20 August 2025, 12:42 UTC
Chief Investment Office GWM
Investment Research

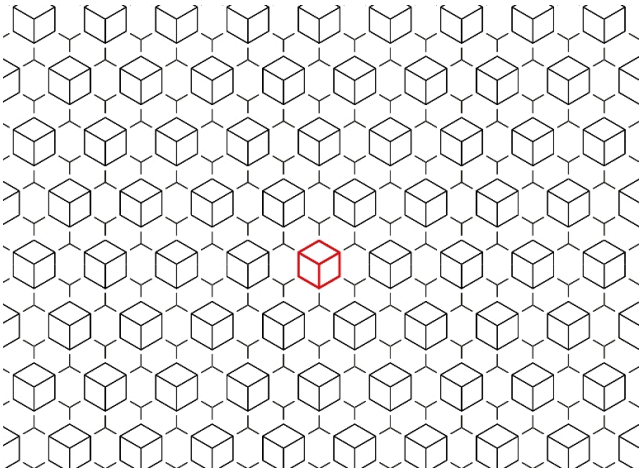
Digital Assets 101: Crypto in a portfolio context

Education Note

Authors: Michael Papadogeorgos, CFA, Strategist, UBS Switzerland AG; Alan Zlatar, Head of Strategic Asset Allocation, UBS Switzerland AG; Michael Bolliger, Chief Investment Officer Switzerland, UBS Switzerland AG; Dominic Schnider, CFA, CAIA, Strategist, UBS Switzerland AG; Kiran Ganesh, Strategist, UBS Switzerland AG

- Fear of missing out, the launch of new investment vehicles that have improved accessibility and liquidity, and expectations of greater US regulatory clarity have prompted many investors to consider the role of cryptos within a strategic asset allocation framework.
- Should the CLARITY Act, that aims to establish a regulatory framework for digital assets in the US, be signed into law, more widespread adoption of digital assets could follow. However we currently view broad portfolio adoption of cryptos within a strategic asset allocation context as premature. Instead, investors should prioritize allocations to established asset classes for long-term portfolio diversification.
- Following strong performance in recent years, allocations to cryptos [1] would have historically improved the risk-reward profile of a 60/40 equity/bond portfolio. However, high volatility, a short history, and the potential effect of survivorship bias suggest that investors should approach historical analysis and strategic crypto allocations with caution.
- Investors who believe that crypto has the potential to develop into a mature asset class—i.e., with more established real-world or investment use cases, lower volatility, and more stable correlations—should view crypto as a satellite investment within a core-satellite framework. In the context of satellite investments, we believe that no single position should have the potential to materially change overall portfolio performance or significantly alter an investor's intended risk profile.

[1] The terms "crypto" and "crypto tokens" are used interchangeably here to both describe crypto coins and crypto tokens for convenience and simplicity.



Source: UBS

Disclaimer: This report is for educational purposes only, as UBS does not provide any investment recommendations on digital assets. Digital assets can exhibit significant price volatility, face liquidity challenges, encounter uncertain regulations, and may be susceptible to bugs and fraud. Investors therefore face the risk of a significant or total loss of capital. Risk tolerance is therefore an important consideration for such assets.

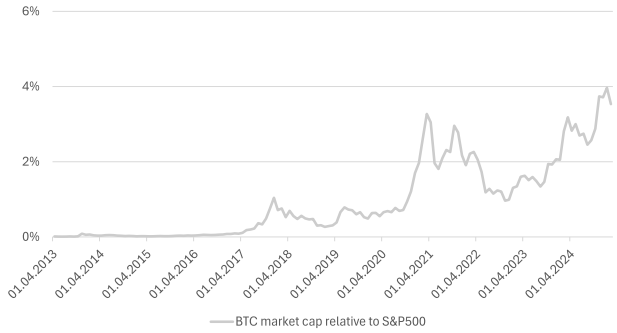
This report has been prepared by UBS Switzerland AG. **Please see important disclaimers and disclosures at the end of the document.**

In recent years, cryptos have emerged as a notable feature of the financial landscape, with some experiencing significant price increases. As prices have risen, cryptos have transitioned from niche innovations to financial instruments that have attracted the attention of investors, institutions, and regulators worldwide. Bitcoin, for example, now claims a market cap of close to 4% of the S&P 500's (Fig. 1). For comparison, NVIDIA—currently the biggest company in the index—is accounts for around 8% of the index.

