# Strategic Report

**CIO Office** | June 2022

## Digital assets: Speculative bubble or real revolution? Part 3/3.
Portfolio management

### Highlights

- Blockchain, the technology that has accompanied the advent of digital assets, seems to have the potential to disrupt certain markets and generate opportunities.
- It is possible the value of digital assets will continue to grow due to their inherent scarcity and the craze they generate. On the other hand, it is clear the market is not yet mature and that volatility will persist. Moreover, it would be unreasonable to argue that the thousands of digital assets in circulation are all destined to generate returns similar to those seen over the past decade.
- While bitcoin's returns have been significant over the past decade, it is difficult to identify an associated risk premium that would justify the inclusion of digital assets. Bitcoin does not generate cash flows and is not associated (directly or indirectly) with economic growth, productivity, or interest rates. Without exposure to any risk premium or the ability to generate cash flows, the inclusion of bitcoin in a portfolio could be justified if it demonstrated the properties of a safe-haven. Such a feature would likely decrease the volatility of a portfolio and thus improve its risk/reward ratio. However, the upward trend in correlation with traditional assets since the beginning of the pandemic casts doubt on the ability of digital assets to act as a true safe haven.
- For the past few years, central banks have been interested in the possibility of issuing digital currency. In the consultation processes that have been initiated, central banks are proposing a series of conditions necessary for the development of such a sovereign digital currency, including: (1) complementing rather than replacing current forms of money; (2) providing benefits to the economy that exceed the costs; (3) providing protection against criminal activity; (4) protecting the anonymity of consumers; and (5) having the support of key players in the banking sector. The interest of central banks in issuing sovereign digital currencies and the methods envisaged are a sign that the blockchain craze could go far beyond the status of a passing fad.
- Paradoxically, the issuance of a digital currency by an entity such as the Federal Reserve could deal a severe blow to currently popular cryptocurrencies, as their relevance could be called into question.

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## Recap

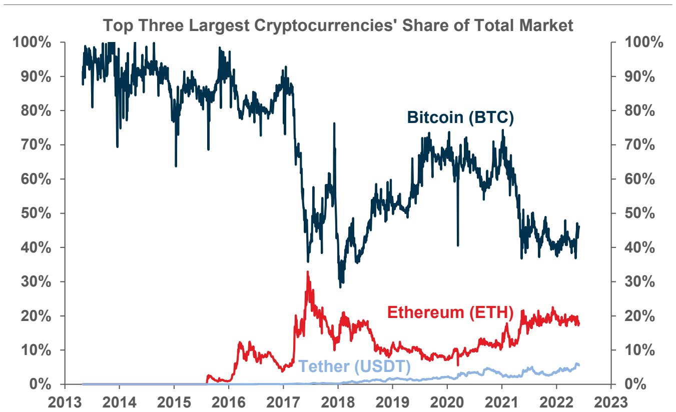
The first two reports on digital assets discussed the mechanisms by which they operate and the different perceptions of their fundamental value. The characteristics of digital assets are not yet well established, which complicates the assessment of their fundamental value. Comparison with commodities, monetary models, and the safe haven market approach are three categories of models proposed to assess the value of cryptocurrencies. However, slight differences in the assumptions surrounding these models can greatly vary the fundamental value, making any prediction hazardous.

The ultimate question for an investor is whether these assets should be considered in the portfolio construction process. In an attempt to shed light on this question, this report discusses the historical properties of digital assets, the impact of including them in a typical portfolio, and the relevant considerations associated with portfolio construction.

## A concentrated universe

The world of digital assets is becoming increasingly diverse. Since the emergence of bitcoin, thousands of cryptocurrencies have been added to the landscape. Despite this proliferation, bitcoin remains the most important cryptocurrency (**Chart 1**).

**1 | Bitcoin remains dominant in its universe...**

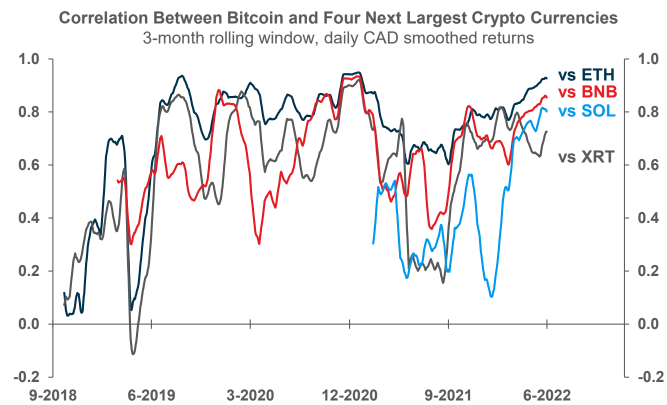



CIO Office (data via coinmarketcap.com)

Bitcoin's market capitalization has declined over time, but still represents more than 40% of the total market capitalization of digital assets.

