CoinShares

SEPTEMBER 2023
(An update of the original version published in July 2020)

A Little Bitcoin Goes A Long Way

James Butterfill & Christopher Bendiksen

Introduction

The world experienced a rare paradigm shift in technology usage when the Internet became available to the general population in the mid-1990s. This, in turn, led to the convergence of several remarkable technologies, such as the development and use of big data, artificial intelligence and software-driven task automation. The emergence of a cryptographically secure digital asset therefore comes as no surprise. Nor does the fact that, just like the internet in its early days, it suffers considerable confusion as to its value and usage potential.

Bitcoin's lifespan now straddles two economic crises and stems from the need for an independent digital store of value. Its arrival at the global investment stage comes at a time when loose monetary policy has left investors facing considerable valuation challenges in traditional asset classes, while seeing few diversifying benefits from existing alternative investments. Investors looking for alternatives are understandably excited by digital assets offering a non-sovereign, programmable store of value, with the potential to protect from inflation.

Commodities in the 1990s faced critiques of investment suitability, just as digital assets do today. Among those were the unpredictability of events such as the weather and geopolitics on supply, and unanticipated increases in demand resulting from changes in emerging market prosperity. The creation of the GSCI (Goldman Sachs Commodity Index) and considerable promotion as a new, diversifying asset class in the early 2000's eventually led to the financialisation of commodities.

We believe that a similar trend of financialisation is emerging in digital assets, and particularly bitcoin. The proliferation of financial infrastructure and corresponding financial products referencing bitcoin as well as on-chain bitcoin usage data supports this thesis. Financial infrastructure such as prime brokerages, order management systems and insured custody solutions has paved the way for increasing financialisation through products such as options, futures and Exchange Traded Products (ETP).

While Bitcoin has some growth exposure due to growth in the broader technology sector, we believe it is relatively insulated from economic cycles, although is vulnerable to monetary policy, like other stores of value. We also find that in the context of a portfolio, it behaves in a similar manner to other alternative assets in providing diversification, with the exception that its portfolio diversification benefits are far greater than its competitors.

The digital asset class

- We see Bitcoin as an investment being a non-sovereign store of value which had potential exposure to economic and internet growth, whilst being largely uncorrelated to other asset classes.
- Bitcoin's identity has been somewhat split over the years, but there is growing evidence for it becoming an established store of value.
- Examinations of addresses behaviour show that the number of investors classed as long term (>155 days holding) has risen from 65% in 2018 to 74% today (5).
- We believe this trend of increasing investor participation is likely to continue as its total market cap grows and its volatility gradually subsides.
- We also believe Bitcoin is integral to the secular growth trend in technology

There is no universally accepted definition of asset classes. In 2005, the Yale University Endowment stated; "Because investment management involves as much art as science, qualitative considerations play an extremely important role in portfolio decisions. The definition of an asset class is quite subjective, requiring precise distinctions where none exist" (1). Consequently, while we can backtest to help define digital assets, we also must emphasise the qualitative considerations.

One broadly accepted definition of an asset class, however, is that it is expected to exhibit different risk and return investment characteristics and perform differently in certain market environments. It is then often split into real assets and financial assets.

In the US, Bitcoin's classification varies, with the IRS (Internal Revenue Service) taxing it as property, the SEC (Securities & Exchange Commission) classifying digital assets on a case-by-case basis, and the CFTC (Commodities Futures Trading Commission) regulating it as a commodity, while FinCen does not classify it as legal tender. To further add to the confusion, many digital assets have a moniker of "currency" which we believe is unhelpful as it falls outside of commonly applied definitions.

So where does bitcoin fit?

To better understand this, we need to understand its characteristics as a potential investable asset. Satoshi Nakamoto, the pseudonymous author of the bitcoin whitepaper "Bitcoin: A peer-to-peer electronic cash system" highlights the goal of the Bitcoin network was to build an electronic payment system around cryptographic proof instead of trust. In effect, the creation of a parallel banking system built on global, open-source software and networks instead of people / reputation.

Many attempts have been made at boxing in bitcoin into the pre-existing frameworks of current asset classes, but due to its unique collection of similar yet often non-overlapping attributes, it never quite fits any established mould.

Adding to the issues of classification based on characteristics is the problem that investor perception of bitcoin influences its behaviour, which in turn influences its performance within different macroeconomic environments leading back to questions of classification.

Parsing out which fundamentals are the "true" drivers of bitcoin's performance might be impossible so long as speculative demand remains a significant driver of price action. This leads us to the situation where bitcoin may have been one thing in the past, another thing now, and potentially another thing in the future.

"...if we are to examine Bitcoin in terms of its investability, we believe there is a necessity to classify Bitcoin according to its likely performance in a mature state..."

Nevertheless, if we are to examine bitcoin in terms of its investability, we believe there is a necessity to classify bitcoin according to its likely performance in a mature state, where investors are more settled as to its identity and performance through the economic cycle. To do this, we must analyse bitcoin based on its economic fundamental characteristics, de-emphasising past performance.

In its growth phase, bitcoin behaves much like a tech stock

Having started its life at a price of zero, it is hardly surprising that bitcoin's investment performance, like that of successful startups, has been stellar. As a potentially disruptive technology, bitcoin's risk profile is rather similar to that of a technology stock: if it reaches its potential, the value could be immense, but at the same time, there is a non-zero chance that it fails entirely, leaving the value of bitcoins close to zero.

These characteristics influence which type of investors are willing to speculate on bitcoin. This, in turn, influences how the aggregate investor pool interacts with the asset. If bitcoin is perceived as a more liquid version of a tech start-up stock, this is likely to cause its investors to treat it as a potentially high-reward, yet liquid, risk-on asset––moving in and out of it on an opportunistic basis. As interest rates rose at the beginning of 2022, interest rate sensitive assets suffered, this included both equities and bitcoin, dramatically increasing their correlation.

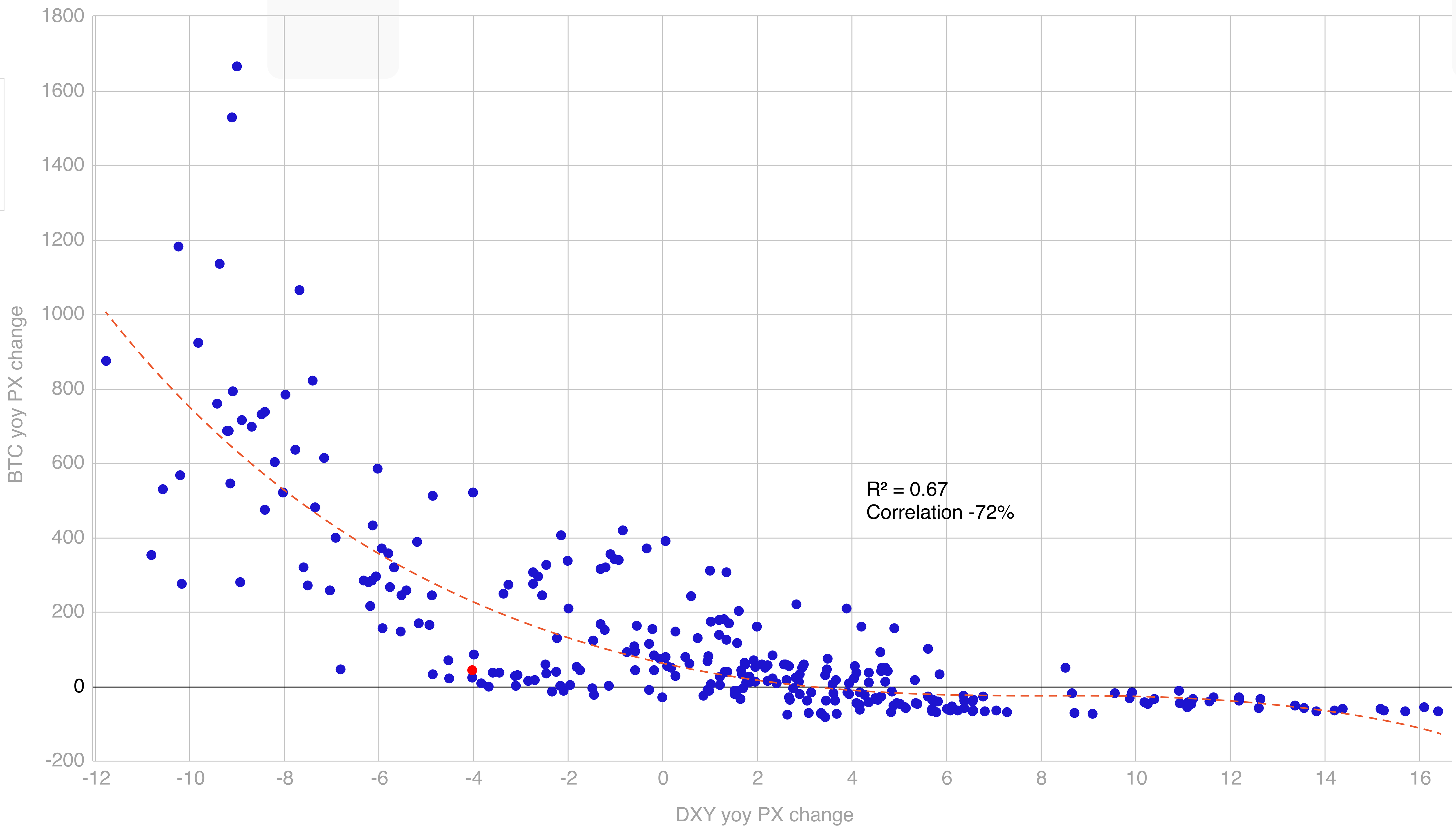
Nasdaq vs Bitcoin correlation of daily returns (3m trail)