Regulatory approaches to cryptos have varied significantly across jurisdictions over the years. However, the US's Digital Market Clarity Act (CLARITY Act), if passed into law, looks to be a significant development that could lead to wider investor adoption of cryptos. Under the CLARITY Act, digital assets will be evaluated based on factors such as decentralization, governance, and the presence (or absence) of a central controlling entity. Cryptos that operate on a decentralized network and are not issued or managed by any single organization, such as Bitcoin and Ethereum, would qualify as commodities. Once ratified, we think the Act could help remove ambiguity for investors, institutions, and service providers about how cryptos and similar assets are regulated in the US, and provide a more stable legal environment for innovation and investment in the digital asset space.

For private investors, an increased sense of permanence of crypto tokens in the financial landscape is naturally leading to questions about the role that crypto assets can or should play in the context of a longer-term strategic asset allocation (SAA).

Figure 1 - Bitcoin market cap relative to S&P 500



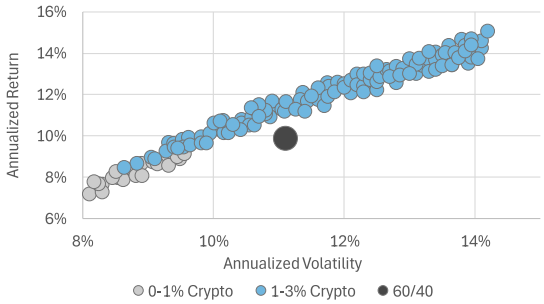
UBS CIO, Bloomberg as of Feb 2025.

The effect of cryptos on portfolio risk-return historically

History can help us analyze the potential risk-return effect of adding different asset classes into an investment portfolio. For the purposes of analyzing the impact of adding cryptos into a portfolio, we considered the effect of adding Bitcoin, Ethereum, and Ripple as an equal-weighted and monthly rebalanced crypto basket (thereafter, "crypto basket"). This selection represents the top three cryptos by market capitalization and over 80% of the total crypto market capitalization at the time of writing (excl. stablecoins).

Fig. 2 shows the historical impact of incorporating the crypto basket into a 60/40 portfolio invested in US equities (MSCI USA) and US corporate bonds (Bloomberg US Intermediate Corp). Thanks in part to their very high returns and the negative or zero correlations cryptos had with other assets in their early days, including an allocation to the crypto basket would have enhanced the 60/40 portfolio's risk-adjusted returns.

Figure 2 - Effect of adding a crypto allocation to a traditional 60/40 portfolio



UBS CIO, Bloomberg
Based on monthly data from Jan 2017 to Feb 2025.

Note: Chart shows the historical return and volatility for a 60/40 equity/ bond portfolio with varying levels of allocations to a cryptocurrency basket comprised of Bitcoin, Ethereum, and Ripple. Past performance is not a guarantee of future results.

Reasons to treat historical analysis with caution

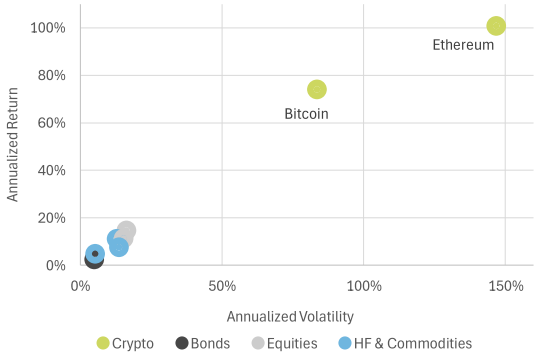
Despite the apparent potential for cryptos to boost portfolio risk-return based on historical performance, there are various reasons to treat cryptos themselves—and historical analysis—with caution:

1. Exceptionally high volatility

Cryptos lie at the far end of the risk-reward spectrum and have experienced extreme volatility (Fig. 3). This volatility can lead to sharp portfolio fluctuations, posing challenges for investors' risk management and risk tolerance.

In our historical analysis, we did not include crypto allocations in excess of 3% because, while these may have improved the portfolio's risk-return ratios (e.g., Sharpe or information ratio), they would have significantly increased the absolute risk of the portfolio, making direct comparison difficult.

Figure 3 - Annualized return and volatility of different assets



UBS CIO, Bloomberg.

Based on monthly data from Jan 2017 to Feb 2025. Ripple had an annualized return and volatility of 105% and 360%, respectively, and is not present in the chart to facilitate a better display. The graph uses the Bloomberg Eurodollar AA+ 5-7y, MSCI USA, MSCI AC World, HFRI Fund of Funds Composite, London Gold Fixing USD, UBS Bloomberg CMCI Composite Index as benchmarks.