For comparison, the largest American company, Apple, represents only about 6% of the total market capitalization of the U.S. market. Despite the large number of assets, it is a universe with much less diversified characteristics than stocks or bonds. Moreover, the correlation between bitcoin and the other four cryptocurrencies with the largest market capitalization[1] is generally high (**Chart 2**).

**2 | ... and strongly correlated to its peers**




CIO Office (data via coinmarketcap.com)

## Returns

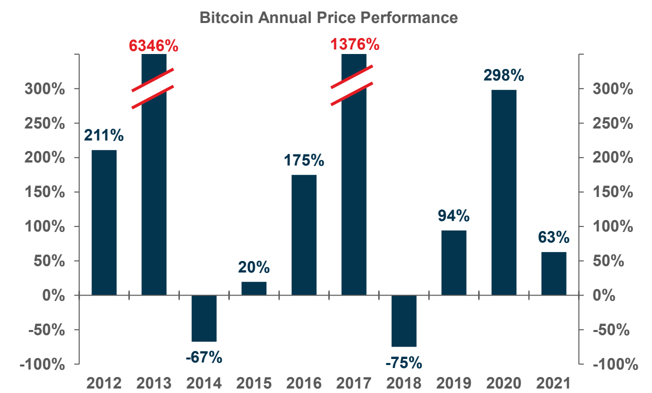
Due to bitcoin's preponderance among digital assets, the larger history of data, and the correlation between different cryptocurrencies, subsequent analyses focus on bitcoin expressed in Canadian dollars. Bitcoin is particularly famous for its historical returns as well as its high volatility. Since 2012, bitcoin has had a positive return in 8 out of 10 years (**Chart 3, next page**).

## Risk

As can be guessed from ? Chart 3, these returns have not been achieved without risk. Indeed, bitcoin's volatility has always been far higher than traditional asset classes (**Chart 4, next page**). Although bitcoin's volatility spikes seem to be diminishing over time, they remain more frequent

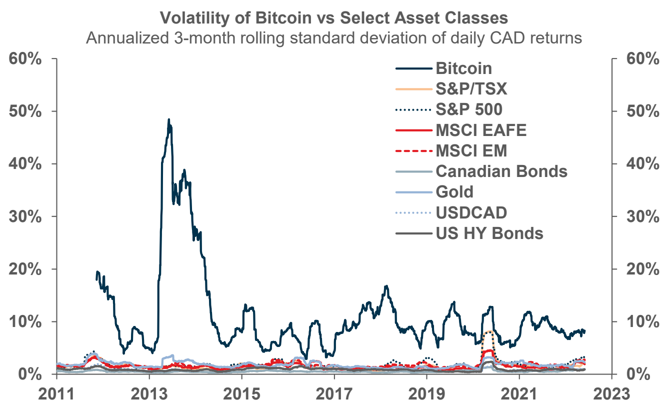
[1] Stablecoins, digital assets that peg their value to an external reference such as the U.S. dollar, are excluded from the list because of their fundamentally different mechanism.

### 3 | A roller coaster of annual returns




CIO Office (data via coinmarketcap.com)

### 4 | Bitcoin, a *very* risky asset




CIO Office (data via Refinitiv)

and much higher than for assets in a typical retail investor's portfolio.

