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ETH 2030 Price Target and Optimal Portfolio Allocations

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> We estimate ETH's price to hit $22k by 2030 in our updated base case scenario and explore optimal BTC and ETH allocations in both traditional 60/40 and crypto-only portfolios.

Please note that VanEck has positions in ether and bitcoin.

The information, valuation scenarios and price targets presented on any digital assets in this blog are not intended as financial advice, a recommendation to buy or sell these digital assets, or any call to action. There may be risks or other factors not accounted for in these scenarios that may impede the performance these digital assets; their actual future performance is unknown, and may differ significantly from any valuation scenarios or projections/forecasts herein. Any projections, forecasts or forward-looking statements included herein are the results of a simulation based on our research, are valid as of the date of this communication and subject to change without notice, and are for illustrative purposes only. Please conduct your own research and draw your own conclusions.

We anticipate that spot ether ETFs are nearing approval to trade on U.S. stock exchanges. This development would allow financial advisors and institutional investors to hold this unique asset with the security of qualified custodians, and benefit from the pricing and liquidity advantages characteristic of ETFs. In response, we've updated our financial model and reevaluated the fundamental investment case for ETH. We also performed a series of quantitative analyses on how ether (ETH) interacts with bitcoin (BTC) in a traditional 60/40 portfolio, focusing on the tradeoff between risk and return.

The key takeaways of this piece are:

1. Driven by a strong value proposition to entrepreneurs, the Ethereum network is likely to continue its rapid market share growth from traditional financial market participants and, increasingly, Big Tech. Should it do so while maintaining its dominant position among smart contract platforms, we see a credible path to $66B in free cash flow to token holders supporting a $2.2 trillion asset, or $22k per coin, by 2030.
2. Adding a modest allocation of cryptocurrencies (up to 6%) to a traditional 60/40 portfolio can substantially improve the portfolio's Sharpe ratio with a relatively minor impact on drawdown. **An allocation close to 70/30 between bitcoin and ether** for a crypto-only portfolio provided the best risk-adjusted returns.

The Investment Case for Ethereum: An Evaluation

Ether (ETH), the native token of Ethereum, is a novel asset that exposes investors to a high-growth, internet-native commercial system called Ethereum that threatens to disrupt existing financial businesses and Big Tech platforms like Google and Apple. Ethereum is a successful *digital economy* that attracts ~**~20M** monthly active users while settling **$4T** in settlement value and facilitating **$5.5T** in stablecoin transfers over the last twelve months. Ethereum secures over **$91.2B** in stablecoins, **$6.7B** in tokenized off-chain assets, and **$308B** in digital assets. The centerpiece asset of this financial system is the ETH token, and in our updated base case, we believe it to be worth $22k by 2030, representing a total return of 487% from today's ETH price, a compound annual growth rate (CAGR) of 37.8%.

We project ETH's 2030 valuation based upon a forecast of $66B in free cashflows generated by Ethereum and accruing to the ETH token. We estimate 33x valuation multiple on those cashflows. As Ethereum is a platform for applications, we begin our valuation by estimating the market size of business sectors that blockchain applications will disrupt. We estimate the total addressable market (TAM) to be $15T based on annual revenues in these industry verticals:

- Finance, Banking, and Payments (FBP) - $10.9T
- Marketing, Advertising, Social and Gaming (MASG) - $1.1T
- Infrastructure (I) - $1.8T
- Artificial Intelligence (AI) - $1.4T

From our TAM figures, we apply market capture estimates of these revenues utilizing blockchains such as Ethereum. These penetration rates are 7.5%, 20%, 10%, and 5% for FBP, MASG, I, and AI, respectively (Fig 6). After that, we predict the share of crypto applications built on Ethereum rather than other blockchains, and our base case is 70%. We then estimate the fees that Ethereum will charge app users, which is effectively a "take rate" on these applications' revenues, and we calculate this will be 5-10%. We recently updated our **ETH model** from Spring 2023 to add the AI end-market to reflect Ethereum's great potential in that sector. The other impactful adjustments to our previous model are increased burn of ETH supply, greater end market capture, and a higher take rate on underlying economic activity. We believe these changes are justified by fundamentals, recent innovations that make Ethereum more accessible, and changing politics in the U.S.

