

Bitwise®

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# Bitcoin Long-Term Capital Market Assumptions



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## Foreword

In recent years, bitcoin has emerged as a bona fide institutional asset. What was once a niche alternative asset owned mostly by retail investors is now broadly discussed and analyzed by the largest financial firms in the world, and increasingly held by hedge funds, pensions, family offices, financial advisors, corporations, and sovereign wealth funds.

The primary catalyst was the launch of spot bitcoin exchange-traded products (ETPs) in the U.S. in January 2024, which made accessing bitcoin safe, easy, and inexpensive for traditional investors. But the transformation has accelerated because of multiple factors, including the pro-crypto regulatory shift in the U.S. following the 2024 election and rising concerns about debt, deficits, and the outlook for the U.S. dollar.

As bitcoin makes this transition, there is greater demand for long-term capital market assumptions. These robust, data-driven estimates of future returns, volatility, and correlations help investors model the role of bitcoin in portfolios.

For that reason, I'm excited to release Bitwise's inaugural report on long-term capital market assumptions for bitcoin. We will update these assumptions in January 2026 and then annually thereafter.

In this report, we summarize the qualitative and quantitative inputs that drive our assumptions, which incorporate the best thinking of Bitwise's Research Team. Included in the analysis are long-term capital market assumptions for traditional assets like stocks, bonds, and private equity, leveraging the forecasts of select traditional asset experts (JPMorgan, Vanguard, PIMCO, and BlackRock).

We hope you find this report useful. If you would like to discuss these capital market assumptions with the Bitwise Research team—or our views on other crypto investment opportunities beyond bitcoin—please don't hesitate to reach out.



A stylized, handwritten signature in black ink, appearing to read 'Matt Hougan'.

**Matt Hougan**  
Chief Investment Officer  
Bitwise Asset Management

## Executive Summary

We expect the next 10 years will be a strong decade for bitcoin, driven by the confluence of three factors: (1) bitcoin's continued emergence as an institutional asset, which should generate consistent net inflows into the asset over time; (2) rising demand for hard-asset exposure as a hedge against inflation risk among institutional investors; and (3) the extremely limited and inelastic new supply of bitcoin.

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We forecast bitcoin will be the best-performing institutional asset over the next decade, with its price rising to \$1.3 million by 2035 (a 10-year forward compound annual growth rate of 28.3%). Those returns will come with significant volatility, though that volatility will be lower than historical averages.

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We believe bitcoin will continue to exhibit low correlations to stocks, bonds, and all other major asset categories.

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We believe that bitcoin's historic "four-year cycle" is no longer relevant, although we caution that bitcoin is still subject to significant drawdowns.

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The biggest risks to our forecast are regulatory and legislative risk from changing political environments, as well as the inherent risks of bitcoin being a relatively new asset with a limited track record. Other risks, including technological disruption associated with quantum computing, are of less concern but still merit mention.

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Models for forecasting bitcoin's future returns are imperfect, relatively new, evolving, and reliant on limited data. As a result, we aim to err on the side of being conservative. We believe this is appropriate for a new and volatile asset.

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**Big picture: Over the past 16 years, bitcoin has grown from an unproven idea into a \$2.4 trillion asset that is increasingly owned by some of the most respected investors in the world. This was the hardest step in its growth—the famous "0 to 1 moment," to borrow Peter Thiel's phrase. We believe that the next decade will see bitcoin go from "1 to 100."**

## 01

# Macroeconomic Assumptions

Bitcoin is first and foremost a macroeconomic asset. As such, macroeconomic conditions are critical to our long-term capital market assumptions.

Specifically, bitcoin is often considered a digital store of value, or “digital gold.” While it has many other uses—and we expect certain payment-related uses to gain traction within the next decade—its role as “digital gold” is central to its investment thesis.

In this regard, the most important macroeconomic factors to consider are those related to debt, deficits, and fiat currency debasement, as well as the role of the U.S. dollar as the world’s dominant reserve currency, as these play a role in institutional demand for gold-like assets.

We believe these macroeconomic trends are easy to forecast. Specifically, we expect major countries, including the U.S., to continue accumulating debt at an accelerating rate, and for rising debt burdens to put increasing strain on those economies. As the economist Lyn Alden says, “Nothing stops this train.”

Over the next 10 years, we expect governments to respond to rising debt loads by debasing their currencies. As the legendary hedge fund investor Ray Dalio wrote in June 2025:

“When countries have too much debt, lowering interest rates and devaluing the currency that the debt is denominated in is the preferred path government policy makers are most likely to take, so it pays to bet on that happening.”

## 1.1 U.S. Debt Is Rising Quickly

The U.S. is approaching its 250th birthday, a milestone that warrants reflection. Here are five shocking facts about U.S. debt after 250 years:

**01 /** In its first 200 years, the U.S. accumulated \$650 billion in debt. Today, that number is \$36.2 trillion.

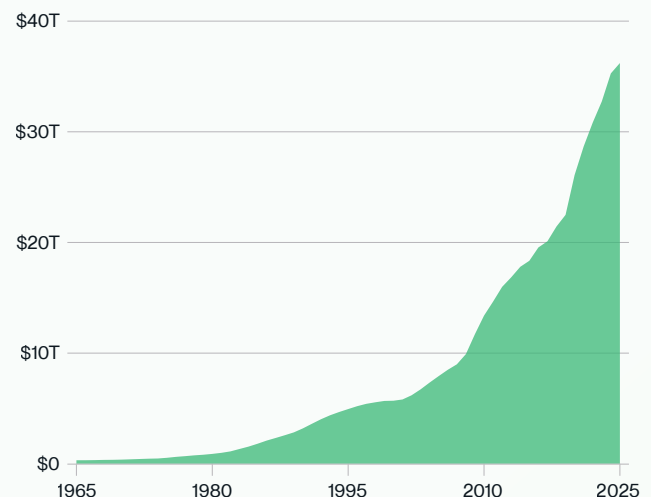
**02 /** Half of all U.S. debt was accumulated in the past 10 years.

**03 /** U.S. debt is now more than \$100,000 for every citizen.

**04 /** U.S. debt stands at 120% of gross domestic product (GDP).

**05 /** Interest payments on U.S. debt are \$952 billion per year, the fourth-largest line item in the U.S. budget.

### Total U.S. Federal Debt (USD trillions)



Source: Bitwise Asset Management with data from the U.S. Department of the Treasury. Data from January 1, 1966, to March 31, 2025.

## 1.2 DOGE: More Bark Than Bite

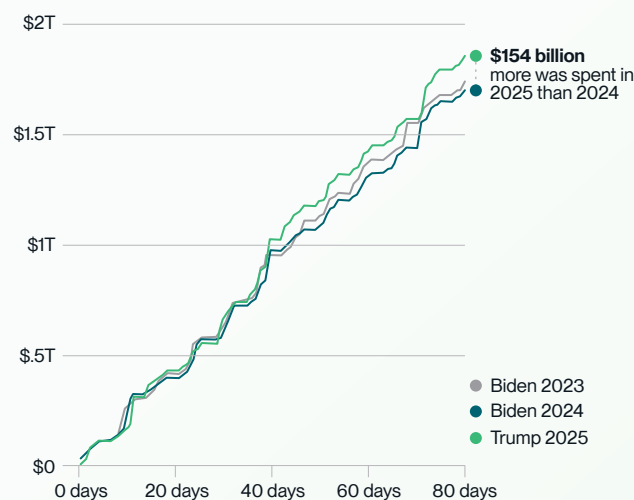
Current government spending is making the situation worse. The Congressional Budget Office expects the U.S. deficit to increase by \$1.9 trillion this year.

This is shocking to many given that the current U.S. administration was elected with a mandate to reduce government spending. In early 2025, President Trump appointed Elon Musk to lead a new entity called the Department of Government Efficiency (DOGE), which promised to cut \$2 trillion of government spending. Meanwhile, in Congress, deficit hawks talked about reducing U.S. annual deficits from their current levels—more than 6% of GDP—to 3% or less.