Source: Bloomberg, CoinShares, data available as of close 04 August 2023

Although their correlation increases were for differing reasons, bitcoin's rate sensitivity is due to it being of fixed supply and priced in US dollars, an emerging store of value. While equities rate sensitivity is due to the prospect of squeezed margins when rates rise. This is why, as the US Federal Reserve backs off from historic rate rises, the correlation between the two are declining. There is the expectation that in the face of economic weakness prompted by the FED's aggressiveness, that equities will underperform, their policies will also be perceived as a policy error, likely being supportive for Bitcoin, who's monetary policy is perfectly known and arguably more sound.

Bitcoin vs DXY

Source: Bloomberg, CoinShares, data available as of close 22 August 2023 – based on weekly date since January 2018.

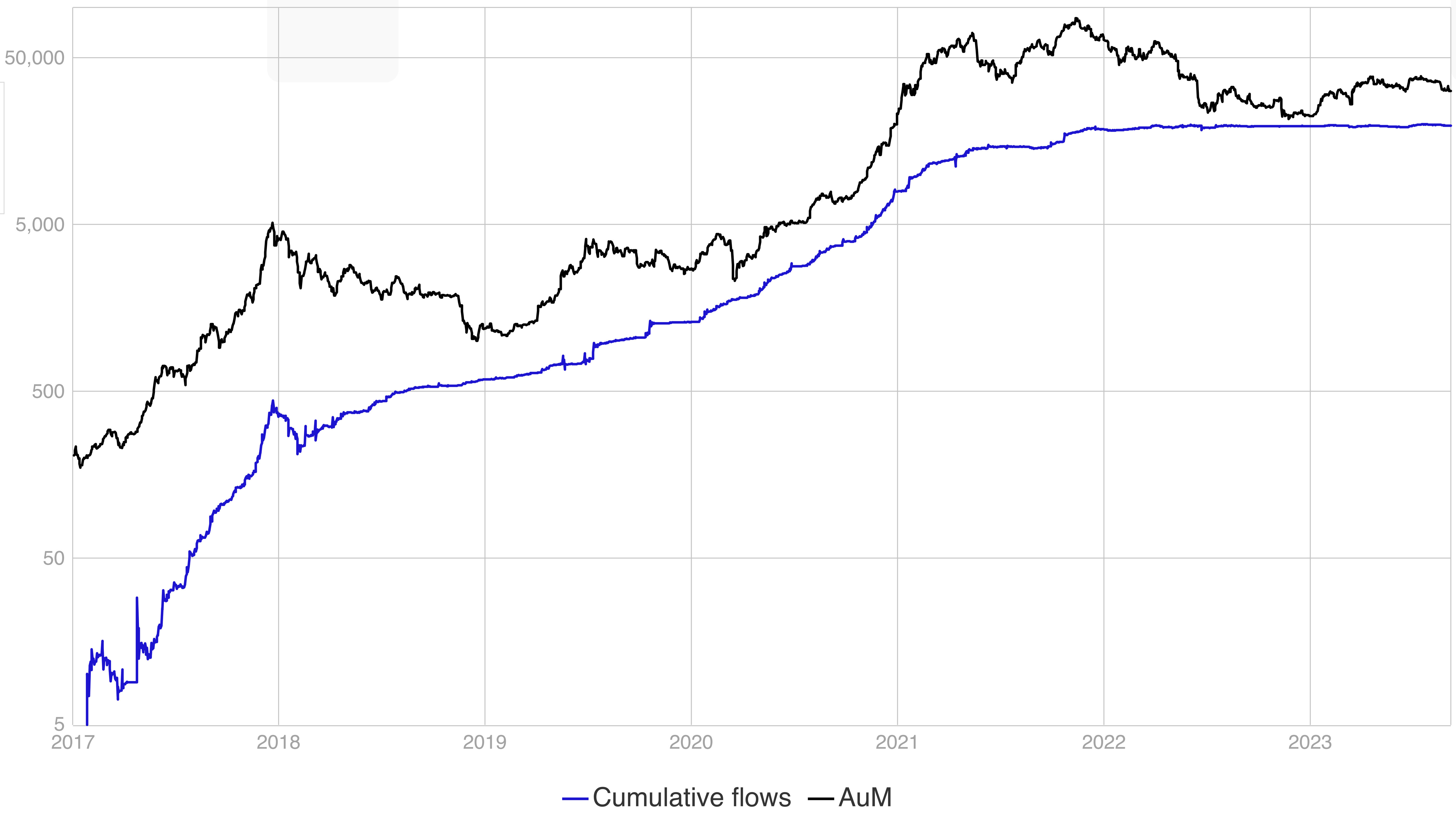


In its mature phase, more like a store of value

As Bitcoin matures, its robustness is further proven, and its risk of failure moves further and further away from zero, we believe investors will start treating it differently, leading its macroeconomic behaviour to follow suit. Evidence for this is beginning to gather pace in its increased correlation to gold and its increasing sensitivity to interest rates. This is evident in its high inverse correlation with the US Dollar, where it is -73%, while its R2 is 0.69.

Digital Asset ETP Net New Assets US$m

Source: Bloomberg, CoinShares, data available as of close 04 August 2023 - Log Scale



Alongside Bitcoin's growth in scope and size, its evolution is making it increasingly apparent that it not only has potential utility as a store of value, but also being increasingly financialised as an asset. We believe this financialisation is self-reinforcing. As it becomes more financialised, the more it could become a store of value. Evidence for this is in the US$37 billion of assets currently in Bitcoin investment products and its growing acceptance as collateral for debt financing in fiat currencies.

Behavioural analysis from the Bitcoin blockchain supports the thesis of increased use as a store of value. Examinations of address behaviour show that the number of investors classed as long term (>155 days holding) has risen from 65% in 2018 to 75% (5). Since 2020 29% of bitcoin on exchanges has been removed, we assume that it is being put into forms of custody as investment vehicles proliferate (6) while it also indicates investors being more discerning about forms of custody utilised.