2. A short history

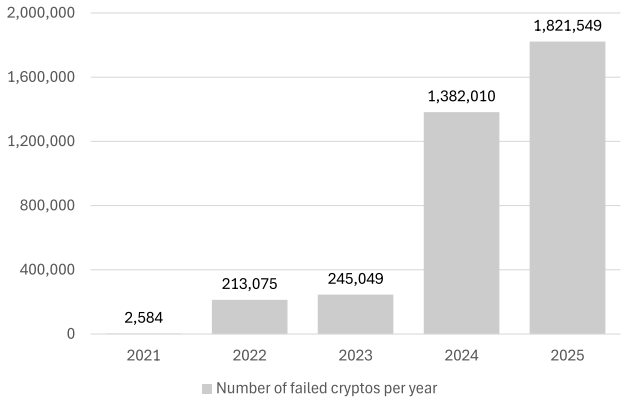
The data history of crypto tokens is very short, at least in comparison with other major asset classes. For asset classes with a longer history, it can be easier to identify the difference between structural and cyclical characteristics. For crypto, significant variability in returns, volatility, and correlations during this period make it challenging to determine which characteristics and periods to reliably extrapolate into the future and which not.

3. Fears about the effect of survivorship bias

The short history also poses another challenge: Investors cannot be certain whether, by focusing on the performance of the likes of Bitcoin, Ethereum, and Ripple, they are picking a representative sample of cryptos or they are simply cherry-picking the most successful three projects with the benefit of hindsight, ignoring thousands of coins that defaulted.

There have been clear examples of prominent large-cap crypto tokens that have collapsed, such as Terra's LUNA, which once had a market capitalization exceeding USD 40 billion. Its failure, driven by the breakdown of its algorithmic stablecoin, highlighted the systemic risks and vulnerabilities of crypto projects. Of the crypto projects that were terminated over the past five years, over 1.8 million failed in the first four months of 2025 (Fig. 4).

Figure 4 - Number of failed cryptos per year



UBS CIO, CoinGecko as of end of April 2025.

To illustrate the potential impact of survivorship bias on our analysis, we also analyzed the risk-adjusted performance of assets across various time periods with different crypto combinations, including Bitcoin-only, the crypto basket, and —for the 5-year period—a secondary basket composed of Bitcoin (BTC), Ethereum (ETH), and LUNA (LUNC) (Fig. 5).

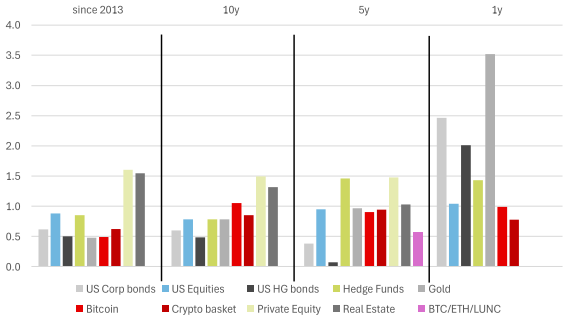
The impact of LUNA's failure on performance is clear when comparing the two baskets (crypto basket vs. basket with LUNA). Over the same 5-year period, the initial crypto basket achieved a return of 0.94 per unit of risk, whereas the basket containing LUNA delivered a lower return of 0.58 per unit of risk.

4. Superior risk-return profiles in more established asset classes

Despite the strong overall performance of a tiny minority of cryptos over recent years, it's notable that Bitcoin or the crypto basket did not deliver higher risk-adjusted returns than other established asset classes in the sub-periods examined. In the 5-year period, Bitcoin and the crypto baskets analyzed were outperformed by hedge funds (1.46) and private equity (1.47) in terms of risk-adjusted returns (see Fig. 5).

We believe this underscores the critical role of more established asset classes—such as private equity, real estate, hedge funds, and gold—in constructing a robust portfolio, alongside maintaining an allocation to government bonds, corporate credit, and equities. These assets have not only delivered attractive risk-adjusted returns, but also have a sufficiently long track record, allowing investors to extrapolate future risk-adjusted returns with greater confidence.