None of this happened. After less than six months, Musk left the government, DOGE cuts amounted to little, and U.S. government spending hit an all-time high.

If one of the world's leading entrepreneurs—and an iconoclastic president unafraid of shaking up the establishment—cannot even marginally slow spending, we doubt anything will.

### Cumulative Total Spending Since Trump's Inauguration Compared With the Same Periods in 2023 and 2024 (USD trillions)



Source: Wall Street Journal and the Treasury Department. Data as of April 11, 2025.

Note: Day 1 for 2025 is January 20; dates for 2023 and 2024 are aligned to match the 2025 days of the week and account for the leap year.

## 1.3 The Rising Need for Insurance

We do not believe the U.S. is approaching hyperinflation or another doomsday scenario. Instead, we share the concerns expressed by a wide variety of leaders—including institutions such as JPMorgan<sup>1</sup> and BlackRock,<sup>2</sup> as well as multiple former U.S. budget directors and chief economists<sup>3</sup>—that the path of rising debt and deficits is worrisome and will erode the purchasing power of the U.S. dollar over time.

In turn, these trends are likely to increase demand for non-fiat hedges like gold and bitcoin. The recent performance of these hedges—both of which have outperformed all other major assets since 2020—suggests that investors are already positioned for this changing world.

We do not need to see catastrophic hyperinflation for the value of inflation hedges to rise significantly. This view is reflected in our price forecasts.

### Performance of Bitcoin vs. Major Asset Classes Since 2020

Asset	Cumulative Return	CAGR
Bitcoin	1,407.50%	63.80%
Bonds (U.S.)	2.30%	0.40%
Commodities	59.80%	8.90%
Equities (U.S.)	109.20%	14.40%
Gold	117.70%	15.20%
Hedge Funds	26.40%	4.40%
Private Credit	48.90%	7.50%
Private Equity	98.40%	13.30%
Real Estate	23.40%	3.90%

Source: Bitwise Asset Management with data from Bloomberg. Data from January 1, 2020, to June 30, 2025.

Asset classes are represented by the following. Bitcoin: Bitcoin spot price. Commodities: Deutsche Bank DBIQ Optimum Yield Diversified Commodity Index Total Return. Gold: Gold spot price. Hedge Funds: Bloomberg Macro Hedge Fund Index. Private Credit: Indxx Private Credit Index. Private Equity: S&P Listed Private Equity Total Return Index. Real Estate: MSCI U.S. REIT Gross Total Return Index. U.S. Bonds: Bloomberg U.S. Aggregate Bond Index. U.S. Equities: S&P 500 Total Return Index.

(1) JP Morgan Asset Management, "The Big Picture on Debt, Deficits and Interest Rates," *Notes on the Week Ahead* 288, January 21, 2025.

(2) *Fixed Income Outlook: Q3 2025*, BlackRock Fixed Income, June 30, 2025.

(3) Peter R. Orszag, "I Was Obama's Budget Director. It's Time to Worry About the National Debt," *New York Times*, May 26, 2025. Jared Bernstein, "Biden's Chief Economist: The Chart That Convinced Me Our Debt Is a Serious Problem," *New York Times*, July 9, 2025. Lawrence Summers interview with David Westin, *Bloomberg Television*, June 5, 2025.

## 1.4 Reserve Assets, Central Bank Purchases, and a Changing Global Order

The other big macroeconomic trend worth monitoring over the coming decade is the shifting role of the U.S. dollar as the world's dominant reserve currency.

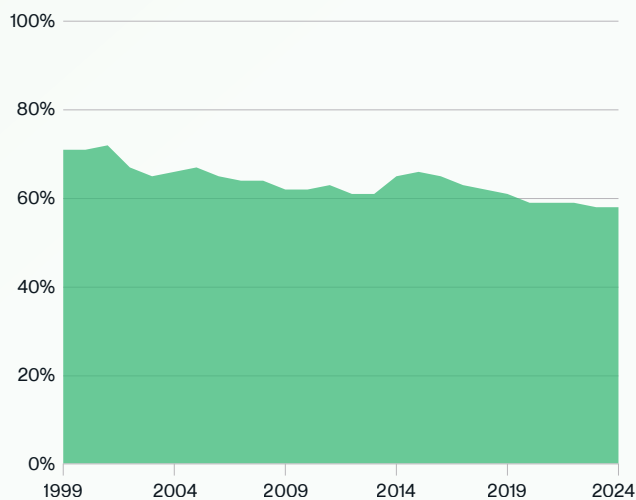
Data suggests that dollar dominance is weakening. This trend appears in the dollar's declining share of global central bank reserves, the U.S.'s declining share of global GDP, and recent central bank purchases of alternative assets (primarily gold).

We are not arguing that the U.S. dollar will necessarily lose its role as the world's leading reserve currency. Rather, the data suggests that its dominance is falling over time, creating space for alternative assets and currencies to play a larger role.

We believe there is a strong chance bitcoin will gain a seat at this alternative-asset table within the next decade. More than a dozen countries—including the U.S.—now hold bitcoin, and this number has increased over the last year. Because bitcoin is more functional in certain ways than gold (easier to store, transport, and authenticate), it may compete with gold over time as one of the preferred hard assets held by central banks and governments.

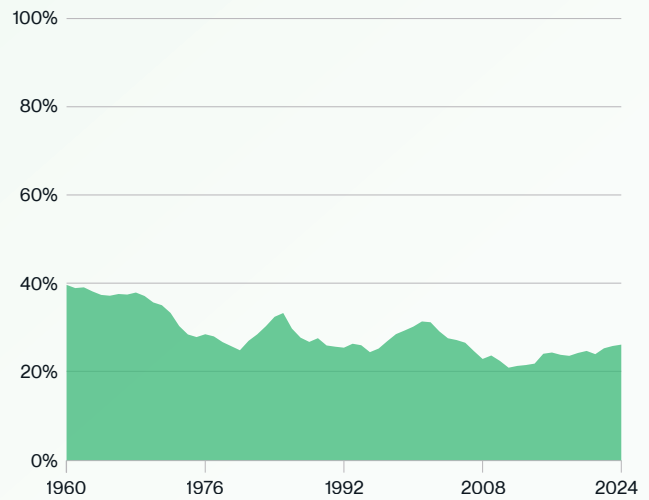
As the world moves to a more complex, multipolar future, we believe there will be multiple global reserve assets. We think bitcoin has a favorable shot at being one of these assets, and this view is reflected in our long-term price forecasts.

### U.S. Dollar's Share of Global Foreign Exchange Reserves



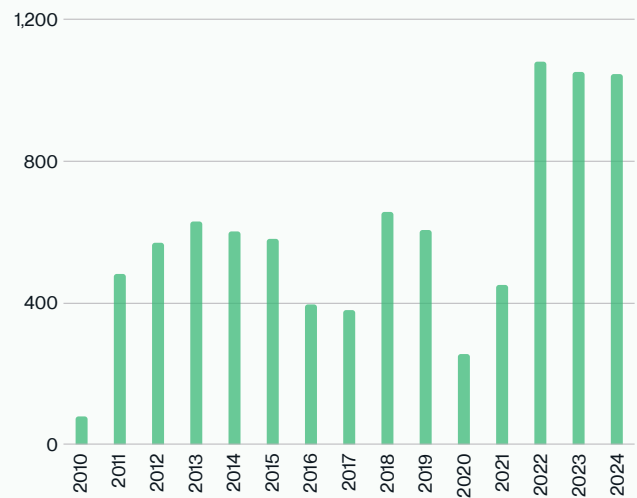
Source: Bitwise Asset Management with data from International Monetary Fund (IMF). Data as of December 2024.

### U.S. Share of Global GDP



Source: Bitwise Asset Management with data from the World Bank. Data as of December 31, 2024.

### Net Gold Purchases by Central Banks (tonnes)



Source: Bitwise Asset Management with data from the World Gold Council. Data as of December 31, 2024.