Figure 1 - ETH's Trailing Twelve-Months (TTM) Metrics

ETH Trailing Twelve Months	
Ethereum Smart Contract Market Share	58%
Revenue (Millions)	$3,461
Validator Cut	5.00%
Value to Tokenholders (Millions)	$3,288
Current FCF Multiple	137.84x
ETH FDV (Millions)	$453,282
ETH Supply (Millions)	120.13
ETH Price	$3,773

Source: **Artemis XYZ** as of 5/28/2024. Not a recommendation to buy or sell any of the names mentioned herein. **Past performance is no guarantee of future results. Trailing Twelve-Months (TTM)** refers to the past 12 consecutive months of data up to the current date, used for financial analysis to provide a recent historical perspective. **Free Cash Flow (FCF)** is the net amount of ether available from the network's operations after considering all network costs, like gas fees used for transactions and smart contracts. **Fully Diluted Valuation (FDV)**, represents the total market value of all ether (ETH) tokens, based on the current price, if the entire projected supply were already in circulation. This includes both the existing supply and any future ether that will be minted.

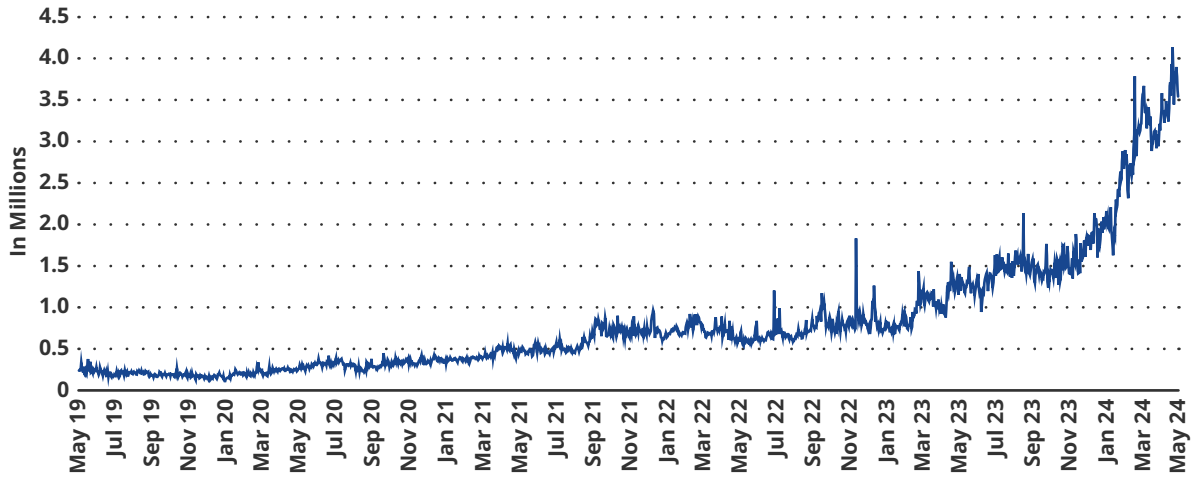
Figure 2 - Ether Price Target for 2030: Base, Bull, and Bear Case Scenarios

Ethereum 2030 Price Target			
	Base Case	**Bull Case**	**Bear Case**
Ethereum Terminal Smart Contract Market Share	70.00%	90.00%	15.00%
ETH Price Target			
Estimated Revenue 2030 ($M)	$78,501	*$361,641*	*$2,477*
Global Tax Rate on Crypto	15%	15%	15%
Validator Cut	1.00%	1.00%	1.00%
FCF to Tokenholders in 2030 ($M)	$66,058	$304,321	$2,084
FCF Terminal Multiple	33.33	50	20
ETH FDV ($M)	$2,201,945	$15,216,032	$41,681
ETH Supply in 2030	100.07	98.85	115.73
Token Price 2030 (USD)	***$22,000***	***$154,000***	***$360***

