dynamics in the digital currency space as regulatory frameworks are built and applied, and the ecosystem of cryptocurrencies and its investment solutions will adapt and accelerate.

"The primary blockchain technology used by cryptocurrencies has many uses across industries, and it will continue to evolve. But this is only part of the picture in a rapidly shifting environment," said Niladri "Neel" Mukherjee, TIAA Wealth Management Chief Investment Officer. "When we look at the historical performance of stock or bond investments, we're able to analyze trends and performance over the course of many decades and across multiple market cycles using transparent metrics like cash flows to discern their value. While broadening enthusiasm around crypto adoption and the bitcoin ETFs are an encouraging sign for the industry, from an investment perspective, its value drivers will take time to develop and to be well understood by market participants. It is inevitable that among the thousands of coins out there – meme, alt, utility, stable etc., many will not gain traction, and similar to the internet, the industry will go through its own creative destruction cycles."

We are attuned to the technological and regulatory developments in the crypto space, and excited to see what the future holds. However, individual investors interested in Bitcoin and other cryptocurrencies should do their proper due diligence before investing, given that the industry is still quite opaque and unregulated.

CIO FOCUS*POINT*

TIAA Wealth Management

IMPORTANT DISCLOSURES

This material is for informational or educational purposes only and is not fiduciary investment advice, or a securities, investment strategy, or insurance product recommendation. This material does not consider an individual's own objectives or circumstances which should be the basis of any investment decision.

Optional discretionary investment management services for a fee are provided through two separate managed account programs by TIAA affiliates: the Portfolio Advisor program offered by the Advice and Planning Services division of TIAA-CREF Individual & Institutional Services, LLC ("Advice and Planning Services"), a broker-dealer (member FINRA/SIPC), and SEC registered investment adviser; and the Private Asset Management program offered by TIAA Trust, N.A. Please refer to the disclosure documents for the Portfolio Advisor and Private Asset Management programs for more information. TIAA Trust, N.A. provides investment management, custody and trust services. Advice and Planning Services provides brokerage and investment advisory services for a fee. Investment Management Group (IMG) is the investment management division of TIAA Trust, N.A., and provides the underlying investment management services to the Portfolio Advisor and Private Asset Management programs. TIAA Trust, N.A. and Advice and Planning Services are affiliates, and wholly owned subsidiaries of Teachers Insurance and Annuity Association of America (TIAA). Each entity is solely responsible for its own financial condition and contractual obligations.

The TIAA group of companies does not provide tax or legal advice. Tax and other laws are subject to change, either prospectively or retroactively. Individuals should consult with a quali or attorney for specific advice based on the individual's personal circumstances.

All investments involve some degree of risk, including loss of principal. Investment objectives may not be met. Investments in managed accounts should be considered in view of a larger, more diversified investment portfolio.

ASSET ALLOCATION AND DIVERSIFICATION ARE TECHNIQUES TO HELP REDUCE RISK. THERE IS NO GUARANTEE THAT ASSET ALLOCATION OR DIVERSIFICATION ENSURES PROFIT OR PROTECTS AGAINST LOSS.

Past performance is no guarantee of future results.

Investing involves risk and the value of your investments may gain or lose value and fluctuate over time. Generally, among asset classes stocks are more volatile than bonds or short-term instruments and can decline significantly in response to adverse issuer, political, regulatory, market, or economic developments. Although the bond market is also volatile, lower-quality debt securities including leveraged loans generally offer higher yields compared to investment grade securities, but also involve greater risk of default or price changes. Foreign markets can be more volatile than U.S. markets due to increased risks of adverse issuer, political, market or economic developments, all of which are magnified in emerging markets. Foreign securities are subject to special risks, including currency fluctuation and political and economic instability.

INVESTMENT, INSURANCE AND ANNUITY PRODUCTS ARE NOT FDIC INSURED, ARE NOT BANK GUARANTEED, ARE NOT DEPOSITS, ARE NOT INSURED BY ANY FEDERAL GOVERNMENT AGENCY, ARE NOT A CONDITION TO ANY BANKING SERVICE OR ACTIVITY, AND MAY LOSE VALUE.