



WEALTH MANAGEMENT CHIEF INVESTMENT OFFICE

Special update and analysis of current events impacting financial markets

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Do crypto ETFs have a place in your long-term investment portfolio?

January 11, 2024, marked the first trading day for the 11 recently approved spot Bitcoin exchange-traded funds (ETFs) available to investors in the wake of the landmark approval from regulators. On the opening day of trading, the largest Bitcoin ETFs saw more than \$4.6 billion in trading volume. By comparison, the Invesco tech-focused ETF (QQQ) and Apple (AAPL) saw volumes of \$115 billion and \$65 billion, respectively.

As digital currencies like Bitcoin continue to capture the attention of the public — especially as investment exposure to these digital assets becomes easier – new, potential investors have a string of valid questions: What are cryptocurrencies and blockchains, and how do they work? What are crypto investments actually investing in? Are investors who ignore cryptocurrencies "missing the boat?" Is there a place for crypto investments in a long-term investment portfolio?

Below, TIAA's Wealth Management Chief Investment Office (CIO) answers these questions, provides its current perspective on cryptocurrencies, and addresses important considerations for those who may be thinking about investing in the growing number of digital currencies or in the ETFs that offer exposure to them

What is cryptocurrency?

Unlike traditional currencies such as the U.S. dollar, which is managed by a central bank, digital or "cryptocurrencies" are not controlled by any bank, government, central authority, or other middleman. Instead, they are managed through a combination of peer-to-peer technology and software-driven cryptography. While Bitcoin is the most well-known cryptocurrency in use today, other popular options include Dogecoin, Ethereum (Ether), Litecoin and Polkadot.

Each of these currencies are backed by digital code, versus a central authority (government-issued currencies) or a physical commodity like gold or silver. The code behind these decentralized networks is what allows users to trust each other in conducting transactions. Rather than using any one company's proprietary software, the code is developed by independent users and developers. Open source "blockchain" developers constantly add to and refine the codebase.

What is blockchain, and why does it matter?

Introduced in 2009, Bitcoin was the first among thousands of digital currencies that are distributed, traded, and stored with the use of a decentralized ledger system, known as a blockchain.

Blockchain is the key technology underpinning most cryptocurrencies. While blockchain technology 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, which is managed by a decentralized global peer-to-peer network, typically comprised of millions of computers. Once verified, the transaction is permanent and, unlike a credit card transaction, it can't be reversed.

In recent years, blockchain technology has become increasingly attractive to companies seeking secure ways to process payments, share medical and other sensitive data, and solve complex supply chain and logistics challenges. Since each computer in the chain must verify a transaction before it can be noted in the register, the result is a chain of digital blocks that contain records of each transaction. Each block is connected to all the blocks before and after it, making it difficult if not impossible to tamper with a single record. That's critical not only for deterring potential hackers, but for mitigating human error, as well. Someone intent on tampering with records would not only need to change the block containing a record, but all those linked to it.

However, blockchain technology also has a downside. Cryptocurrency "mining" refers to the complicated process by which new Bitcoins are entered into circulation, which requires high-powered computers that solve complex mathematical puzzles to create a new "block" on the blockchain. The mining process eats up a tremendous amount of computing power and electricity, which has led to concerns about the environmental impact of cryptocurrencies.

TIAA's Wealth CIO perspective

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.

"The primary blockchain technology used by cryptocurrencies has many uses across industries, and it will continue to evolve in the future. But this is only part of the picture in a rapidly shifting environment. Even though the new Bitcoin ETFs provide investment exposure to the cryptocurrency, this does not change the nature of the underlying asset itself, which is speculative," said Niladri "Neel" Mukherjee, TIAA Wealth Management Chief Investment Officer.

The underlying fundamentals that drive stock and bond returns (and the risks therein) are well known by investors, and there is transparency in the metrics used by investors to discern their value: cash flows, dividend payments, profitability, etc.

Cryptocurrencies have a short history, and their value drivers are not as well understood. "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," Mukherjee said. "Bitcoin, while the oldest of the cryptocurrencies, simply doesn't have a stable track record by which to gauge future values."



Cryptocurrencies can be highly volatile and are unreliable as a store of value

While the lack of a central governing authority such as a central bank is often cited by proponents of cryptocurrencies as a benefit, it can also exacerbate illiquidity and volatility. The speculative nature of cryptocurrencies leads to a lack of transparency, which also means they are subject to extreme volatility and are therefore not useful as a store of value. For example, from its peak on November 7, 2021, Bitcoin declined in price by 75% by early November 2022 (Figure 1).