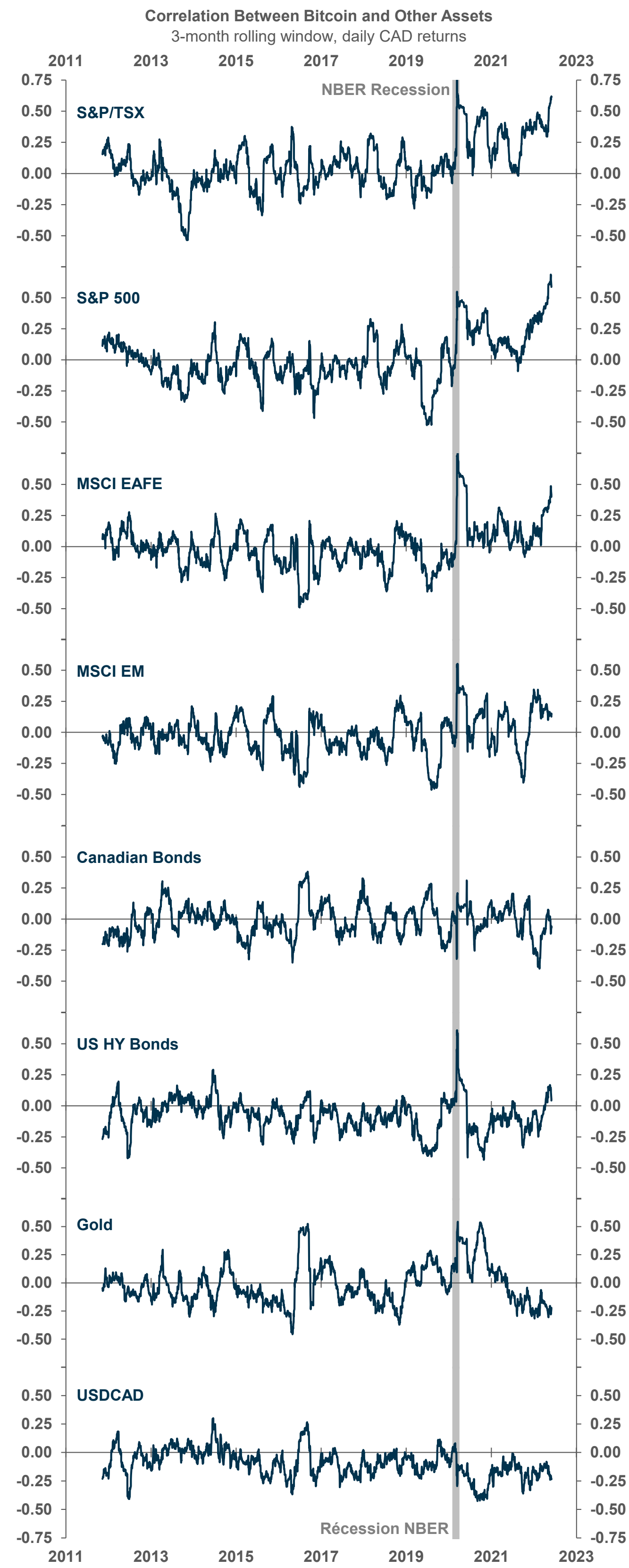
These volatility spikes are symptomatic of the many pullbacks from peak levels bitcoin has experienced since its launch. Notably, the maximum loss was 85% between December 2013 and January 2015.

## Correlation

The profile of bitcoin would not be complete without observing its correlations with typical assets comprising the portfolio of a retail investor. The correlation between bitcoin and traditional assets has been historically low, as demonstrated by the correlation calculated over a 90-day rolling period (**Chart 5**).

However, it is possible to notice that the correlation with risky assets is now higher than it was before the

### 5 | Low correlations, except during crises?




CIO Office (data via Refinitiv)

pandemic. The correlation with U.S. and Canadian equities peaked at the beginning of the pandemic in March 2020. Conversely, the historical correlation with gold has remained low over the entire period. These two observations do not support the thesis that digital assets are a safe haven like gold. While a single event cannot discredit the argument forever, one wonders about the true value-keeping potential if this property has not been observed during the most opportune time since the launch of bitcoin.

## The impact on a portfolio

Not surprisingly, the inclusion of such a high-return asset in a typical retail investor's balanced portfolio would have increased the return of that portfolio (**Table 1**).

Despite the impressive volatility of digital assets, it may be surprising to find it would not necessarily have changed the risk level of a typical retail investor's portfolio. These historical results would have been achieved under two conditions: the allocation to bitcoin should have been limited in size and the portfolio should have been rebalanced relatively frequently, either monthly or quarterly. Despite bitcoin's significant drawdowns, the portfolio's maximum drawdown would have been little affected by the inclusion of a small bitcoin allocation.

However, past returns are no guarantee of future returns. These analyses help to illustrate that the inclusion of a small amount of a very risky asset does not disrupt the overall portfolio but is not a prediction of expected returns over the next few years.

## Fundamental considerations

More generally, the decision to include an asset in a portfolio should depend on the investment requirements associated with it. The composition of a portfolio that seeks to maximize capital growth will obviously be different from a portfolio that seeks to preserve capital or to immunize the investor against liabilities. Assets must have characteristics that justify their inclusion, whether it be a risk premium or the ability to diversify risk.

While bitcoin's performance has been significant over the past decade, it is difficult to identify an associated risk premium that would justify inclusion of digital assets. Bitcoin does not generate cash flows and is not associated (directly or indirectly) with economic growth, productivity, or interest rates.