## 1.5 Regulatory Assumptions

The global regulatory outlook for crypto has improved dramatically in the past year.

The primary catalyst was the 2024 U.S. election, which replaced an aggressively anti-crypto administration with an openly pro-crypto administration, reflected in changing leadership at key agencies like the Securities and Exchange Commission (SEC), Office of the Comptroller of the Currency (OCC), Commodity Futures Trading Commission (CFTC), and U.S. Treasury Department.

The trend is not just limited to the U.S., however. Positive developments are taking place in multiple regions, albeit at different paces, including the Middle East, China, the United Kingdom, and elsewhere.

The central question investors should ask about regulation is whether the recent positive tilt is a long-term secular trend or a short-lived partisan swing. That is, will the pro-crypto trend continue regardless of the outcome of future elections?

We believe the answer is yes.

In the U.S., crypto is one of the few policy topics with bipartisan support. Consider that the GENIUS Act, which provided a regulatory framework for stablecoins, passed the Senate by a margin of 68 to 30, with 18 Democrats voting in favor of the bill. It passed the House with a similarly wide margin, 308 to 122.

It's worth considering the rarity of this bipartisan vote: The GENIUS Act was only the third bill to achieve the critical 60-vote threshold in the Senate during the 2025 congressional session.

There are many reasons for crypto's bipartisan support, including the widespread popularity of crypto among younger voters.<sup>4</sup> But the most important explanation may be that the U.S. financial industry—traditionally a leading funder of the Democratic Party—supported the measure, as it is eager to tap into the growth and profit opportunities that crypto offers.

This profit motive is central to our belief in the positive direction of crypto regulation: As a broader array of investors and firms become involved in crypto, it will be increasingly difficult for politicians to align against it. Today, nearly every major financial institution in the U.S. has launched a major crypto initiative. If BlackRock, JPMorgan, and Morgan Stanley are significantly invested in crypto—along with thousands of American companies and millions of Americans—it becomes increasingly hard to imagine politicians reversing course.

The same is true globally, where many countries feel compelled to compete in this emerging arena.

Our view is that you can't put the genie back in the bottle: Crypto has entered the mainstream. That's why we think the general path for crypto regulation over the next decade will be positive.

### Crypto Adoption by Institutions

	Crypto Trading and Custody <sup>5</sup>	Private Crypto Funds	Crypto ETPs	Crypto-Enabled Payments	Tokenization
Bank of America	●		●		
BlackRock	●	●	●		●
BNY Mellon	●		●		●
CBOE	●		●		
Charles Schwab	●		●		
Citi				●	●
CME	●				●
Deutsche Bank	●		●	●	●
Deutsche Börse	●		●		
Fidelity	●	●	●		●
Franklin Templeton	●	●	●		●
Goldman Sachs	●		●		●
HSBC	●		●		●
Interactive Brokers	●		●		
JPMorgan Chase	●	●	●	●	●
London Stock Exchange	●		●		
Mastercard				●	
Morgan Stanley		●	●		
PayPal	●			●	●
Société Générale	●				●
UBS	●		●		●
Visa				●	●
Wells Fargo		●	●		

Source: Bitwise Asset Management with data from company filings and public statements. Data as of June 30, 2025.

(4) Coinbase, "Why the Presidential Election Could Be Decided by Young Crypto Voters," Coinbase.com, August 19, 2024.

(5) "Crypto Trading and Custody" includes the trading of crypto spot, futures, and derivatives products.

## 02

# Bitcoin Capital Market Assumptions

## 2.1 Return Assumptions

We believe that bitcoin will be the best-performing major asset in the world over the next decade, posting a compound annual growth rate (CAGR) of 28.3%.

Our thesis is driven by three primary factors.

### 01 / Institutional Demand

Bitcoin is rare among assets in that retail investors led its emergence. In contrast, most emerging assets—private equity, private credit, etc.—were initially embraced primarily by institutional investors, with retail investors taking interest later in the assets' development.

When combined with bitcoin's strict scarcity (there will only ever be 21 million bitcoin), bitcoin's retail-first nature has created a unique situation: Nearly 95% of all the bitcoin that will ever exist is already owned—primarily by retail investors—while most institutional investors have a 0% allocation.

In recent years, institutional investors of all types have begun allocating to bitcoin in increasing size. Because very little new bitcoin is produced each year (~\$18 billion at current prices), these investors have had to buy bitcoin from existing investors.

The World Bank believes that institutional investors control roughly \$100 trillion in total assets. In the coming decade, we believe these investors will allocate between 1% to 5% of their portfolios to bitcoin, meaning they will need to buy \$1 trillion to \$5 trillion of bitcoin.

This has already begun: Bitcoin ETPs now hold \$170 billion in assets. But that is a small down payment on the total investment needed.

We believe this rising buying pressure will create persistent, sustained demand for bitcoin, which will push prices higher.

### 02 / Limited Supply

As indicated above, bitcoin's supply is strictly limited: There will only ever be 21 million bitcoin. In addition, the vast majority of this bitcoin is already owned, with 19.9 million bitcoin already in circulation (94.8%).

Bitcoin's annual inflation rate is just 0.8%, and it will fall to 0.4% in 2028 and 0.2% in 2032 (based on the predetermined issuance schedule, which cuts new issuance in half every four years). By comparison, the annual inflation rate of gold supply fluctuates between 1% and 2%.

Importantly, bitcoin's supply is inelastic: No amount of demand for bitcoin or change in its price will cause more bitcoin to be produced, unlike gold, oil, or other major commodities.

The collision of large institutional demand with limited, inelastic supply provides a simple economics-driven rationale for our thesis.

### 03 / Rising Concern About Fiat Debasement

The backdrop for rising institutional demand is increasing global concern about debt, deficits, and fiat debasement, which has resulted in a scramble for alternative exposures to hedge fiat risk.

As the legendary hedge fund investor Paul Tudor Jones wrote in a 2020 essay titled "The Great Monetary Inflation," which advocated for the purchase of a basket of hard assets, "The best profit-maximizing strategy is to own the fastest horse. If I am forced to forecast, my bet is it will be bitcoin."<sup>6</sup>

The U.S. federal debt has increased by \$13.0 trillion over the past five years and now stands at \$36.2 trillion. Annual interest payments on that debt are now \$952 billion, the fourth-largest line item in the U.S. budget.<sup>7</sup> Worse, interest rates now exceed expected GDP growth, making it even more difficult to slow the growth of debt in the future.

(6) Paul Jones and Lorenzo Giorgianni, "Market Outlook – Macro Perspective: The Great Monetary Inflation," May 2020.

(7) Congressional Budget Office, "The Budget and Economic Outlook: 2025 to 2035," January 2025.

The combination of these three factors—institutional demand, limited supply, and rising concerns about fiat debasement—allows bitcoin investors to benefit as bitcoin earns an increasing share of the store-of-value market, and as the size of that market grows.

### Forecasting the Market Opportunity

Models for forecasting the future value of bitcoin are relatively new and still evolving. The academic literature is limited, and there is no consensus on the best approach.

Our preferred long-term valuation model is a Total Addressable Market (TAM) model, which aims to estimate the future size of the markets bitcoin can serve along with its estimated future penetration of those markets. Given bitcoin's fixed long-term supply, this model allows us to estimate the future value of the asset.

### The Bitwise Bitcoin Valuation Model

We believe bitcoin has the ability to compete in multiple markets. This includes the market for non-sovereign stores of value like gold, but also the corporate treasury market, the national treasury market, and others.

The table below highlights the forecasted size of each market in 2035 and our expectations for bitcoin's penetration of that market at that time, using bear, base, and bull scenarios to provide context.

To be on the conservative side, we use bitcoin's full long-term supply of 21 million when calculating its future price at different penetration rates, even though not all of that supply will be circulating in 2035 (and a significant portion is assumed to be lost).