Percentage of Bitcoin investors classed as long term holders (>155 days)

Source: Bloomberg, CoinShares, data available as of close 03 August 2023

The trend of financialisation is likely to continue but not overshadow its original concept as a digital payment system, as they are not necessarily mutually exclusive, although we still haven't seen the widespread global usage of Bitcoin layer 2 solutions such as the Lightning payments network - more detail on this point here.

Our July 2023 fund manager survey, covering nearly US$1trillion of assets under management, highlights that the average investor is holding nearly 1% Bitcoin in their portfolio, although this varies hugely on the flexibility of the investor mandates (3). The market has also evolved to accommodate institutional investors with services such as prime brokerage, trading tools and insured custody, paving the way for further financialisation.

We also recognise Bitcoin's other functions as digital ownership, security, providing immutable and traceable records as well as programmable money that can reduce administrative work. These features are in fact what helps define it as a unique asset class. We have summarised what we believe are the key features of Bitcoin that define it as such in the table below.

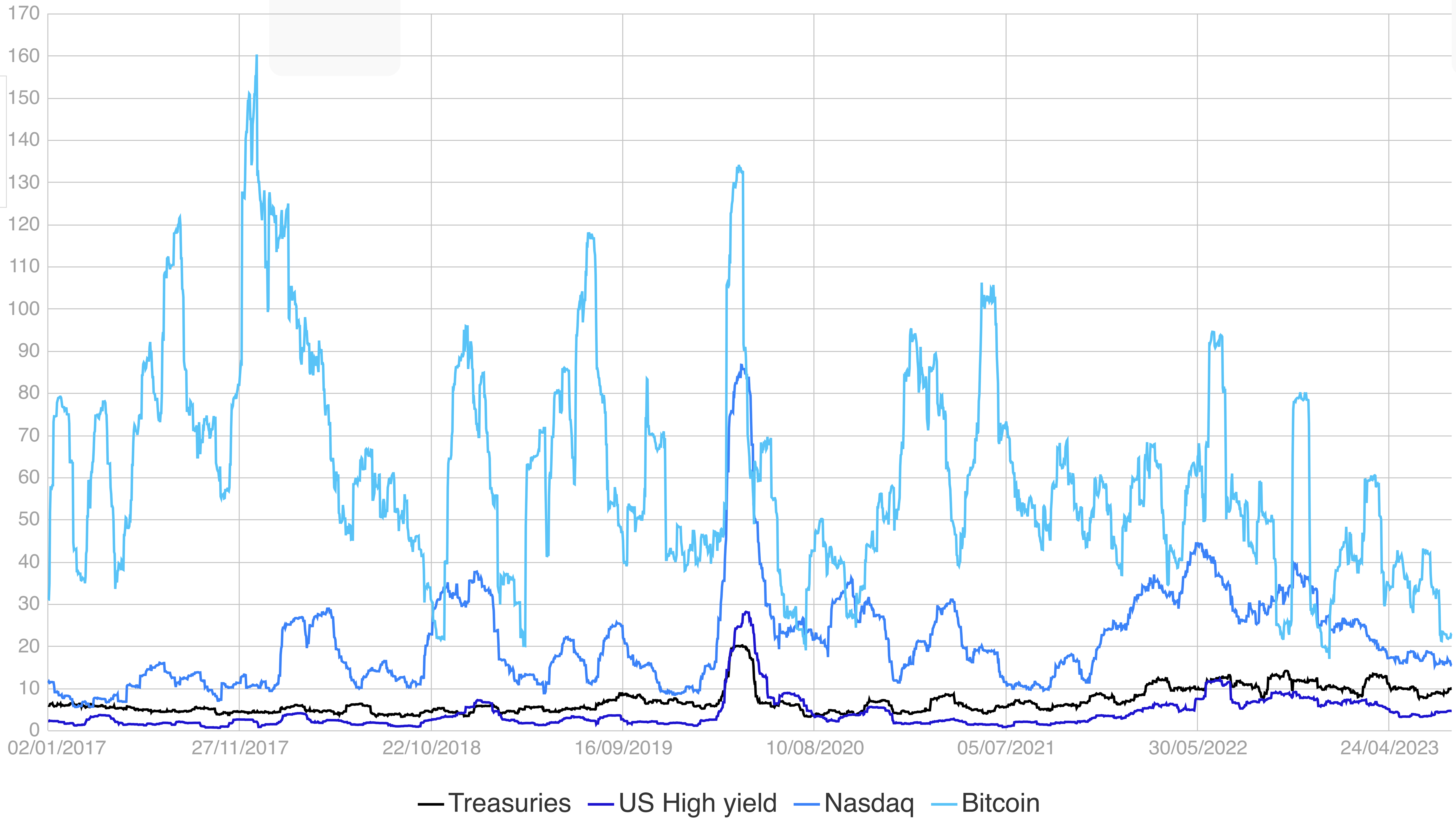
	DIGITAL ASSETS (BITCOIN)	EQUITY	FIXED INCOME	REAL ESTATE	COMMODITIES	CASH
Represents	Ownership in a peer-to-peer monetary/ledger system	Ownership of a business	Lending money	Ownership of physical space	Ownership of goods with an end use	Liquidity & power to buy anything
Investment objective	Non-sovereign store of value /growth / diversification	Growth /real income	Nominal income	Real income / growth	Cyclical exposure / diversification	Store of value /risk control
Liquidity	Medium - increasing	Very high	High	Very low	Varied	Very high
Return potential	At or above inflation	Above inflation	Near inflation	Above inflation	Inflation	Near inflation
Supply	Strictly limited	Limitless	Limitless	Limited	Limited	Limitless
Volatility in returns	High	High	Low	High	Medium/High	Nil
Complexity	High	Average	Low	High	High	Nil
Maturity	Perpetual	Perpetual	Medium/Long	Long	Medium/Long	Nil
Programmable	High	Low	Low	Low	Low	Low
Transfer friction	Very low	High	High	High	Medium	Low

Source: CoinShares

As more and more value is transferred into the Bitcoin ecosystem its volatility will likely reduce. This could, in turn, cause Bitcoin to act more and more like a stable safe haven and store of value. One can draw comparisons with gold volatility. Gold purchased as an investment really only took off after the 1970's when the United States once again made it legal to own and trade in physical gold and Post Bretton Woods when currencies were allowed to float freely. Up until 1975, the Gold Reserve Act of 1934 had made the possession of gold illegal.

Volatility of Asset Classes (30d annualised)