Source: VanEck Research as of 5/28/2024. **Past performance is no guarantee of future results. The information, valuation scenarios, and price targets in this blog are not intended as financial advice or any call to action, a recommendation to buy or sell, or as a projection of how ETH will perform in the future. Actual future performance of ETH is unknown, and may differ significantly from the hypothetical results depicted here. There may be risks or other factors not accounted for in the scenarios presented that may impede the performance. These are solely the results of a simulation based on our research, and are for illustrative purposes only. Please conduct your own research and draw your own conclusions.**

We believe ETH is a revolutionary asset with few parallels in the non-crypto financial world. ETH can be thought of as *"Digital Oil"* because it is consumed by engaging in activity on Ethereum. ETH can also be viewed as *"Programmable Money"* as the financialization of ETH and other Ethereum assets can occur automatically, without any intermediary or censorship, on the Ethereum blockchain. Furthermore, we consider ETH a *"Yield Bearing Commodity"* because it can earn yield in ETH by being pledged, non-custodially, to validators who govern the Ethereum network. Finally, we believe ETH can be deemed an *"Internet Reserve Currency"* as it is the base asset that prices all activity and most digital assets within the $1T+ Ethereum ecosystem and its 50+ connecting blockchains.

Figure 3 - Ethereum Ecosystem Daily Active Users Have Grown 71% CAGR

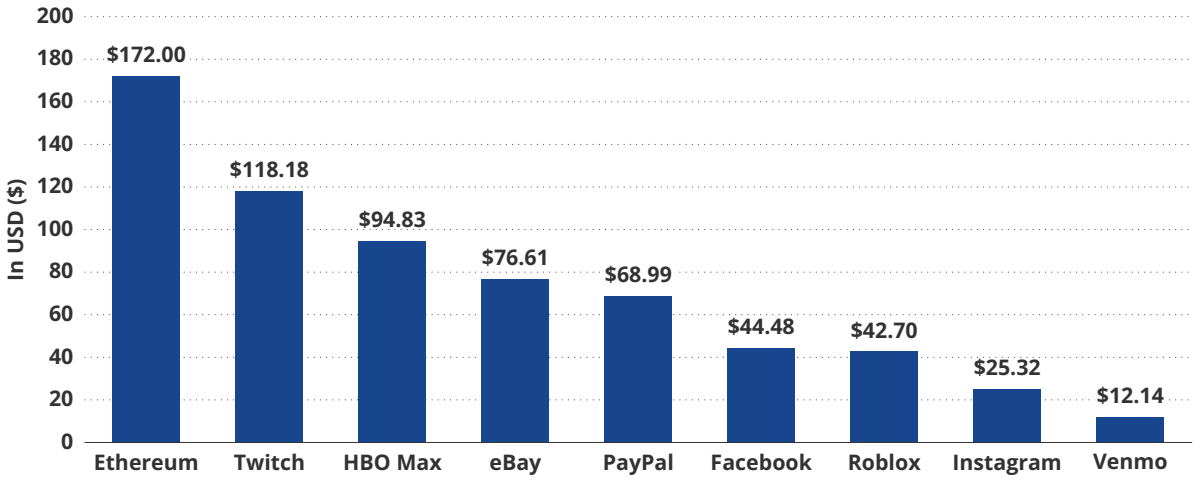


Source: **Artemis XYZ** as of 5/28/2024. Not a recommendation to buy or sell any of the names mentioned herein. **Past performance is no guarantee of future results. Compound Annual Growth Rate (CAGR)** represents the rate at which the value of ether (ETH) has grown annually over a specified time period. This metric is used to provide a smoothed annual growth rate, eliminating fluctuations and giving a clearer picture of long-term investment performance.

Regardless of its classification, ETH benefits from the growing usage of the Ethereum blockchain. Ethereum is a vibrant economic platform that can be considered a "Digital Mall" whose usership has grown **~1500%**, and revenue has surged at a **161% CAGR since 2019**. Over the past year, Ethereum has generated **$3.4B** in revenue, and this value accrues directly to ETH holders. Because ETH must be purchased to utilize Ethereum, all ETH holders benefit from the demand-driven currency inflows. Additionally, **~80%** of these revenues in ETH are used to buy back and "burn" circulating ETH to remove it from circulation permanently. This is analogous to irreversible stock buybacks.