An important input in this model is our projection of the size of each market category in 2035. In most cases, we've arrived at that estimate by examining the historical growth rate of assets in this category over the past decade, and then continuing that growth rate for 10 years into the future. Notably, even relatively slow growth rates compound significantly over a decade. For instance, we project that institutional investment assets will nearly double in size despite a relatively modest historical CAGR of 5.6%.

Readers may also note that the store of value market grows significantly in our model, from \$29 trillion to \$92 trillion. This reflects a continuation of this market's growth rate over the next 10 years. In our view, given that we expect the next decade to bring rising concerns about fiat debasement (and therefore rising interest in fiat hedges), this estimate may be conservative.

We cannot find accurate historical estimates of the size of the offshore wealth market. As a result, we have applied a simple 3.0% CAGR to that market.

For the purposes of our long-term capital market assumptions, we rely on the base case scenario, which we consider the most likely outcome. We include bear and bull scenarios to reflect uncertainty in the market.

### Bitwise's Bitcoin Valuation Framework

Potential Addressable Markets	Current Market Size (USD trillions)	Projected CAGR	Projected Market Size in 2035 (USD trillions)	Penetration Rate Assumptions		
				Bear	Base	Bull
Institutional Investment Assets	\$121.6	5.6%	\$216.2	0.0%	1.0%	5.0%
Emerging Market Currencies	\$55.1	7.5%	\$115.6	0.0%	1.0%	2.0%
Store of Value (Gold, Bitcoin)	\$29.4	12.9%	\$91.5	2.0%	25.0%	50.0%
Offshore Wealth	\$11.1	3.0%	\$15.2	0.0%	2.0%	10.0%
National Treasury Reserves	\$13.3	1.0%	\$14.9	0.0%	2.0%	5.0%
U.S. Corporate Treasuries	\$4.1	9.6%	\$7.1	0.0%	5.0%	10.0%
Global Remittances	\$0.7	4.7%	\$1.1	0.0%	2.0%	5.0%
BTC — Current Price				\$107,754	\$107,754	\$107,754
BTC — 2035 Price Target				\$88,005	\$1,306,740	\$2,976,927
BTC — Projected CAGR				(2.0%)	28.3%	39.4%

Source: Bitwise Asset Management with data from Bloomberg, IMF, World Bank, BCG, APMEEX, Carfang Group, EU Tax Observatory. Bitcoin price as of June 30, 2025. The as-of dates for current market sizes vary, resulting in different CAGR time periods for 2035 projections.

Bitcoin valuation framework and price targets are for illustrative purposes and are not a prediction of future results. This material represents an assessment of the market environment at a specific time and is not intended to be a forecast of future events or a guarantee of future results.

Forecast

Our base case forecasts a 2035 value of \$1,306,740 per bitcoin, representing a 28.3% CAGR from current levels. This is a significant reduction from the previous 10-year and five-year CAGRs of 82.5% and 63.8%, respectively, but remains high compared to Wall Street forecasts for traditional assets like stocks, bonds, real estate, and other assets.

We note that our forecast aligns relatively closely with the estimates of other leading crypto analysts, including Alliance Bernstein (which projects bitcoin to cross \$1.0 million by 2033) and Standard Chartered (which projects bitcoin to cross \$0.5 million by 2028). Our forecast is more conservative than estimates from ARK Invest (\$1.5 million to \$2.5 million by 2030) and Strategy (\$21.0 million by 2046).

For additional viewpoints, we review other widely referenced bitcoin valuation models in the Appendix.

SIDE BAR

Why Does Bitcoin Have Value?

A common question critics ask about bitcoin is: Why does it have any value? After all, bitcoin does not generate cash flows.

In our view, the answer is simple.

We think of bitcoin as providing a service: *The ability to store wealth in a digital format without relying on a bank or a government.* The more people who want this service, the more valuable bitcoin becomes. The fewer people who want this service, the less valuable bitcoin becomes. If no one wants this service, the value of bitcoin is zero.

This is no different from any other service.

The difference lies in how that value accrues. In the case of a traditional software provider, users who want its service pay an annual subscription fee to the company. With bitcoin, you can't pay a subscription fee. After all, there is no "Bitcoin Company." Instead, the only way to get the service is to buy bitcoin. If you buy bitcoin, you get the service—the ability to store wealth in a digital format without a bank.

Right now, more and more people want bitcoin's service. That's what has made it the best-performing asset of the past decade.

We think even more people will want this service in the future as bitcoin continues to mature and demand grows for non-fiat assets. We're optimistic about what this means for bitcoin's future price.

2.2 Correlation Assumptions

Bitcoin's long-term correlation to other major assets is extremely low. Over the last 10 years, its average correlation to different asset classes has been:

Bonds (U.S.)	0.02
Commodities	0.10
Equities (U.S.)	0.21
Gold	0.07
Hedge Funds	0.33
Private Credit	0.17
Private Equity	0.21
Real Estate	0.15

Source: Bitwise Asset Management with data from Bloomberg. Data from June 30, 2015, to June 30, 2025.

Asset classes are represented by the following. Bitcoin: Bitcoin spot price. Commodities: Deutsche Bank DBIQ Optimum Yield Diversified Commodity Index Total Return. Gold: Gold spot price. Hedge Funds: Bloomberg Macro Hedge Fund Index. Private Credit: Indxx Private Credit Index. Private Equity: S&P Listed Private Equity Total Return Index. Real Estate: MSCI U.S. REIT Gross Total Return Index. U.S. Bonds: Bloomberg U.S. Aggregate Bond Index. U.S. Equities: S&P 500 Total Return Index.

Most observers consider any correlation below 0.50 to be "low."

A close examination of this correlation over time is telling. The chart below shows bitcoin's rolling 90-day correlation with U.S. equities since the inception of bitcoin trading. It demonstrates that bitcoin's correlation to U.S. equities has almost never been above 0.50. In fact, despite its reputation as a risk asset, it has never had a 90-day correlation with U.S. equities that qualified as "high" (i.e., over 0.75).

This fact surprises people, as media reports regularly describe bitcoin as a "risk asset" with "high correlations to stocks." Some even think of it as a "high-beta tech play." These perceptions stem from the fact that bitcoin can have high correlations to stocks during short-lived and sharply negative downturns, which is when the media tends to write stories about bitcoin and correlations.

Consider the following: If you isolate the days when U.S. equities have fallen in value 2.0% or more over the past 10 years, bitcoin has fallen an average of 2.6% on those days. But it has also historically rebounded faster and farther than the equity market, which is why longer-range correlations are low.

The gap between the common perception and the data-driven reality with regard to correlation presents an opportunity for portfolio builders.

Correlation to Other Assets

Bitcoin has exhibited a correlation of approximately 0.00 to bonds since its inception, as the chart below shows.

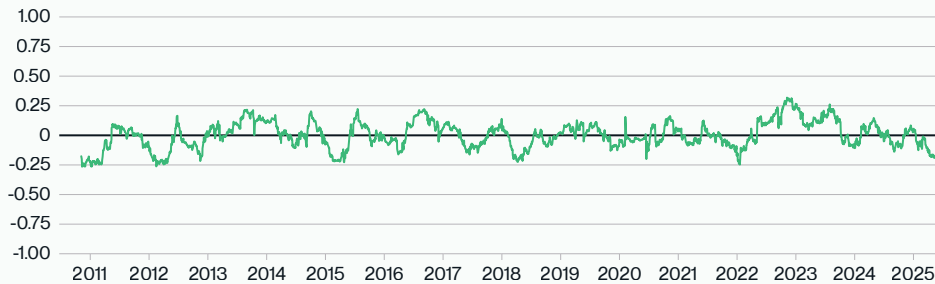


This is both intuitive and powerful. It's intuitive because bitcoin is driven by different factors than bonds (more on that below). But it's powerful because it means bitcoin offers a potential diversification tool when mixed with bonds in a portfolio.

Bitcoin also exhibits low correlations to broad-based commodity, real estate, private equity, and private credit indexes.