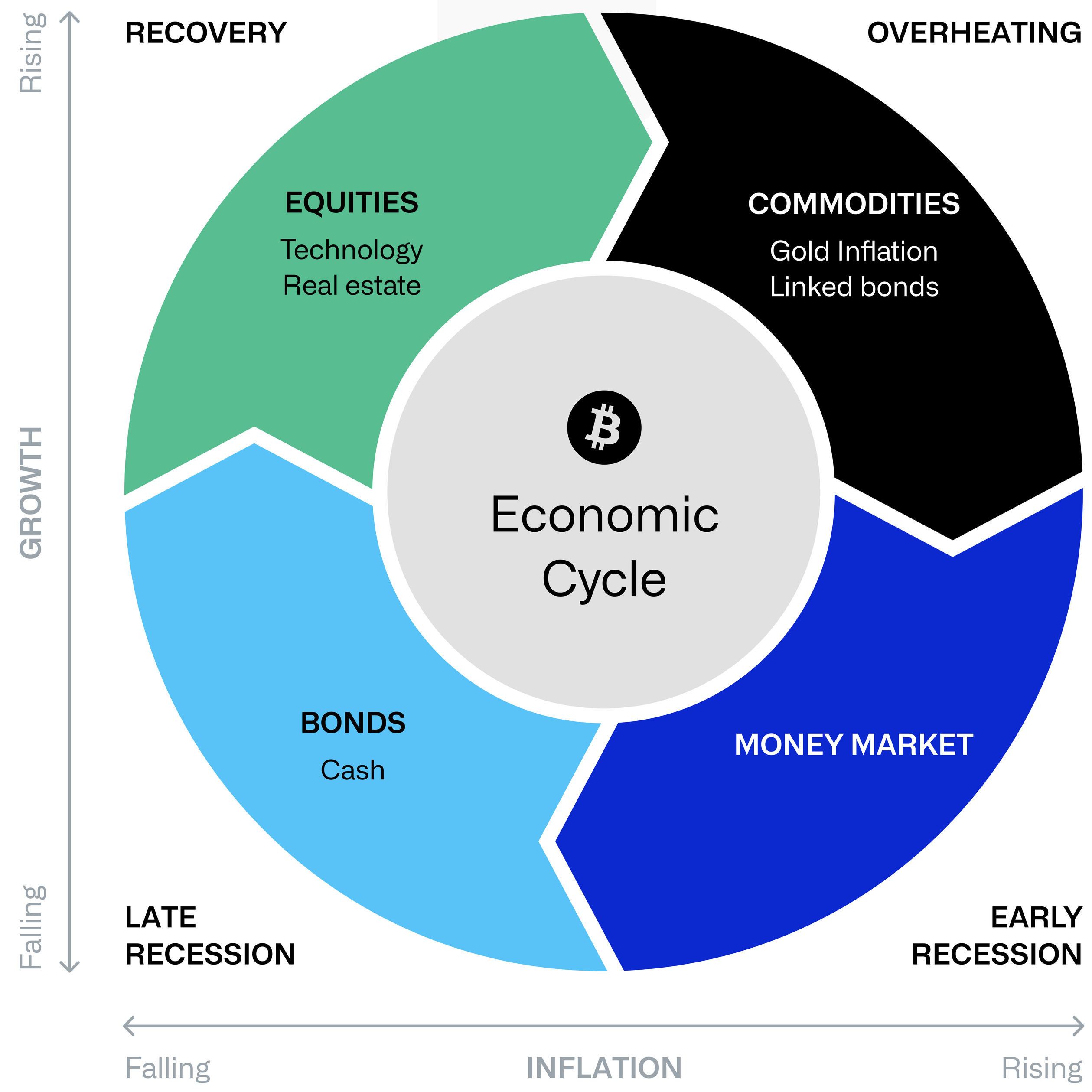
Source: Bloomberg, CoinShares, data available as of close 08 August 2023



Gold slowly became financialised in the mid-1970's through to the early 1980's. As this happened, its annualised volatility declined from its peak of 90%. This was not a straight line down due to high inflation in the late 1970's, however, its downwards trend remains intact. This is also a common trend amongst small cap companies that progress to large caps. The volatility gap between bitcoin and traditional high volatility assets such as high yield debt is slowly declining, with current trends implying volatility will fall to similar levels by 2025. Furthermore, due to recent monetary policy tightening, we are seeing the volatility of traditional safe haven assets such as US treasuries rise.

Where should bitcoin sit in the economic cycle?

Bitcoin combines the growth opportunities of technology while it exhibits emerging features akin to a store of value. Bitcoin's supply was designed to be similar to the supply growth rate of gold, and is hardcoded in its algorithm. The supply of bitcoin is therefore genuinely limited, whereas the supply of other assets such as the US dollar are potentially infinite. During periods of economic uncertainty and if the US dollar weakens, bitcoin is likely to benefit in the same way as gold.



In this way bitcoin is similar to banks in that they tend to sit in the middle of the economic cycle, yet (to some extent) are exposed to economic growth. More closely though, it is likely linked to technological growth (growth of internet usage) rather than broader economic growth, highlighting its unique growth merits relative to other asset classes. What remains challenging to reconcile is that technology is being increasingly utilised during times of economic weakness by organisations to solve their problems and increase efficiency. This further strengthens our thesis that bitcoin could be relatively immune to the broader economic cycle, but in reality, we will only know this when bitcoin has weathered one or more full economic cycles. Recent data on inflation suggests, as its fundamentals suggest, that there is a link between bitcoin and inflation, but this link remains tenuous at present.

> “We do not believe bitcoin fits any currently established asset class moulds. In the past its characteristics made it much akin to a tech growth stock, but we believe this is changing.”

In summary, if bitcoin’s financialisation continues, it is unlikely that it will be able to remain insulated from the social and financial system. Consequently it is correct to expect increased correlation to other asset classes in times of crisis and we observed this exact outcome during the COVID panic of March 2020. We do not believe Bitcoin fits any currently established asset class moulds. In the past its characteristics made it much akin to a tech growth stock, and during monetary policy tightening its correlation to equities rose sharply, but this correlation appears to have been fleeting.

Because of its characteristics (scarcity, liquidity, high uptime), evidence suggests investors are increasingly using it as a store of value. This has started a self-reinforcing process of financialisation which we believe will lead to increasing use as a store of value. It is important to highlight that this is unlikely to detract from its other compelling functions such as digital ownership, security, providing immutable and traceable records as well as programmable money.

The mere possibility that it may undergo such a transition towards a store of value raises its future potential market capitalisation ceiling closer towards those of traditional safe havens like gold or US treasuries.

Bitcoin’s behaviour in a portfolio

- Small weightings of bitcoin have an outsized positive impact on Sharpe ratios relative to other alternative assets
- Small weightings of bitcoin also have an outsized positive impact on diversification relartive to other alternative assets
- Increasing a risk budget by only 100 basis points suggests a portfolio weight of 4% in a traditional 60/40 equity/bond portfolio

As we discussed above, bitcoin is an asset in its infancy, leading many in the investment industry to struggle allocating it into the correct “bucket”. We believe it is beginning to mature into a store of value although this is not how it has behaved in the past. Nevertheless, we believe a backtest of its performance in a portfolio can deliver valuable insights. Our analysis highlights that it both enhances returns and increases diversification regardless of the length of the backtest.

To test how bitcoin would help or hinder a portfolio we created a database of daily returns starting from 2015 when it was first financialised (available as an ETP). Limiting our risk budget to an additional 100 basis points, we created a traditional balanced portfolio with 60% equities and 40% bonds and then added a notional 4% bitcoin, detracting from both equities and bonds equally. As bitcoin is an asset in an early growth phase, most investors would allow its portfolio weight to drift to some extent. We have decided to rebalance on a quarterly basis––despite its potential hindrance on enhancing returns––because we believe rebalancing helps moderate volatility.

Our analysis, as indicated in the table below, highlights that despite bitcoin’s volatility it has enhanced annualised returns by 7.3%. The Sharpe ratio (volatility adjusted returns) is 1.16 while the correlation falls by 7%.