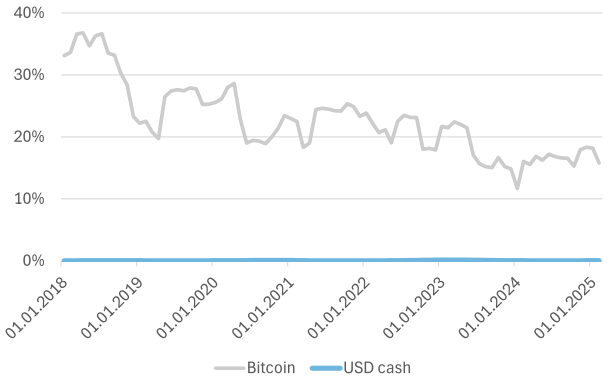
Figure 5 - Risk-adjusted returns of different assets in different time periods



UBS CIO, CoinGecko.

Based on monthly data from April 2013 to April 2025 except for private equity and real estate, both of which reflect quarterly reported data from June 2013 to March 2025. The graph uses the Bloomberg US Intermediate Corp., MSCI USA, Bloomberg Eurodollar AA+ 5-7y, HFRI fund weighted composite, London Gold Fixing USD, Cambridge Global Private Equity, Cambridge Real Estate as benchmarks.

Figure 6 - Bitcoin is volatile when measured in fiat terms



UBS CIO, Bloomberg.

Based on monthly data from Jan 2017 to Feb 2025, 1-year rolling monthly volatility. Although annualized volatility is standard industry practice, this graph uses monthly volatility to facilitate visualization.

Will cryptos mature into a more established 'asset class'?

Given some of the aforementioned challenges, we currently view broad portfolio adoption of cryptos within a strategic asset allocation context as premature, and advise investors to prioritize allocations to established asset classes for portfolio diversification.

At the same time, we acknowledge that the increased regulatory clarity and data showing a potential improvement in portfolio risk-reward means that crypto tokens shouldn't simply be disregarded when considering the investment opportunity set.

Below, we review some of the factors that might contribute to cryptos' further development in the years ahead:

1. More established real-world or investment use case

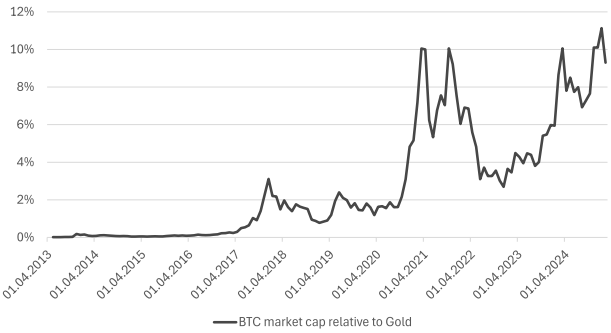
In their early days, traditional crypto tokens—besides stablecoins—were commonly referred to as "digital cash," highlighting an aspiration for a digital alternative to traditional currency payments. However, despite their growing popularity and tighter regulatory frameworks, crypto tokens have faced challenges replacing fiat currencies in real-world applications.

Although crypto on-chain [2] transactions increased over time and accessibility improved with the introduction of crypto ATMs (still limited compared to traditional banking infrastructure), high volatility in fiat currency terms has hindered cryptos from being broadly accepted as a form of retail payment (Fig. 6). Furthermore, tax implications and the irreversibility of transactions can deter users and hinder practicality for daily use.

[2] On-chain transactions represent activity recorded directly on the blockchain network and is not 1-to-1 linked to real-world retail transactions.

More recently, crypto tokens—and Bitcoin specifically—have been likened to gold in an investment context. Like gold, Bitcoin lacks the cash flows offered by traditional assets, has a stable and limited supply, is perceived by some as offering diversification from monetary and fiscal policy risks, and is valued beyond what its practical use cases would imply. Bitcoin alone already has a market value of around 10% of gold's (Fig. 7).

Figure 7 - Bitcoin market cap relative to gold



UBS CIO, Bloomberg as of Feb 2025.

Unlike gold, however, crypto tokens have more limited practical applications (like jewelry or industrial uses for gold). They also still lack the widespread central bank and institutional demand that gold enjoys and helps support its value. Their short existence also means that investors cannot be sure if Bitcoin might consistently demonstrate portfolio diversification behavior similar to that of gold in future—i.e., over a long period of time. Therefore, we believe it is premature to consider Bitcoin and gold as equivalents in the

context of portfolio construction.