In other words, bitcoin marches to the beat of its own drum.

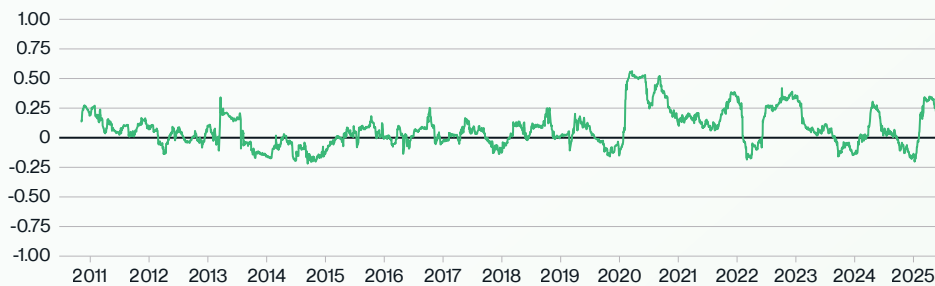
#### Bitcoin's Correlation to U.S. Bonds (90-Day Rolling)



Source: Bitwise Asset Management with data from Bloomberg. Data from July 19, 2010 to June 30, 2025. U.S. Bonds are represented by the Bloomberg U.S. Aggregate Bond Index.

Note: Correlation between -0.5 to 0.5 is traditionally defined as "low" or "no" correlation.

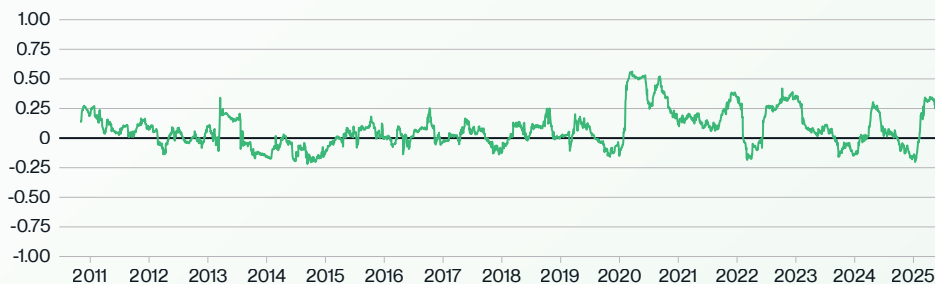
#### Bitcoin's Correlation to Commodities (90-Day Rolling)



Source: Bitwise Asset Management with data from Bloomberg. Data from July 19, 2010, to June 30, 2025. Commodities are represented by the Deutsche Bank DBIQ Optimum Yield Diversified Commodity Index Total Return.

Note: Correlation between -0.5 to 0.5 is traditionally defined as "low" or "no" correlation.

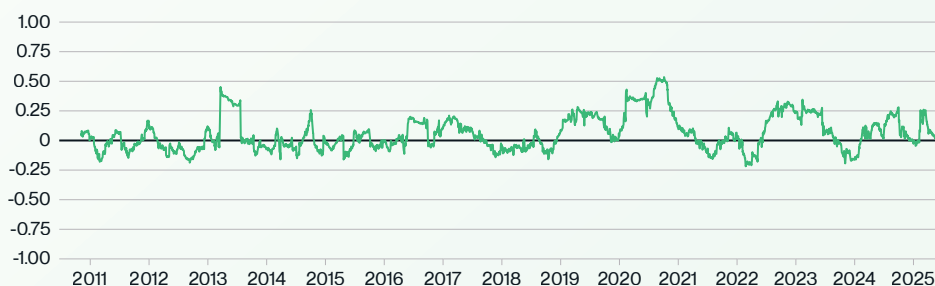
#### Bitcoin's Correlations to U.S. Equities (90-Day Rolling)



Source: Bitwise Asset Management with data from Bloomberg. Data from July 17, 2010, to June 30, 2025. U.S. Equities are represented by the S&P 500 Total Return Index.

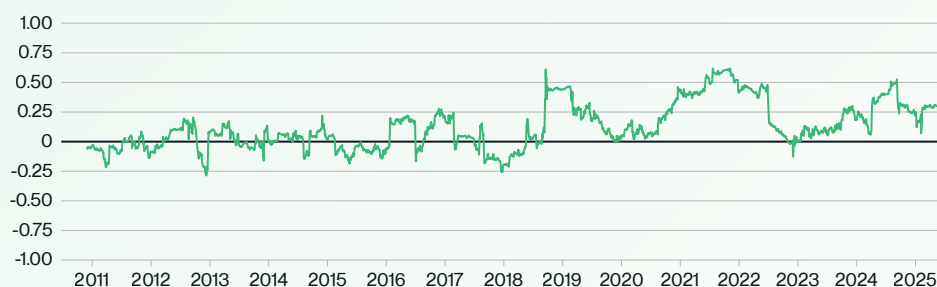
Note: Correlation between -0.5 to 0.5 is traditionally defined as "low" or "no" correlation.

#### Bitcoin's Correlation to Gold (90-Day Rolling)



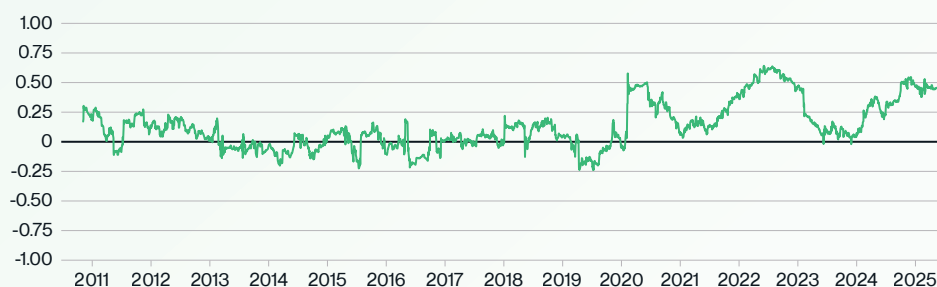
Source: Bitwise Asset Management with data from Bloomberg. Data from July 19, 2010, to June 30, 2025. Gold is represented by the gold spot price.

Note: Correlation between -0.5 to 0.5 is traditionally defined as "low" or "no" correlation.

**Bitcoin's Correlation to Private Credit (90-Day Rolling)**

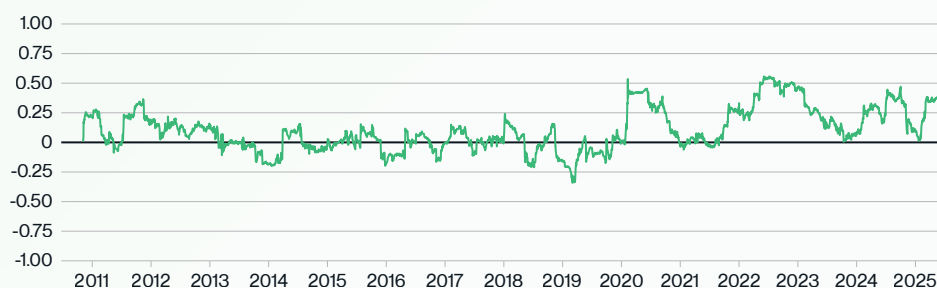
Source: Bitwise Asset Management with data from Bloomberg. Data from September 2, 2013, to June 30, 2025. Private Credit is represented by the Indxx Private Credit Index.

Note: Correlation between -0.5 to 0.5 is traditionally defined as "low" or "no" correlation.

**Bitcoin's Correlation to Private Equity (90-Day Rolling)**

Source: Bitwise Asset Management with data from Bloomberg. Data from July 19, 2010, to June 30, 2025. Private Equity is represented by the S&P Listed Private Equity Total Return Index.

Note: Correlation between -0.5 to 0.5 is traditionally defined as "low" or "no" correlation.

**Bitcoin's Correlation to Real Estate (90-Day Rolling)**

Source: Bitwise Asset Management with data from Bloomberg. Data from July 19, 2010, to June 30, 2025. Real Estate is represented by the MSCI U.S. REIT Gross Total Return Index.