Without a risk premium or the ability to generate cash flow, bitcoin’s inclusion in a portfolio could be justified if it demonstrated the properties of a safe haven. Such a feature would likely decrease the volatility of a portfolio and thus improve its risk/reward ratio. However, the upward trend in correlation with traditional assets since the beginning of the pandemic casts doubt on the true ability of digital assets to act as a safe haven.

## Digital money and central banks

For the past few years, central banks have been interested in the possibility of issuing their own digital

**Table 1 Portfolio Performance Metrics by Bitcoin Allocation**

| Portfolio (in CAD) | Avg. Annualized Return** | Annualized Volatility | Sharpe Ratio | Maximum Drawdown |
|---|---|---|---|---|
| Balanced Portfolio* | 7.0% | 6.8% | 1.03 | 7.2% |
| Balanced Portfolio + 2% BTC | 9.8% | 7.7% | 1.28 | 7.3% |
| Balanced Portfolio + 4% BTC | 12.6% | 9.5% | 1.33 | 7.9% |
| Balanced Portfolio + 6% BTC | 15.4% | 11.7% | 1.32 | 10.0% |
| Balanced Portfolio + 8% BTC | 18.2% | 14.2% | 1.29 | 12.2% |
| Balanced Portfolio + 10% BTC | 21.0% | 16.8% | 1.25 | 14.3% |

*Zero BTC allocation portfolio equal to 17.5% S&P 500, 17.5% S&P/TSX, 10% MSCI EAFE, 5% MSCI EM, 50% ICE Canada Broad Market Index, Quarterly Rebalanced, BTC inclusion is achieved by proportionally reducing the Zero BTC portfolio weights. **Assumes a 2-year holding period.

Data via Refinitiv from January 2014 to March 2022 currency[2] (a Central Bank Digital Currency, or CBDC). This new version of currency could potentially (but not necessarily) make use of new technologies like blockchain to support the network.

For example, the Federal Reserve Bank of Boston is collaborating with MIT to explore the development of an CDBC platform that would leverage blockchain technology.[3] The operation of such a system, however, does not necessarily mean the network would be fully decentralized as in the case of non-sovereign cryptocurrencies. Rather, the network could be shared by different financial institutions to simplify the verification of transfers between clients of different institutions.

In the consultation processes that have been initiated, central banks are proposing a series of conditions necessary for the development of such a sovereign digital currency, including: (1) complementing rather than replacing current forms of money; (2) providing benefits to the economy that exceed the costs; (3) providing protection against criminal activity; (4) protecting the anonymity of consumers; and (5) having the support of key players in the banking sector.

Thus, the objective of central banks is not to replace the current monetary system but, rather, to try to improve its efficiency. Nonetheless, the potential interest of central banks in blockchain is a sign that this technology may well become more widespread. Paradoxically, the issuance of a digital currency by an entity such as the Federal Reserve could deal a severe blow to the cryptocurrencies currently in vogue, as their relevance – or even lawfulness – could be called into question.

## Conclusion

Are digital assets a speculative bubble or a real revolution? It appears these possibilities are not mutually exclusive. The technology that has accompanied the advent of digital assets seems to have the potential to disrupt certain markets and generate opportunities. In the same vein, the interest (albeit still timid) of central banks in issuing sovereign digital currencies is a sign that interest in blockchain could go far beyond the status of a passing fad.

It is possible the value of digital assets will continue to grow due to the inherent scarcity of their operation and the excitement they generate. On the other hand, it is clear the market is not yet mature and that volatility will continue. It would be unreasonable to argue that the thousands of digital assets in circulation are all destined to generate returns similar to those observed over the last decade. Fundamentally, digital assets are not associated with a risk premium and have not yet demonstrated safe-haven characteristics on a persistent basis.

Furthermore, the potential technological disruption caused by blockchain does not necessarily mean digital assets will be the big winners. Returns are rarely made by the technologies themselves but, rather, by certain companies that have been able to exploit them profitably. In this respect, digital assets are not the exception: they are not the blockchain and do not have a monopoly on this technology. It is, therefore, difficult to argue that a craze for technology will necessarily turn into large returns for digital assets.

For these reasons, it appears that the future of non-sovereign digital assets lies more in the concept of their scarcity. As for the opportunity of return from the potential innovations generated by the technology underlying digital assets, exposure to companies that can generate cash flows with the help of the blockchain seems a more rational approach.

[2] Central bank digital currencies: foundational principles and core features, October 9, 2020.
[3] Money and Payments: The U.S.Dollar in the Age of Digital, January 14, 2022.

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## General