Various asset Classes Performance in a balanced portfolio (since Oct 2015)

	60%/40% BENCHMARK (EQUITIES/ BONDS)	4.0% BITCOIN	4.0% BITCOIN NO REBALANCING	4.0% ETHEREUM	4.0% GOLD	4.0% HFRX	4.0% CRB	4.0% REITS
Annualised returns	7.2%	14.5%	39.4%	16.2%	7.3%	7.0%	7.2%	7.3%
Max drawdown	21.4%	22.9%	67.2%	22.4%	20.9%	20.6%	20.7%	21.7%
Volatility	9.3%	10.3%	42.2%	10.4%	9.0%	8.9%	9.0%	9.5%
Correlation	-	92.7%	37.1%	90.9%	99.8%	100%	100%	99.8%
Tracking error	-	3.9%	39.6%	4.3%	0.6%	0.4%	0.4%	0.6%
Beta	-	0.83	0.09	0.81	1.03	1.04	1.04	0.97
Sharpe (vs cash)	0.50	1.16	0.87	1.32	0.53	0.50	0.52	0.50
Sortino	-	1.47	1.14	1.68	0.65	0.61	0.63	0.61

Source: Bloomberg, CoinShares, data available as of close 04 august 2023
- Data derived from a balanced 60/40 equity/bond portfolio with an equal weight defraction to allocate to Bitcoin, Gold, HFRX Global, CRB, REITs Top 5 Crypto
- MSCI World total return, Bloomberg Total Return 7-10 years bond, XBTUSD, Gold, HFRXGL index, CRB & REIT indices are used
- Rebalanced per calendar quarter

We have also included other comparable alternative investments:

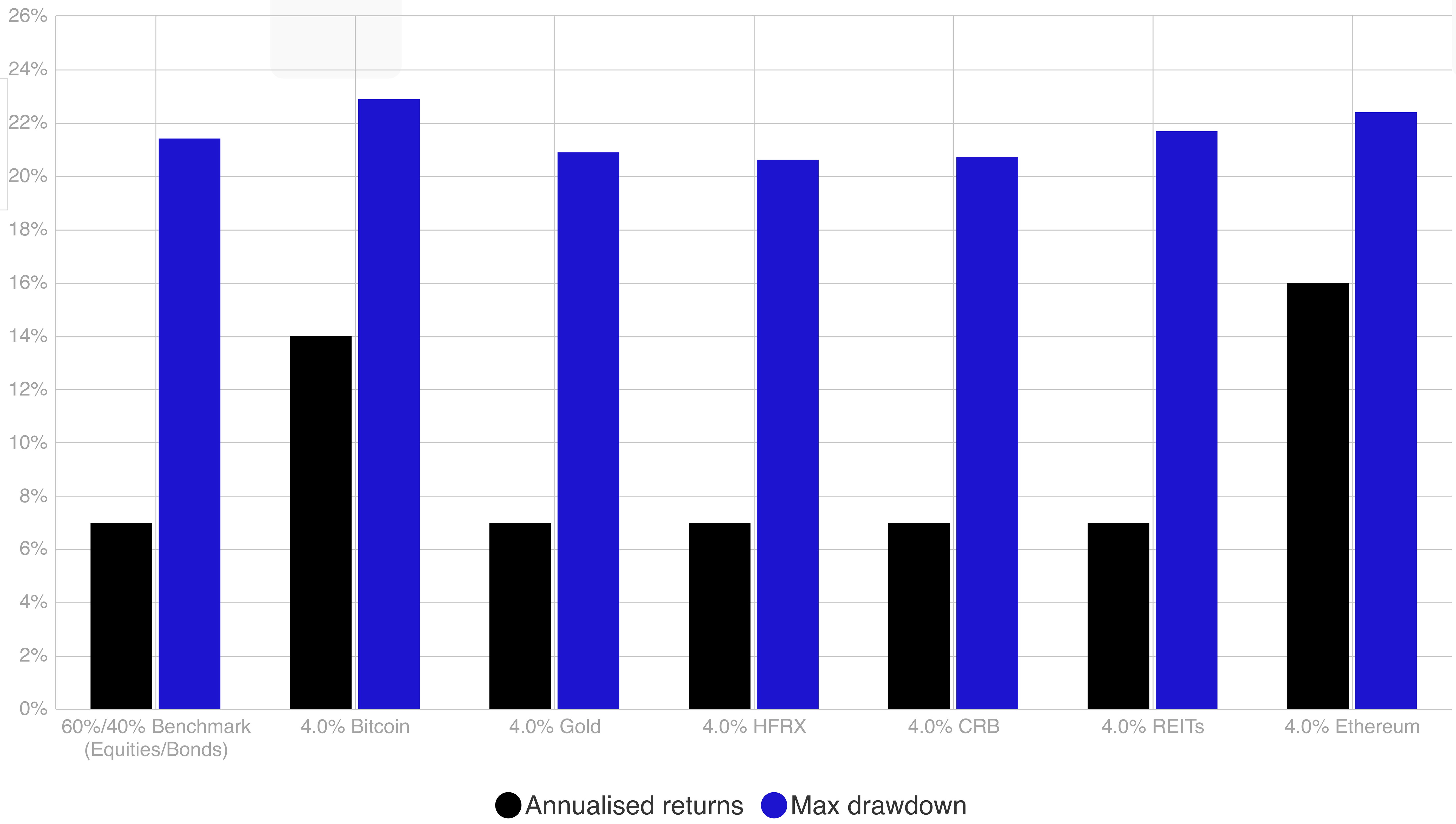
1. Gold due to bitcoin being often likened to digital gold.
2. A selection of other common alternative investments such as the Hedge Fund index (HFRX global) and the REIT index.
3. Finally, the CRB index, a representative indicator of today's global commodity markets due to its similarities to commodities.

> "Despite bitcoin's volatility, a 4% portfolio weighting does not materially increase the maximum drawdowns relative to other assets ..."

Over the same period none of the other comparable assets or indices offer the same diversification benefits. What also stands out is the asymmetric return profile. Despite bitcoin's volatility, a 4% portfolio weighting does not materially increase the maximum drawdowns relative to other assets, while its annualised returns are close to double that of the comparisons.