Note: Correlation between -0.5 to 0.5 is traditionally defined as "low" or "no" correlation.

**The Drivers of Bitcoin's Low Correlations to Other Assets**

We believe that bitcoin has low long-term correlations with stocks and bonds for two reasons.

**01 / A One-Time Secular Trend**

The first is that bitcoin is going through a one-time maturation process from a largely unknown and unproven niche asset to a widely held alternative asset. This transition involves millions of investors making their first-ever investment into bitcoin, providing asymmetrically skewed inflows that are different from the two-way flows that impact most other mature assets. This effect will likely diminish over time but is an important driver of bitcoin's unique return profile.

**02 / Different Driving Factors**

Bitcoin is driven by different factors than stocks, bonds, and other assets. While stocks and bonds are driven by economic growth, tax rates, geopolitical developments, and technological progress, bitcoin is driven by adoption rates, regulatory advances, and worries about fiat debasement, among other factors. While there is overlap—all assets are impacted by monetary and fiscal factors, for example—given the variance in their performance drivers you would generally expect bitcoin to have different returns from stocks and bonds.

We believe that both of these factors will persist into the future. As a result, we expect to see bitcoin's correlation to stocks and bonds generally continue in the low range between 0.00 and 0.50 for the next decade.

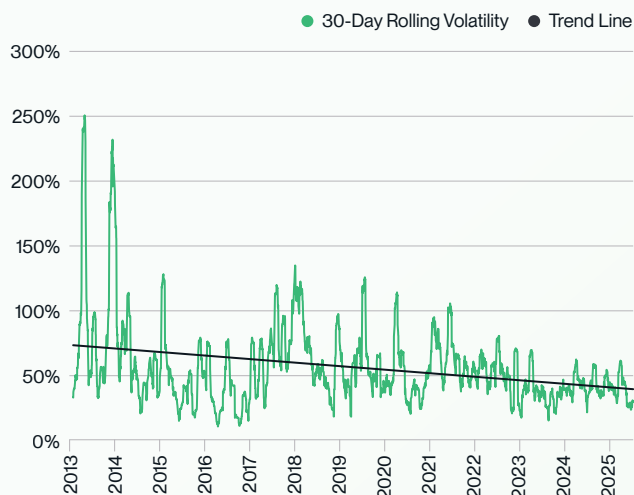
We note that bitcoin has had a higher correlation to stocks in the post-Covid era, which we attribute to the rising influence of monetary and fiscal policy on stocks and bonds. Since we expect this trend to persist to a degree, we overweight the impact of recent correlation trends in our correlation forecast using a tiered weighting methodology. Using this measure, we expect bitcoin's average correlation to U.S. equities over the next 10 years to be 0.39.

Using the same methodology, we expect correlations to commodities to be 0.07, gold 0.07, hedge funds 0.32, private credit 0.27, private equity 0.36, real estate 0.27, and U.S. bonds 0.00.

## 2.3 Volatility Assumptions

Bitcoin's volatility has been declining for the past decade—as has the volatility of its volatility. In the chart below, this is illustrated by both the downward trajectory of volatility and its tighter banding as time progresses.

### Bitcoin's Historical Volatility



Source: Bitwise Asset Management. Data from January 1, 2013, to June 30, 2025.

We believe these trends reflect the fundamental derisking of bitcoin as an investment over the past 10 years, as well as the diversification of its investor base. We expect that both of these trends will persist for the next decade, and therefore that bitcoin's volatility (and its second-order volatility) will continue to decline as well.

Our model assumes, however, that the rate of decline in bitcoin's volatility will fall 50% versus the historical trend. This reflects our view that some of the most fundamental challenges to bitcoin have been significantly derisked already, including risks related to regulation, adoption, custody, liquidity, and more. With less risk to remove from the market, it makes sense to expect a slower rate for bitcoin's volatility decline.

## SIDEBAR

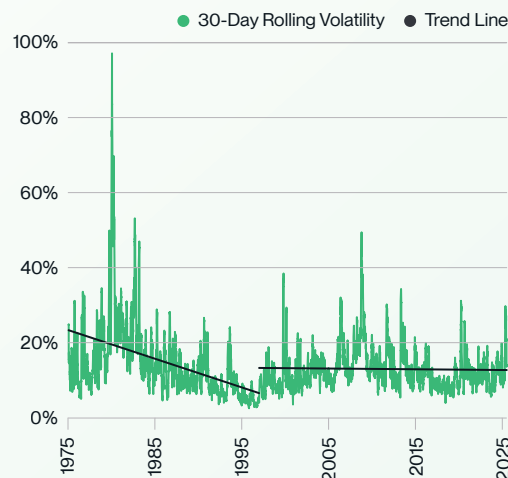
### A Historical Analogy: Gold

Investors questioning the long-term trend of declining bitcoin volatility can look to gold as a useful historical analogy.

Investors think of gold as an asset that has been around for thousands of years, but in practice, it has only had a floating price for about 50 years in the modern era. Gold's value in dollars was generally fixed for most of the U.S.'s existence, and politicians only broke the gold-dollar link formally in 1971.

A chart of gold's price action after this break is informative. Initially, gold's volatility spiked to extraordinary highs, as investors wrestled with gold's role in the absence of its peg to the dollar. As investors came to accept its new place in the world, its volatility generally declined for the subsequent 26 years before bottoming in 1997.

### Gold's Historical Volatility



Source: Bitwise Asset Management with data from Bloomberg. Data from January 2, 1975, to June 30, 2025.

Importantly, gold's volatility didn't fall to zero; in fact, it rebounded in the late 1990s and spiked substantially higher around the financial crisis of 2008. These spikes reflected changing fundamentals for the gold market. Today, it is generally slightly less volatile than U.S. equities and slightly more volatile than U.S. bonds.

We expect to see a similar long-term outcome for bitcoin. It is currently working through the phase of establishing its place in the world, which is driving a one-time decline in its volatility. Eventually, we expect it will reach a steady state, with average volatility similar to gold's.

For modeling purposes, we pin bitcoin’s future volatility at the midpoint of its expected journey from 2025 to 2035. This places it at 32.85%. In practice, we expect near-term volatility to exceed volatility in future years when bitcoin is even more established in the marketplace.

2.4 Cycle Assumptions

Bitcoin has historically moved in a four-year cycle, with three significant “up” years followed by a sharp pullback year. Were the four-year cycle to repeat, 2026 would be a pullback year.

Bitcoin’s Performance: Four-Year Cycles

The Bitcoin Cycle		The Ethereum Cycle	
Year	BTC	Year	BTC
● 2011	1,474%	● 2015	34%
● 2012	186%	● 2016	125%
● 2013	5,537%	● 2017	1,349%
● 2014	(58%)	● 2018	(74%)
The Early Application Cycle		The Mainstream Cycle	
Year	BTC	Year	BTC
● 2019	94%	● 2023	157%
● 2020	308%	● 2024	120%
● 2021	57%	● 2025 (YTD)	15%
● 2022	(64%)	2026	—

Source: Bitwise Asset Management. Data from December 31, 2010, to June 30, 2025.

Note: The names given to the four-year cycles represent our assessment of the forces that most contributed to bitcoin’s performance during that period. Performance information is provided for informational purposes only. Returns reflect the return of bitcoin itself, and not of any fund or account, and do not include any fees. Backward-looking performance cannot predict how any investment strategy will perform in the future. Future crypto cycles may not be four years long; the four-year increment is based on historical data for illustrative purposes and is not a prediction of future results. This material represents an assessment of the market environment at a specific time and is not intended to be a forecast of future events, or a guarantee of future results.

There is no consensus on what has driven this notable pattern. Below, we discuss the four leading theories.

01 / The Bitcoin Halving

Every four years, the amount of new bitcoin being produced falls in half. Although the dates of the halvings do not line up with the start or end of bitcoin’s price cycle, many have attributed the cycle to the long-term impact of this supply reduction.