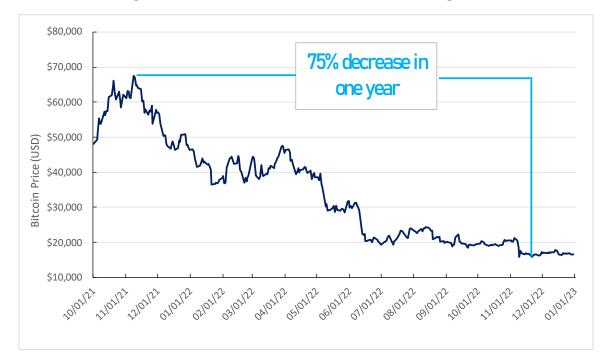


Figure 1 - Bitcoin price decreased 75% over the course of a single year

Source: FactSet Financial Data & Analytics

Interestingly, more recent performance of stocks and Bitcoin suggest the two are broadly correlated, i.e., when stocks rise, Bitcoin also rises and when stocks fall, Bitcoin typically falls as well. The S&P 500 and Bitcoin generally follow a similar performance pattern over the past five years (which includes major COVID-related shocks to the markets), however, daily volatility for Bitcoin has historically run significantly higher than the S&P 500 (Figure 2). The cryptocurrency has therefore not proved to be a reliable hedge against stock market volatility.

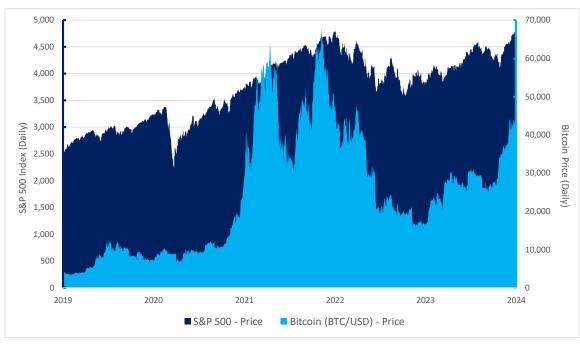


Figure 2 - Five-year daily performance of the S&P 500 and Bitcoin

Source: FactSet Financial Data & Analytics, data through January 12, 2024

A significant factor driving volatility is that there is no established or intrinsic value for cryptocurrencies. They're worth what people believe they're worth on any given day. For long-term investors who will rely on income from their portfolios to meet their lifestyle expenses in retirement, a combination of nonexistent cash flow, increased volatility and lack of liquidity is highly problematic, and cryptocurrencies check all of those boxes.

What could change our current view?

While the introduction of spot Bitcoin ETFs in early 2024 is an important step in the long-term evolution of crypto assets, the move does not address our underlying skepticism of the nature of these assets. Until some of these factors change, investing in cryptocurrencies should be considered speculative.

There are several things TIAA's Wealth CIO would need to see before changing its current point of view on cryptocurrency, including the world's central banks embracing digital currency, increased efforts to weed out cyberhackers, and broader adoption of blockchain technology across businesses and industries.

In many ways, the current crypto environment is reminiscent of the advent of internet stocks in the 1990's; initially, it was unclear how some of these companies could make money off of something as intangible as the internet. Today, tech stocks make up an important part of a well-diversified investment portfolio.

However, it's important to remember that tech stocks didn't go from highly 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 over the next few years and, as a result, the ecosystem of cryptocurrencies, the public and private companies involved in them, and the investment solutions will

change. However, those that demonstrate staying power may benefit from the existence of spot ETFs, which will provide a boost of legitimacy as well as some measure of transparency and price discovery — both crucial factors in the development/maturation of an asset class that should be considered for use in a long-term investment portfolio.

If you're curious about investing in cryptocurrencies or in the novel crypto ETFs, consider talking with your TIAA Wealth advisor first. It's important for your advisor to understand why you are interested in Bitcoin or other digital currencies. Is it simply the fear of missing out, or is there another investment challenge you are hoping to solve for?

At TIAA, our mission is to help participants achieve financial security to and through retirement. We believe this is achieved by saving through investable, as opposed to highly speculative, assets.

Whether you're looking for additional sources of income in retirement, a hedge against inflation or simply want help evaluating your retirement income needs, your TIAA Wealth advisor can help you determine if you are on track to have the income you will need to support your goals for a period or 20 or 30+ years in retirement. To learn more about creating a tax-efficient income stream that you can't outlive, schedule a meeting with your TIAA Wealth advisor today.



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