Return vs Maximum Drawdown in a 60/40 Balanced Portfolio

Source: Bloomberg, CoinShares, data available as of close 08 August 2023



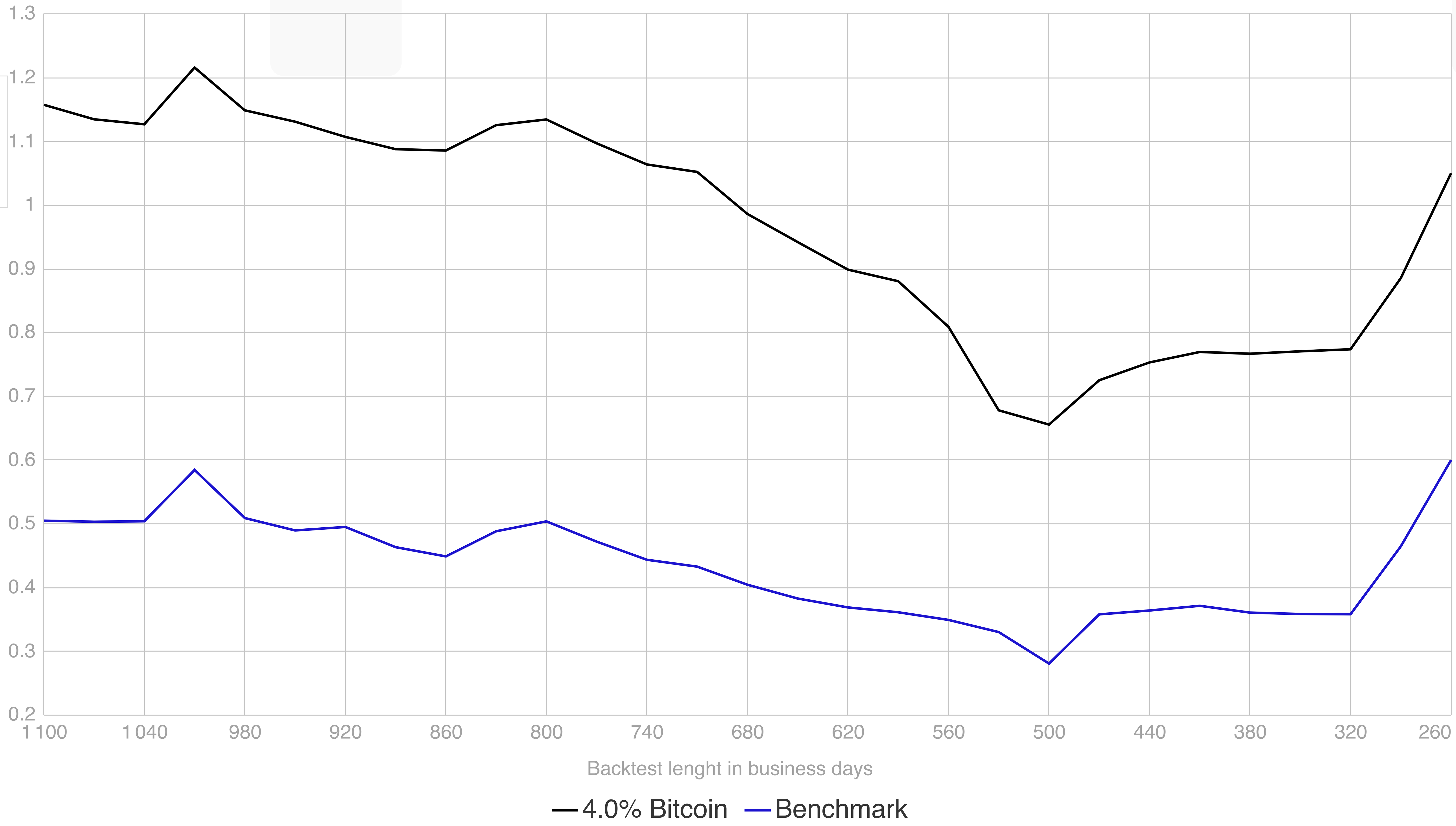
The backward-looking problem

A main weakness of this type of analysis is that it is backward-looking and one could argue that the last 5 years for Bitcoin have been a favourable period to analyse. Investments are likely to perform and behave differently in the future than they have in the past. This could be particularly relevant as we argue that bitcoin's identity is steadily changing.

This does not mean we should dismiss this analysis. The chart below highlights varied backtest lengths, from 290 days on the right through to 1100 days on the left. We are encouraged to see that correlation of a bitcoin portfolio relative to the standard 60/40 equities/bond portfolio remains lower than comparable assets such as gold or commodities, highlighting that bitcoin is a much better diversifier. Bitcoin's consistency is also significant. Even through exceptionally volatile periods for bitcoin, its correlation and annualised returns have remained remarkably consistent and above the benchmark.

Varied backtest lenght sharpe changes in balanced portfolio with 4% Bitcoin

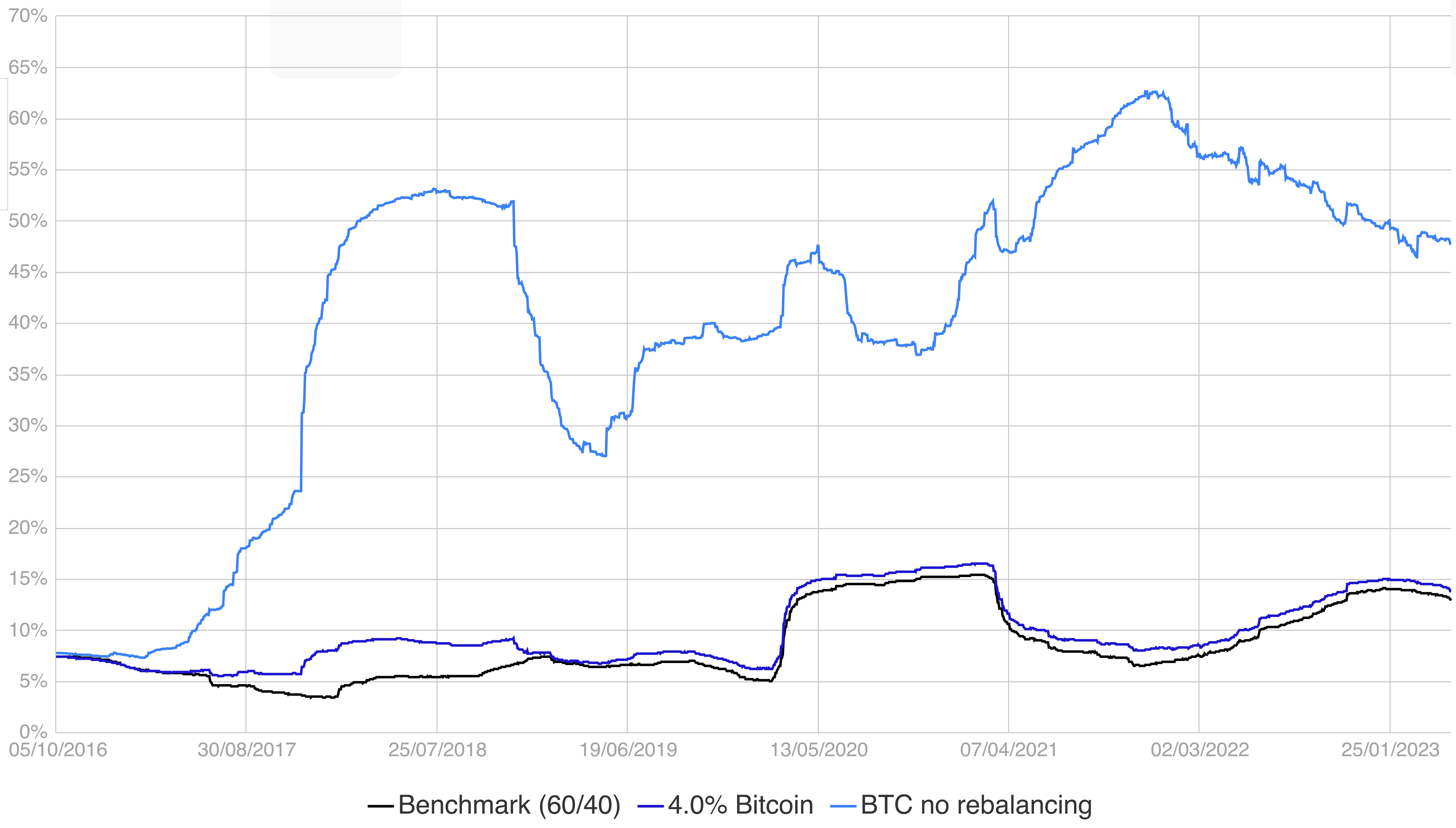
Source: Bloomberg, CoinShares, data available as of close 04 August 2023



Interestingly, even if bitcoin was added to a portfolio at peaks, in December 2017 and 2021, when prices fell dramatically, it would still enhance portfolio returns with a reduced, but significantly better Sharpe ratio, relative to other portfolio diversifiers such as gold or commodities. From the peak in December 2017 to mid-2020, when bitcoin returns were negative, it would be expected to detract from the overall portfolio Sharpe ratio. Our calendar quarterly rebalancing has helped limit the impact of bitcoin volatility.