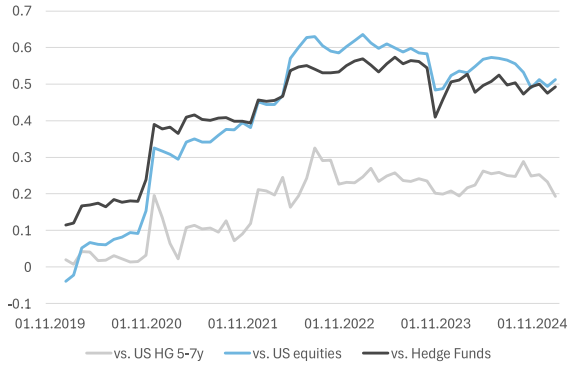
But over time, it is possible that more widespread institutional adoption of crypto tokens, potentially supported by favorable regulation, could lead to such assets being considered more widely as a store of wealth and/or as an established portfolio diversifier.

2. Greater stability in risk and correlation metrics

Shifting volatility and correlation metrics are another challenge for investors analyzing the effect of crypto allocations in a strategic asset allocation context.

Initially, crypto tokens like Bitcoin and Ethereum were celebrated for their lower correlation with traditional asset classes. However, in recent years, their correlation with equities, bonds, and hedge funds has risen, potentially as a result of more widespread retail and institutional investor adoption. As an example, crypto correlations with US equities in the last five years has increased from -0.1 to 0.5 (Fig. 8). In portfolio construction, a higher correlation reduces the appeal of an asset class as a diversifier.

Figure 8 - Correlation between the crypto basket and other assets has increased



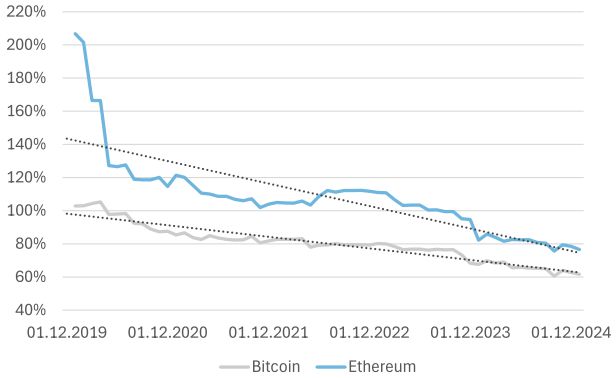
UBS CIO, Bloomberg.

Based on monthly data from Jan 2017 to Feb 2025, 3-year rolling correlation. The graph uses the Bloomberg Eurodollar AA+ 5-7y, MSCI USA, HFRI Fund of Funds Composite as benchmarks.

More encouragingly, volatility has progressively been falling over time (Fig. 9). As discussed earlier, extreme levels of volatility to date have made it difficult for investors to add even small allocations to crypto without materially transforming the overall risk profile of their portfolios.

Lower volatility and more modest drawdowns, exhibited consistently over time, could help overcome this barrier to more widespread crypto adoption. Of course, if lower volatility also comes alongside lower returns, this could also diminish the appeal of cryptos.

Figure 9 - Crypto statistical metrics are changing



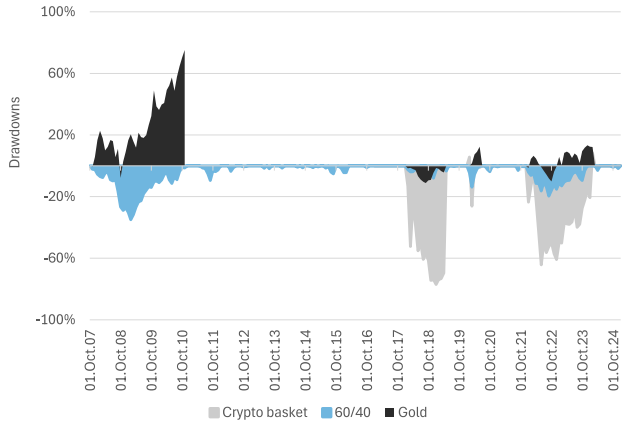
UBS CIO, Bloomberg.

Based on monthly data from Jan 2017 to Feb 2025, 3-year rolling volatility annualized. The analysis has also been performed on crypto returns, which also show a decreasing pattern.

A longer track record that allows investors to assess crypto tokens' diversification potential during difficult market or economic situations could also lead to higher adoption.

For now, crypto's ability to diversify portfolios during periods of broader market downturns looks more conceptual than proven (Fig. 10). Other traditional portfolio hedges like gold have more consistently demonstrated their capacity to bolster portfolio resilience during market drawdowns and have exhibited lower levels of volatility more generally.