02 / Interest Rate Cycles

Previous down years (2018, 2022) have coincided with periods of rapid interest rate increases from the U.S. Federal Reserve. Many have suggested that these interest rate shocks have precipitated bitcoin’s sharp pullbacks.

03 / Crypto Credit Cycles

Some researchers ascribe the four-year cycle to a classic boom-and-bust economic cycle: Novel innovations generate new investment and strong returns, which in turn attracts leverage and bad actors, until the price resets. In bitcoin’s case, blowups have punctuated each pullback, with the collapse of Mt. Gox in 2014, the SEC’s shutdown of fraudulent ICOs in 2018, and FTX’s collapse in 2022.

04 / Chance

Some observers believe the four-year cycle is a matter of chance, noting that it has only happened three times.

At Bitwise, we suspect all four theses have elements of truth. Regardless, we believe that the four-year cycle is unlikely to repeat in the future, for the following reasons.

First, regardless of which explanation you look at, the impact of each of these forces (aside from chance) has diminished. Each subsequent bitcoin halving, for instance, reduces supply by half as much as the one before, leading to reduced impact. Interest rates are unlikely to rise substantially in the near future; rather, most experts are calling for rate cuts. Similarly, leverage in the crypto system is relatively contained (for now—this bears watching), so the boom-and-bust cycle effect is likely muted compared to historical periods. We would add that improving regulation reduces the likelihood of the kinds of blowups that punctuated the 2014, 2018, and 2022 pullbacks.

Second, we believe the wave of institutional capital coming into the space (which began in earnest with the approval of spot bitcoin ETPs in 2024) will last for many years, in part because such a large percentage of the institutional market is still untapped. This would provide continued upward pressure on bitcoin prices in a manner that is not aligned with the historical four-year cycle.

Third, we believe the pro-crypto regulatory shift that began with the 2024 election similarly created a multiyear tailwind that transcends the historic four-year cycle.

We continue to expect market volatility and significant pullbacks in bitcoin’s price. But we don’t expect the classic four-year cycle to hold going forward.



03

# Bitcoin vs. Traditional Assets

Long-term capital market assumptions are useful for investors because they contribute to the design of effective portfolios. As such, it's important to consider not just the long-term outlook for bitcoin but the relative outlook of other asset classes.

To do this for non-crypto assets, we created a simple average of the most recent long-term capital market assumptions from four leading financial institutions: JPMorgan,<sup>8</sup> PIMCO,<sup>9</sup> BlackRock,<sup>10</sup> and Vanguard.<sup>11</sup>

It's worth noting that each of these providers make assumptions using different time periods (between five and 10 years), and they model asset-class returns using different target indexes. For the purposes of creating average forecasts, we've ignored these discrepancies. As such, the table below should be considered an approximate average and not a precise group forecast.

Not surprisingly, the results show bitcoin to be both the highest-performing and most volatile major asset, with low correlations to other assets. This is in line with its historical performance, and what we project to be the likely outcome.

## 2025 to 2035 Projections: Bitcoin's Return, Volatility, and Correlation vs. Major Asset Classes

Asset	Return	Volatility	Correlation to Bitcoin
<b>Bitcoin</b>	<b>28.3%</b>	<b>32.9%</b>	<b>—</b>
Bonds (U.S.)	4.8%	5.2%	0.00
Commodities	5.4%	16.9%	0.07
Equities (U.S.)	6.3%	16.3%	0.39
Gold	4.0%	16.8%	0.07
Hedge Funds	6.3%	6.8%	0.32
Private Credit	8.4%	12.1%	0.27
Private Equity	10.1%	25.8%	0.36
Real Estate	5.1%	11.4%	0.27

Source: Bitwise Asset Management. Return and volatility projections for bitcoin are developed by Bitwise. Projections for other asset classes are an average of the estimates in the capital markets reports from JPMorgan, PIMCO, BlackRock, and Vanguard, which may be based on differing indexes and date ranges.

For correlations, asset classes are represented by the following. Asset classes are represented by the following. Bitcoin: Bitcoin spot price. Commodities: Deutsche Bank DBIQ Optimum Yield Diversified Commodity Index Total Return. Gold: Gold spot price. Hedge Funds: Bloomberg Macro Hedge Fund Index. Private Credit: Indxx Private Credit Index. Private Equity: S&P Listed Private Equity Total Return Index. Real Estate: MSCI U.S. REIT Gross Total Return Index. U.S. Bonds: Bloomberg U.S. Aggregate Bond Index. U.S. Equities: S&P 500 Total Return Index.

Note: Correlation between -0.5 to 0.5 is traditionally defined as "low" or "no" correlation.

(8) John Bilton, Karen Ward, Monica Issar, Tim Lintern, *2025 Long-Term Capital Market Assumptions*, J.P. Morgan Asset Management, October 21, 2024.

(9) Erin Browne, Helen Guo, Andrew Nowobilski, "PIMCO's Capital Market Assumptions," PIMCO, October 3, 2024.

(10) "Capital Market Assumptions," BlackRock Investment Institute, May 22, 2025.

(11) "Vanguard Capital Markets Model Forecasts," Vanguard Investment Strategy Group, July 23, 2025.

## 04

# Risks and Considerations

Bitcoin is a volatile asset with a limited track record. Regulations surrounding bitcoin are evolving rapidly, institutional adoption is in its early days, and the underlying technology supporting bitcoin is relatively new. In addition, these and other factors make the process of forecasting future returns, correlations, and volatility in bitcoin inherently uncertain and subject to significant risks and potential errors.

The following are among the key risks to consider.

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## 01 / Bitcoin's Limited Track Record

Bitcoin was developed in 2008–09 and began trading widely on public exchanges in 2010. The first institutional investment product offering exposure to bitcoin launched in 2014, and spot ETPs tied to bitcoin only launched in 2024.

The result of these relatively short time periods is that there is limited data to evaluate when forecasting the future returns, correlations, and volatility of bitcoin. There are additional risks that future returns may not bear a strong resemblance to the past given the changing nature of the bitcoin market, regulations, and other developments. Analysts studying bitcoin's historical returns can only examine its returns in the macroeconomic conditions that have existed since it launched, and future macroeconomic conditions may not resemble past conditions.

As a result of bitcoin's limited track record, investors should carefully consider bitcoin forecasts that rely heavily on historical data. While we have attempted to account for these risks in our analysis, the risks persist nonetheless.

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## 02 / Regulatory and Legislative Risk

The regulatory and legislative environment surrounding bitcoin is newer and less developed than it is for many other assets, and it is changing rapidly, both in the U.S. and abroad. Large and unexpected developments in bitcoin's regulatory and legislative standing in the U.S. or around the world could significantly change the outlook for bitcoin, either positively or negatively.

## 03 / Institutional, Corporate, and Government Adoption of Bitcoin Are New Trends

Bitcoin began as a predominantly retail-led asset. In recent years, institutions, corporations, and governments have begun to acquire bitcoin, and its future growth prospects rest heavily on continued adoption by these groups of investors. However, this is a relatively new development, and it's not certain that recent adoption trends will persist into the future.

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## 04 / Technical and Quantum Risk

Bitcoin is a technology, and any technology comes with risk. For the bitcoin blockchain to function well, its underlying source code must be continually updated as the surrounding technological environment changes. There is a risk that bitcoin will not keep up with the times and face either technical challenges or competitive challenges if it fails to do so.

For instance, the core technology behind bitcoin and many bitcoin wallets could be at risk if there are rapid advances in quantum computing—technology that aims to process at exponentially higher rates than today's supercomputers. At some point in the future, the bitcoin blockchain will likely have to go through a major upgrade to quantum-resistant cryptography in order to allay risks in this space. Even if bitcoin succeeds at this upgrade—which is uncertain—individual wallets may be at risk if they do not transfer assets to quantum-resistant addresses. Failure to adequately adapt to quantum computing advances could expose the bitcoin blockchain and investments in bitcoin to risk.