Volatility (trail 12m ann.) with various assets in a standard 60/40 portfolio

Source: Bloomberg, CoinShares, data available as of close 04 August 2023



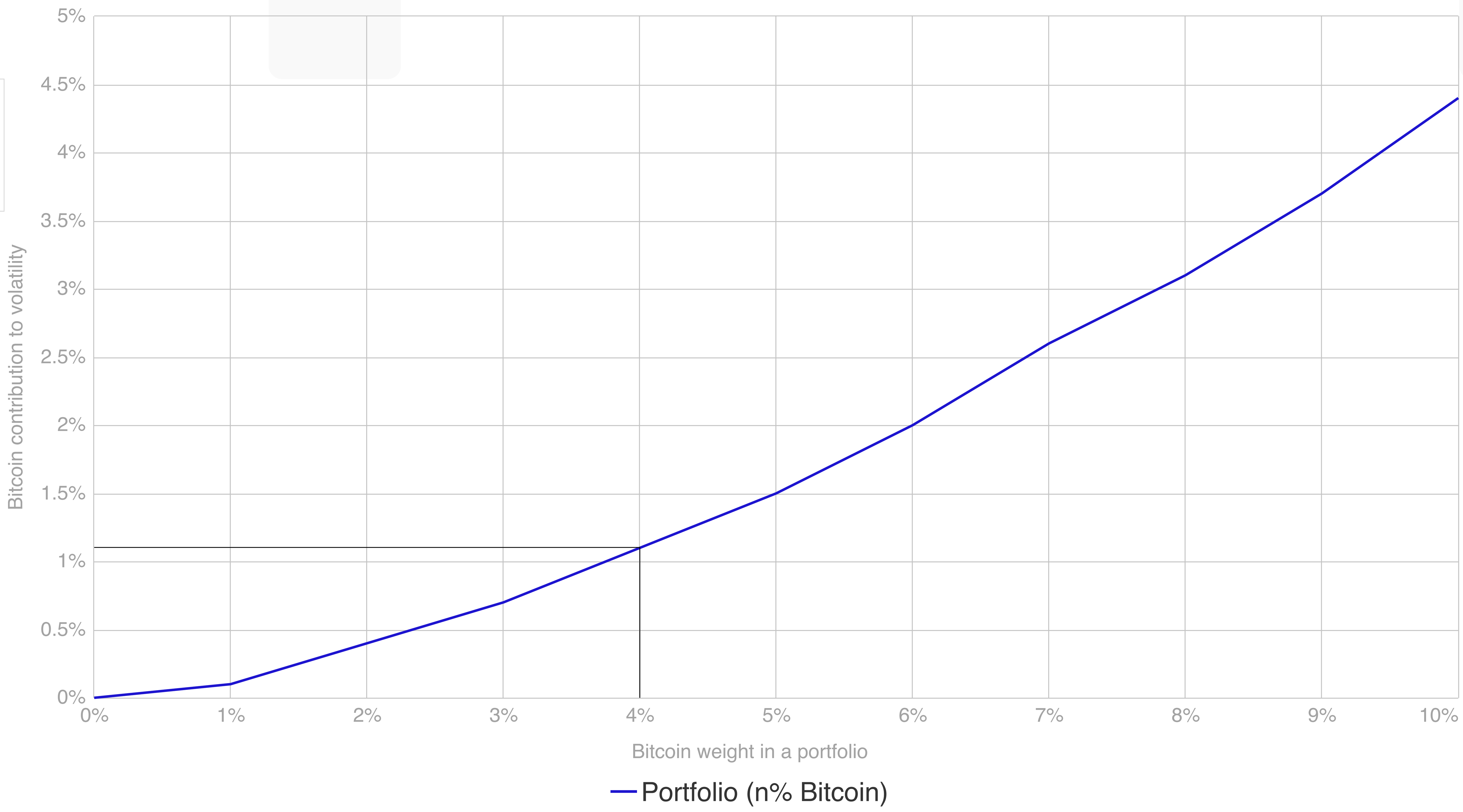
We see similar results from monthly rebalancing, suggesting regular rebalancing has been an effective approach to moderate overall portfolio volatility. Further work on this where we look at bitcoin risk budgeting for portfolios show that varied back-test periods indicate a consistency in results, suggesting the subjectivity in cherry-picking specific time periods isn't the concern many believe it to be

How much bitcoin?

Bitcoin does increase volatility. So how much should be added to a portfolio? There are several ways to approach this. One method is volatility targeting. By our analysis, targeting an increase in volatility of 120 basis points would suggest a bitcoin portfolio weight of just under 4% in a traditional 60/40 equity/bond portfolio.

Bitcoin contribution to volatility in a balanced 60/40 equity/bond portfolio

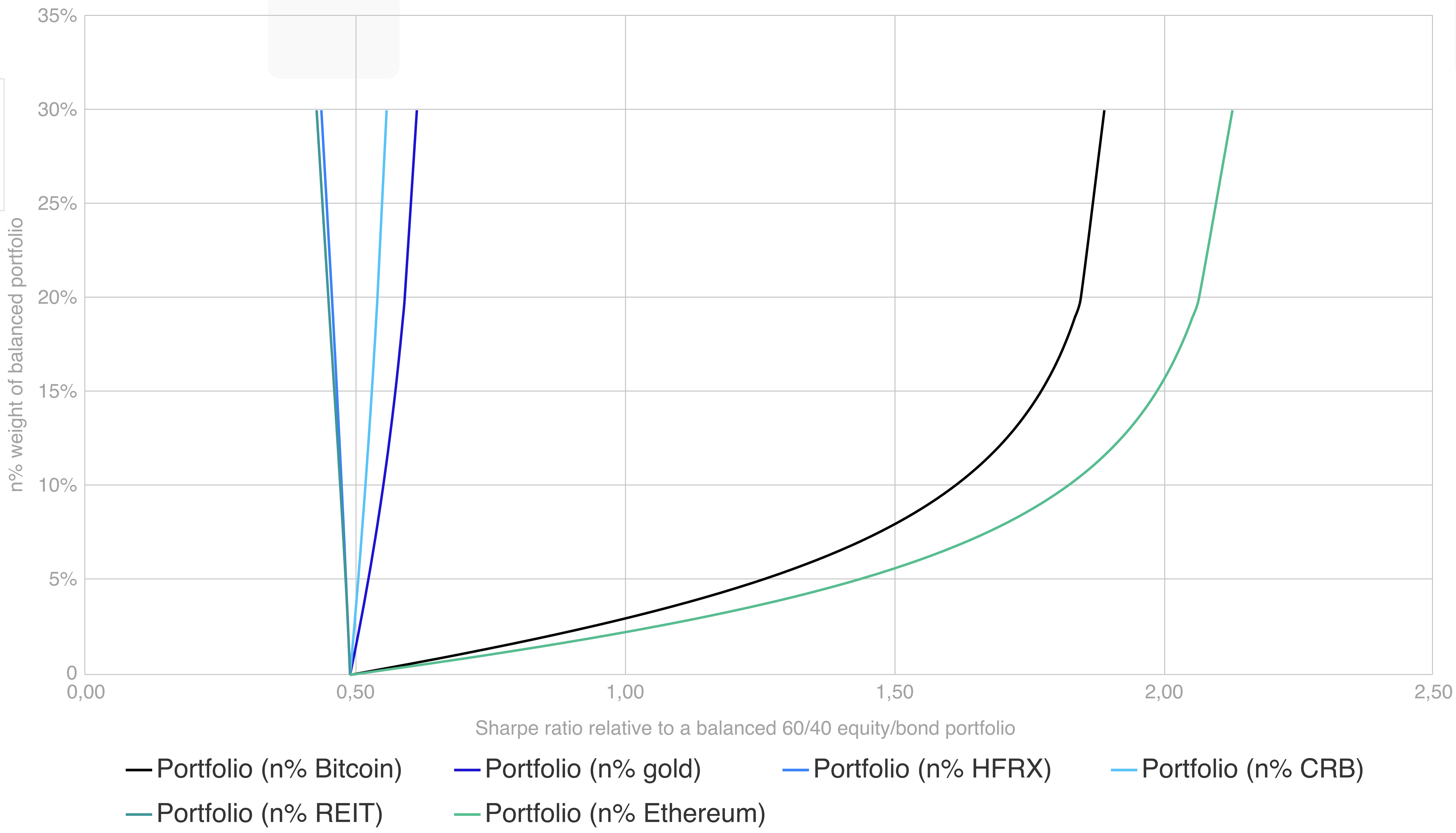
Source: Bloomberg, CoinShares, data available as of close 04 August 2023



An alternative approach is to blend the risk and reward by analysing the impact on the portfolio Sharpe ratio in varying bitcoin portfolio weights.