Figure 10 - Gold is a more established portfolio diversifier than cryptos



UBS CIO, Bloomberg.

3. The fiscal and macroeconomic backdrop favoring the crypto space

In recent years, expanding high government debt levels and persistent fiscal deficits have raised concerns about the long-term stability of traditional fiat currencies. With increasing pressure on central banks to lower interest rates or support deficit financing, more investors are likely to seek alternative

stores of value. Some crypto assets can fit the mold of the type of asset that investors concerned about currency debasement might consider.

Periodically higher correlations between stocks and bonds have also led more investors to try and find assets with less correlated sources of return; this trend has contributed to the growth of hedge fund and private market assets. While crypto correlations with traditional assets have been rising, they are likely to remain under consideration as a new source of portfolio diversification.

Moreover, lower interest rates in the years ahead could reduce the opportunity cost of holding non-yielding assets like cryptos, further contributing to institutional interest in digital assets.

What are the residual risks to cryptos overall?

Even if some of the current challenges can be overcome in the years ahead, we believe that a variety of residual risks are likely to remain relevant for crypto investors for the foreseeable future:

Lower returns: As crypto markets grow and mature, it is probable that the outsized returns seen in early years are likely to diminish. If this proves persistent, it could lead to lower participation among existing retail investors, leaving a potential "air pocket" if higher institutional demand does not compensate.

Technical risks: Crypto investors face a range of technical risks that are unlikely to disappear. The potential for quantum computing to break cryptographic security is a looming concern. Reliance on centralized exchanges or custodians introduce single points of failure. Fraud and market manipulation also remain persistent risks, particularly for smaller tokens.

Confidence crisis around utility: In their short history, cryptos have been seen as tools for payments, digital ownership, and as a "digital gold." However, given their short track record, questions are likely to persist about their true utility, beyond speculation. This could lead to periodic crises of confidence.

Energy costs: High energy consumption is a risk for crypto investors, especially those exposed to proof-of-work networks like Bitcoin. As mining activity expands, the electricity required to secure and validate transactions may draw increased scrutiny from regulators, environmental groups, and the public—particularly if electricity demand is already rising quickly due to other trends like AI. This scrutiny could translate into tangible risks, including governmental restrictions, taxes, or outright bans on mining activities, which could disrupt some tokens. For some institutional investors, these may also pose ESG (environmental, social, and governance) challenges.

Lack of diversification within crypto: Despite the proliferation of numerous tokens, the crypto market remains highly concentrated, with Bitcoin and Ethereum dominating overall market capitalization and liquidity. This concentration means that adverse events affecting leading cryptos can quickly ripple through the entire sector. For investors, the lack of meaningful diversification within crypto can increase portfolio risk and challenge broader portfolio adoption.

Conclusion

Continued strong performance, the launch of investment vehicles that improve liquidity and accessibility, and developing regulatory frameworks have mitigated early fears of a broader crypto clampdown. These factors may also be paving the way for cryptos to become more widely recognized as an asset class.

Should crypto develop more established real-world or investment use cases, lower volatility, and more stable correlations, amid the broader support from macroeconomic trends, we believe crypto tokens do have the potential to claim a position as a more established asset class. For now, however, we believe these requirements are generally unfulfilled.

So how should investors think about allocations to crypto today?

First, while crypto tokens have exhibited the potential for high returns and improvements to portfolio risk-reward, market immaturity and elevated volatility suggest that broad portfolio adoption within a strategic asset allocation context is still premature. We also see direct comparisons of Bitcoin and gold as premature due to gold's more established position in financial markets, its practical use cases, and its proven ability to hedge portfolios during market downturns. From a portfolio construction perspective, we encourage investors to prioritize diversification into more established asset classes before considering an allocation to crypto.

Second, investors who believe that crypto does have the potential to overcome the deficiencies and develop into an established asset class can consider viewing crypto as a satellite investment within a core-satellite approach while maintaining a balanced core portfolio in traditional financial assets.

More conservative investors unwilling to endure extreme price swings, or those who are more skeptical about the potential for development of the asset class, should refrain from investing in crypto tokens.