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## 05 / Other Risks

There are multiple other significant risks in bitcoin, including those related to macroeconomic developments, trading, custody, and other factors. This document is not an attempt to define all risks related to bitcoin, but rather to highlight specific ones that may introduce uncertainty into our capital market assumptions.

05

# Conclusion

In its brief, 16-year history, bitcoin has gone from a little-known fringe investment to a \$2.4 trillion asset held and studied by some of the most sophisticated investors in the world. That journey has been marked by exceptional returns, exceptional volatility, and important new questions about its risk-return profile going forward. As institutional investors increasingly weigh the asset's unique characteristics, it has become more critical for these investors to access high-quality data and projections when modeling bitcoin's role in portfolios.

This report provides that foundation.

Our analysis has led us to the following key capital market assumptions about bitcoin over the next decade:

**01 /** Institutional investors will allocate between 1% to 5% of their portfolios to bitcoin, or \$1 trillion to \$5 trillion.

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**02 /** Rising government debt, public spending, and monetary expansion will apply downward pressure on fiat currencies, which will increase demand for store-of-value assets like gold and bitcoin.

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**03 /** Recent regulatory advances are unlikely to be peeled back in future political environments given Wall Street's and Main Street's increasing embrace of bitcoin.

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**04 /** We believe bitcoin's historical four-year cycle is no longer relevant given the diminished impact of halvings, the depth of new institutional demand, and regulatory gains with staying power.

Putting this all together, over the next decade we forecast bitcoin's CAGR will be 28.3%, with volatility of 32.9%, and continued low correlations to stocks, bonds, commodities, and other traditional assets. In this scenario, the next 10 years would represent bitcoin's institutional epoch, in which it becomes a mainstream alternative asset that is difficult for any thoughtful investor to ignore.

## Appendix

# What Do Other Models Say About Bitcoin's Future Price?

While we strongly favor the TAM Model, a variety of other bitcoin valuation models are widely followed in the crypto industry. We do not endorse these models. Given their wide following, however—and the reality that no model is perfect—it's worth considering what three of the most commonly cited models say about bitcoin's potential appreciation.

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### Model 1

#### The Stock-to-Flow Model

The Bitcoin Stock-to-Flow model was first proposed in 2019 by the pseudonymous crypto research analyst PlanB in a post entitled "Modeling Bitcoin Value with Scarcity." The Stock-to-Flow model posits that bitcoin's value is linked to its scarcity. Specifically, it argues that there is a logarithmic relationship between bitcoin's market value and the ratio of bitcoin's total circulating supply (the "stock") to its annual new supply (the "flow"). The model is closely associated with the idea that bitcoin's quadrennial "halving" process—where the amount of new bitcoin being produced each year falls in half—is a key driver of the asset's value.

PlanB updated the model in April 2020, introducing the "Stock-to-Flow Cross Asset Model," which examines multiple assets on a relational basis.

Critics of the Stock-to-Flow model note its inherent bullish bias: Because the stock-to-flow ratio for bitcoin programmatically increases over time, the model predicts that bitcoin will continue upward forever. Others note that it does not consider macroeconomic or regulatory developments.

The Stock-to-Flow model predicts a 2035 bitcoin price of \$11.6 million.

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### Model 2

#### The Bitcoin Power Law Model

The Bitcoin Power Law model was proposed in 2022 by a pseudonymous crypto researcher known as Dilution-proof, and it has gained traction as an alternative to the Stock-to-Flow model.

The Bitcoin Power Law model is based on the observation that bitcoin's price has historically followed a power-law relationship. The model predicts that the price of bitcoin will fluctuate between support and resistance that can be estimated by connecting prior highs (and lows) on a log chart of bitcoin's price vs. time.

The Bitcoin Power Law model is a descriptive, and not causal, model. Like the Stock-to-Flow model, it is also definitionally bullish, predicting bitcoin will continue its upward trajectory over time.

The Bitcoin Power Law model anticipates a 2035 bitcoin price of \$1.5 million.

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### Model 3

#### The Bitcoin Autocorrelation Exchange Rate Model (BAERM)

The Bitcoin Autocorrelation Exchange Rate Model (BAERM) is a quantitative model designed to explain and forecast bitcoin's price based on the premise that bitcoin's returns are autocorrelated—that is, its price moves according to a self-referential historical pattern. The model assumes that the price of bitcoin is expanding exponentially over time, but that the trend is impacted by halving epochs, market effects, and the day-to-day autocorrelation of bitcoin prices.

The model is complex. It attempts to provide a more complete analysis of bitcoin's historical price trends than standard trend-following or momentum-based models, while still seeking to account for the very real impact of momentum in the bitcoin space.

The model is backward looking and does not incorporate factors like demand, macroeconomic conditions, or regulatory developments. Skeptics argue that it overindexes for historical returns, and that out-of-sample results from the recently introduced model will be less predictive than historical results. Because the model was only introduced recently (2023–24), it is too soon to judge.

The Bitcoin Autocorrelation Exchange Rate Model predicts a 2035 bitcoin price of \$7.5 million.



## Definitions

**Bitcoin** is represented by the spot bitcoin price with data from Bitwise.

The **Bloomberg Macro Hedge Fund Index (BHMACR)** represents the average performance of hedge funds with a macro strategy.

The **Bloomberg U.S. Aggregate Bond Index (LBSTRUU)** tracks U.S. dollar-denominated, investment-grade debt.

The **Deutsche Bank DBIQ Optimum Yield Diversified Commodity Index Total Return (DBLCDBCT)** is based on 14 commodities drawn from the energy, precious metals, industrial metals, and agriculture sectors.

**Gold** is represented by the spot gold price with data from Bloomberg.

The **Indxx Private Credit Index (IVPC)** tracks the performance of the Business Development Corporations (BDCs) and Closed-End Funds (CEFs) trading in the U.S. with significant exposure to private credit.

The **MSCI U.S. REIT Gross Total Return Index (RMSG)** is a free float-adjusted market capitalization-weighted index that is comprised of equity Real Estate Investment Trusts (REITs).

The **S&P 500® Total Return Index (SPXT)** tracks the performance of 500 large-cap publicly traded companies in the U.S.

The **S&P Listed Private Equity Total Return Index (SPLPEQTR)** comprises the leading listed private equity companies that meet specific size, liquidity, exposure, and activity requirements.

## Risks and Important Information

No Advice on Investment; Risk of Loss: Prior to making any investment decision, each investor must undertake its own independent examination and investigation, including the merits and risks involved in an investment, and must base its investment decision—including a determination whether the investment would be a suitable investment for the investor—on such examination and investigation.

Crypto assets are digital representations of value that function as a medium of exchange, a unit of account, or a store of value, but they do not have legal tender status. Crypto assets are sometimes exchanged for U.S. dollars or other currencies around the world, but they are not currently backed nor supported by any government or central bank. Their value is completely derived by market forces of supply and demand, and they are more volatile than traditional currencies, stocks, or bonds.

Trading in crypto assets comes with significant risks, including volatile market price swings or flash crashes, market manipulation, cybersecurity risks, and risk of losing principal or all of your investment. In addition, crypto asset markets and exchanges are not regulated with the same controls or customer protections available in equity, option, futures, or foreign exchange investing.

Crypto asset trading requires knowledge of crypto asset markets. In attempting to profit through crypto asset trading, you must compete with traders worldwide. You should have appropriate knowledge and experience before engaging in substantial crypto asset trading. Crypto asset trading can lead to large and immediate financial losses. Under certain market conditions, you may find it difficult or impossible to liquidate a position quickly at a reasonable price.

The opinions expressed represent an assessment of the market environment at a specific time and are not intended to be a forecast of future events, or a guarantee of future results, and are subject to further discussion, completion, and amendment. The information herein is not intended to provide, and should not be relied upon for, accounting, legal, or tax advice, or investment recommendations. You should consult your accounting, legal, tax, or other advisors about the matters discussed herein.





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