Bitcoin portfolio allocation Sharpe impact

Source: Bloomberg, CoinShares, data available as of close 30 August 2023

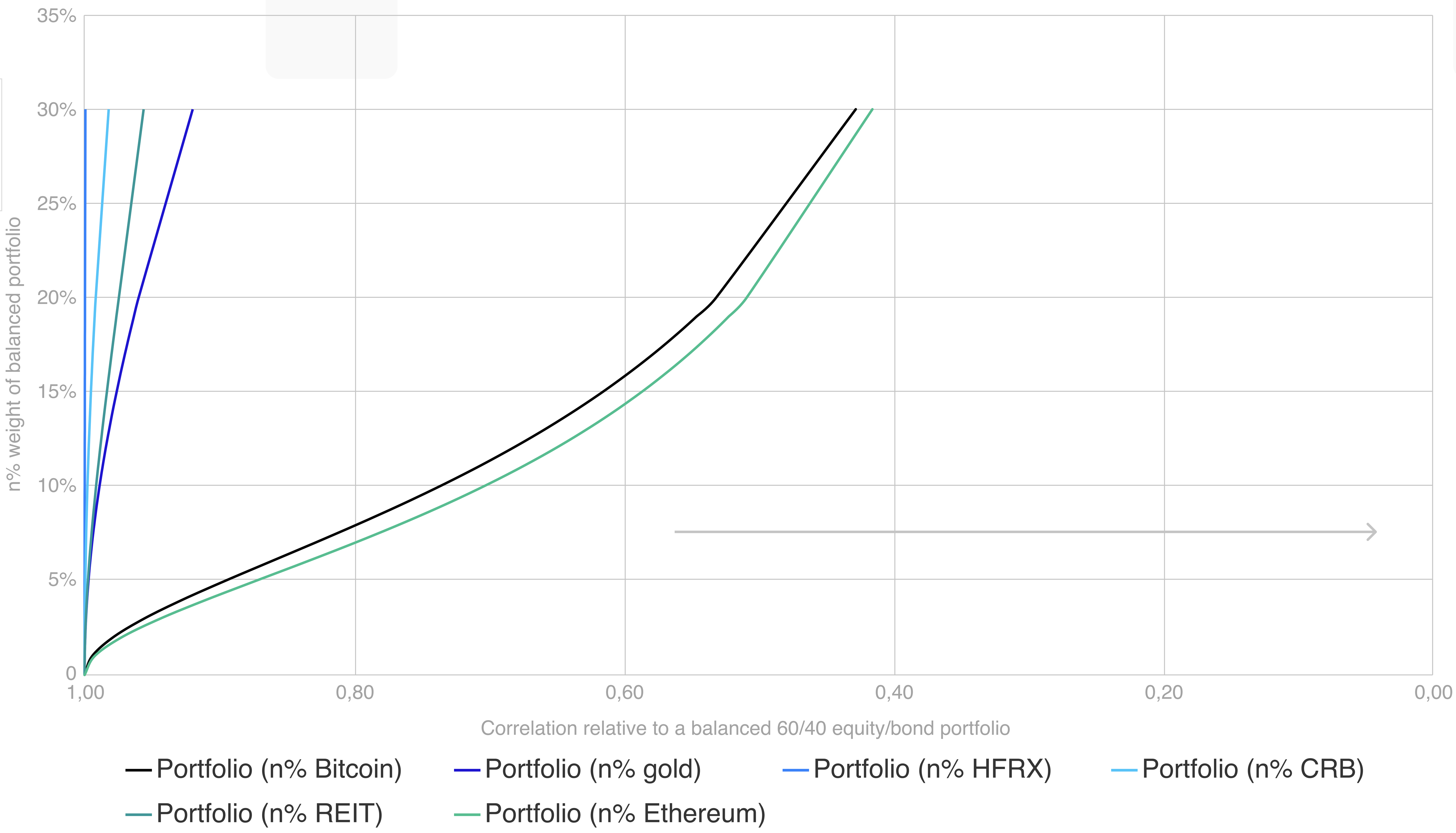


> “...most significant improvements in the Sharpe ratio are gained through an allocation of up to 10% bitcoin in the portfolio.”

The backtested results over almost 6 years indicate that the most significant improvements in the Sharpe ratio are gained through an allocation of up to 10% bitcoin in the portfolio. This analysis also highlights that even a small addition of bitcoin has a big impact on the Sharpe ratio. We have also included other comparable assets and indices, over the same time period they have had little impact relative to bitcoin on the Sharpe ratio, even when extreme weights are applied.

Bitcoin portfolio allocation Correlation impact

Source: Bloomberg, CoinShares, data available as of close 30 August 2023



Does bitcoin decorrelate?

Bitcoin is a unique asset and we find it to be an effective diversifier in multi-asset portfolios. Applying the same methodology as above, using correlation as the target, indicates that a 4% bitcoin portfolio weight reduced correlation to a 60/40 balanced portfolio by 7%.

Gold has a similar impact in diversifying a portfolio, although portfolio weights above 20% are required to achieve any substantive impact on diversification. Bitcoin is converse to this, with minimal weights having a far greater impact. Other investments that have historically been seen as diversifiers have had negligible impact on decorrelating a portfolio in recent years. It is likely, as bitcoin becomes more integrated into the financial system, that its correlation rises. So far there is little evidence for this except during market crisis points, where we believe it is being used as the liquidity of last resort, similar to gold during the financial crisis.

In conclusion, Bitcoin's investment characteristics have historically made it attractive both as a driver of returns and a portfolio diversifier. Compared to other common alternatives and diversifiers, Bitcoin delivers outsized positive impacts on returns, Sharpe ratio and diversification, even at very low allocation sizes. Given these benefits, Bitcoin may well be suited to fill the current gap in available diversifiers troubling portfolio managers.

Disclosure

The information contained in this document is for general information only. Nothing in this document should be interpreted as constituting an offer of (or any solicitation in connection with) any investment products or services by any member of the CoinShares Group where it may be illegal to do so. Access to any investment products or services of the CoinShares Group is in all cases subject to the applicable laws and regulations relating thereto.

This document is directed at professional and institutional investors. Investments may go up or down in value and you may lose some or all of the amount invested. Past performance is not necessarily a guide to future performance. This document contains historical data. Historical performance is not an indication of future performance and investments may go up and down in value. You cannot invest directly in an index. Fees and expenses have not been included.

Although produced with reasonable care and skill, no representation should be taken as having been given that this document is an exhaustive analysis of all of the considerations which its subject-matter may give rise to. This document fairly represents the opinions and sentiments of CoinShares, as at the date of its issuance but it should be noted that such opinions and sentiments may be revised from time to time, for example in light of experience and further developments, and this document may not necessarily be updated to reflect the same.

The information presented in this document has been developed internally and / or obtained from sources believed to be reliable; however, CoinShares does not guarantee the accuracy, adequacy or completeness of such information. Predictions, opinions and other information contained in this document are subject to change continually and without notice of any kind and may no longer be true after the date indicated. Third party data providers make no warranties or representation of any kind in relation to the use of any of their data in this document. CoinShares does not accept any liability whatsoever for any direct, indirect or consequential loss arising from any use of this document or its contents.

Any forward-looking statements speak only as of the date they are made, and CoinShares assumes no duty to, and does not undertake, to update forward-looking statements. Forward-looking statements are subject to numerous assumptions, risks and uncertainties, which change over time. Nothing within this document constitutes (or should be construed as being) investment, legal, tax or other advice. This document should not be used as the basis for any investment decision(s) which a reader thereof may be considering. Any potential investor in digital assets, even if experienced and affluent, is strongly recommended to seek independent financial advice upon the merits of the same in the context of their own unique circumstances.

This document is directed at, and only made available to, professional clients and eligible counterparties. For UK investors: CoinShares Capital Markets (UK) Limited is an appointed representative of Strata Global Limited which is authorised and regulated by the Financial Conduct Authority (FRN 563834). The address of CoinShares International Limited is 1st Floor, 3 Lombard Street, London, EC3V 9AQ. For EU investors: CoinShares AM (napoleon-am.com) is a French asset management company regulated by the Autorité des Marchés Financiers (AMF), registered under number GP-19000015 since 27/03/2019. Its office is located at 25 rue du 4 Septembre, 75002 Paris, France.