Global asset class preferences definitions
The asset class preferences provide high-level guidance to make investment decisions. The preferences reflect the collective judgement of the members of the House View meeting, primarily based on assessments of expected total returns on liquid and commonly known indices, House View scenarios, and analyst convictions over the next 12 months. Note that the tactical asset allocation (TAA) positioning of our different investment strategies may differ from these views due to factors including portfolio construction, concentration, and borrowing constraints.
Attractive: We consider this asset class to be attractive. Consider opportunities in this asset class.
Neutral: We do not expect outsized returns or losses. Hold longer-term exposure.
Unattractive: We consider this asset class to be unattractive. Consider alternative opportunities
Note: For equities, we have a five-tier rating system with two additional preferences
Most Attractive: We consider this asset class to be among the most attractive. Investors should seek opportunities to add exposure.
Least Attractive: We consider this asset class to be among the least attractive. Seek more favorable alternatives opportunities.
When equities are included with the other asset classes in the three-tier rating system, we collapse "Most Attractive" with "Attractive" and "Least Attractive" with "Unattractive."

Appendix

Risk information
UBS Chief Investment Office's ("CIO") investment views are prepared and published by the Global Wealth Management business of UBS Switzerland AG (regulated by FINMA in Switzerland) or its affiliates ("UBS"), part of UBS Group AG ("UBS Group"). UBS Group includes former Credit Suisse AG, its subsidiaries, branches and affiliates. The investment views have been prepared in accordance with legal requirements designed to promote the **independence of investment research**.
Generic investment research – Risk information:
This publication is **for your information only** and is not intended as an offer, or a solicitation of an offer, to buy or sell any investment or other specific product. The analysis contained herein does not constitute a personal recommendation or take into account the particular investment objectives, investment strategies, financial situation and needs of any specific recipient. It is based on numerous assumptions. Different assumptions could result in materially different results. Certain services and products are subject to legal restrictions and cannot be offered worldwide on an unrestricted basis and/or may not be eligible for sale to all investors. All information and opinions expressed in this document were obtained from sources believed to be reliable and in good faith, but no representation or warranty, express or implied, is made as to its accuracy or completeness (other than disclosures relating to UBS). All information and opinions as well as any forecasts, estimates and market prices indicated are current as of the date of this report, and are subject to change without notice. Opinions expressed herein may differ or be contrary to those expressed by other business areas or divisions of UBS as a result of using different assumptions and/or criteria. UBS may utilise artificial intelligence tools ("AI Tools") in the preparation of this document. Notwithstanding any such use of AI Tools, this document has undergone human review.
In no circumstances may this document or any of the information (including any forecast, value, index or other calculated amount ("Values")) be used for any of the following purposes (i) valuation or accounting purposes; (ii) to determine the amounts due or payable, the price or the value of any financial instrument or financial contract; or (iii) to measure the performance of any financial instrument including, without limitation, for the purpose of tracking the return or performance of any Value or of defining the asset allocation of portfolio or of computing performance fees. By receiving this document and the information you will be deemed to represent and warrant to UBS that you will not use this document or otherwise rely on any of the information for any of the above purposes. UBS and any of its directors or employees may be entitled at any time to hold long or short positions in investment instruments referred to herein, carry out transactions involving relevant investment instruments in the capacity of principal or agent, or provide any other services or have officers, who serve as directors, either to/for the issuer, the investment instrument itself or to/for any company commercially or financially affiliated to such issuers. At any time, investment decisions (including whether to buy, sell or hold securities) made by UBS and its employees may differ from or be contrary to the opinions expressed in UBS research publications. Some investments may not be readily realizable since the market in the securities is illiquid and therefore valuing the investment and identifying the risk to which you are exposed may be difficult to quantify. UBS relies on information barriers to control the flow of information contained in one or more areas within UBS, into other areas, units, divisions or affiliates of UBS. Futures and options trading is not suitable for every investor as there is a substantial risk of loss, and losses in excess of an initial investment may occur. Past performance of an investment is no guarantee for its future performance. Additional information will be made available upon request. Some investments may be subject to sudden and large falls in value and on realization you may receive back less than you invested or may be required to pay more. Changes in foreign exchange rates may have an adverse effect on the price, value or income of an investment. The analyst(s) responsible for the preparation of this report may interact with trading desk personnel, sales personnel and other constituencies for the purpose of gathering, synthesizing and interpreting

market information.
Different areas, groups, and personnel within UBS Group may produce and distribute separate research products **independently of each other**. For example, research publications from **CIO** are produced by UBS Global Wealth Management. **UBS Global Research** is produced by UBS Investment Bank. **Research methodologies and rating systems of each separate research organization may differ**, for example, in terms of investment recommendations, investment horizon, model assumptions, and valuation methods. As a consequence, except for certain economic forecasts (for which UBS CIO and UBS Global Research may collaborate), investment recommendations, ratings, price targets, and valuations provided by each of the separate research organizations may be different, or inconsistent. You should refer to each relevant research product for the details as to their methodologies and rating system. Not all clients may have access to all products from every organization. Each research product is subject to the policies and procedures of the organization that produces it. The compensation of the analyst(s) who prepared this report is determined exclusively by research management and senior management (not including investment banking). Analyst compensation is not based on investment banking, sales and trading or principal trading revenues, however, compensation may relate to the revenues of UBS Group as a whole, of which investment banking, sales and trading and principal trading are a part.
Tax treatment depends on the individual circumstances and may be subject to change in the future. UBS does not provide legal or tax advice and makes no representations as to the tax treatment of assets or the investment returns thereon both in general or with reference to specific client's circumstances and needs. We are of necessity unable to take into account the particular investment objectives, financial situation and needs of our individual clients and we would recommend that you take financial and/or tax advice as to the implications (including tax) of investing in any of the products mentioned herein.
This material may not be reproduced or copies circulated without prior authority of UBS. Unless otherwise agreed in writing UBS expressly prohibits the distribution and transfer of this material to third parties for any reason. UBS accepts no liability whatsoever for any claims or lawsuits from any third parties arising from the use or distribution of this material. This report is for distribution only under such circumstances as may be permitted by applicable law. For information on the ways in which CIO manages conflicts and maintains independence of its investment views and publication offering, and research and rating methodologies, please visit www.ubs.com/research-methodology. Additional information on the relevant authors of this publication and other CIO publication(s) referenced in this report; and copies of any past reports on this topic; are available upon request from your client advisor.
Important Information About Sustainable Investing Strategies: This terminology refers to definitions in the UBS Sustainable Investing Framework and does not refer or relate to any product specific regulatory labelling regime or naming conventions. Sustainable investing strategies aim to consider and incorporate environmental, social and governance (ESG) factors into investment process and portfolio construction. Strategies across geographies approach ESG analysis and incorporate the findings in a variety of ways. Incorporating ESG factors or sustainable investing considerations may inhibit UBS's ability to participate in or to advise on certain investment opportunities that otherwise would be consistent with the Client's investment objectives. The returns on a portfolio incorporating ESG factors or sustainable investing considerations may be lower or higher than portfolios where ESG factors, exclusions, or other sustainability issues are not considered by UBS, and the investment opportunities available to such portfolios may differ.
External Asset Managers / External Financial Consultants: In case this research or publication is provided to an External Asset Manager or an External Financial Consultant, UBS expressly prohibits that it is redistributed by the External Asset Manager or the External Financial Consultant and is made available to their clients and/or third parties.
USA: Distributed to US persons only by UBS Financial Services Inc. or UBS Securities LLC, subsidiaries of UBS AG. UBS Switzerland AG, UBS Europe SE, UBS Bank, S.A., UBS Brasil Administradora de Valores Mobiliarios Ltda, UBS (Brasil) Corretora de Valores S.A., UBS Asesores Mexico, S.A. de C.V., UBS SuMi TRUST Wealth Management Co., Ltd., UBS Wealth Management Israel Ltd and UBS Menkul Degerler AS are affiliates of UBS AG. **UBS Financial Services Inc. accepts responsibility for the content of a report prepared by a non-US affiliate when it distributes reports to US persons. All transactions by a US person in the securities mentioned in this report should be effected through a US-registered broker dealer affiliated with UBS, and not through a non-US affiliate. The contents of this report have not been and will not be approved by any securities or investment authority in the United States or elsewhere. UBS Financial Services Inc. is not acting as a municipal advisor to any municipal entity or obligated person within the meaning of Section 15B of the Securities Exchange Act (the "Municipal Advisor Rule") and the opinions or views contained herein are not intended to be, and do not constitute, advice within the meaning of the Municipal Advisor Rule**.
For country information, please visit ubs.com/cio-country-disclaimer-gr or ask your client advisor for the full disclaimer.
Except as otherwise specified herein and/or depending on the local entity from which you are receiving this report, this report is distributed by UBS Switzerland AG, authorised and regulated by the Swiss Financial Market Supervisory Authority (FINMA).
Version C/2026. CIO82652744
© UBS 2026. The key symbol and UBS are among the registered and unregistered trademarks of UBS. All rights reserved.