Over the last six months, **541k** of ETH worth $1.58B, 0.4% of all supply, has been removed. Thus, holders of ETH double benefit from Ethereum activity due to both usership-driven ETH purchases and the burning of supply. ETH users can also earn a yield on ETH, in ETH, which amounts to **~3.5%** per annum. This is done by **"staking"** ETH to Ethereum network entities called validators to provide them with the necessary collateral bond to run the Ethereum network.

Figure 4 - Ethereum Revenue Per User Exceeds Most Web2 Businesses



Source: **Business of Apps**, **Artemis XYZ** as of 5/28/2024.

Compared to web2 applications, Ethereum (**$3.4B**) generates more revenue than Etsy (**$2.7B**), Twitch (**$2.6B**) and Roblox (**$2.7B**). Ethereum (20M) boasts more monthly active users than Instacart (**14M**), Robinhood (**10.6M**), and Vrbo (**17.5M**). Additionally, the average Ethereum monthly active user generates $172 in annual revenue, comparable to Apple Music, $100; Netflix , $142; and Instagram, **$25**. We categorize Ethereum as a platform business similar to the Apple App Store or Google Play. However, Ethereum has a substantial edge over web2 platforms because it offers the Ethereum users and Ethereum app business owners unique value propositions not available outside of crypto.

The most appealing aspect of using Ethereum is its potential cost savings to businesses and users. Whereas Apple and Google take around **30%** of hosted application revenue, Ethereum currently extracts around **24%** (14% for non-DeFI apps). Additionally, we believe that Ethereum's take rate will drop to 5-10% over the next 18 months as activity shifts to less-expensive Ethereum Layer-2 Blockchains (current take rates of 0.25%-3%). For more information on Ethereum Layer-2s, see **our April report** on the topic. From the payments angle, credit card processors and other payment apps like PayPal syphon **1.94%** on all payments (**2.9%** on business transactions) while Visa charges **1.79-2.43%** or more. By contrast, on Ethereum, users pay around ***0.001%*** for a simple transfer, which is less than 1/1000th of the cost of current leading payment applications.

Compared to data-centric social networking platforms like Facebook, we believe Ethereum may enable more capable and lucrative applications for entrepreneurs. Ethereum allows applications to freely interconnect and innovate using a permissionless deployment environment and open-source data. Thus, anyone can create an application and tap into important data, including all user activity on a chain - which would be like Visa giving away customer payment data for free! For example, the social media app called Farcaster currently collects **$75.5** per monthly active user, whereas Facebook makes around **$44**. Even more compelling, the incentive structure of open-source has spawned a far more engaging application as the average daily time on the app for Facebook is **31 minutes** versus ***350 minutes*** for Farcaster.

The result of Ethereum's attributes is that some of the margins earned by Big Finance, Big Tech, and Big Data could be transferred to users in the form of consumer welfare. As more data is generated in public and more commerce is moved off expensive, closed financial rails, business moats will erode. The result will be potential business formation around the low-margin economics of open-source. Consumers and app builders will migrate to Ethereum because it is cheaper and provides more value than current stalwarts. We believe that, over the next 5-10 years, between 7% and 20% of Web2/Big Finance business topline, trillions of dollars, can be squeezed by systems like Ethereum and remitted mostly back to users and app builders. Furthermore, the unique ownership properties of Ethereum allow for a censorship-free digital existence on social media and gaming applications. These features will be increasingly valuable if government censorship of information continues to grow.

There is also strong reason to believe blockchains like Ethereum will become important back-end infrastructure for Artificial Intelligence applications. The proliferation of AI Agents and an AI Agent economy will demand unrestrained transfer of value, definitive proof of humanity, and clearly defined data/model provenance. These unique properties are available on blockchains, but evade existing tech infrastructure. We explored many of the implications of crypto and AI in our February 2024 **piece**. We estimate that the TAM for global AI productivity gains may be as high as $8.5T by 2030. Based upon assumptions of business adoption of 66%, AI software value capture of 25%, and a 72% non-hardware value capture, we see the TAM of potential revenues for crypto and AI to be $911B by 2030, with $45.5B in revenues for open-source AI applications and infrastructure, of which $1.2B in revenues may flow back to ETH holders directly.

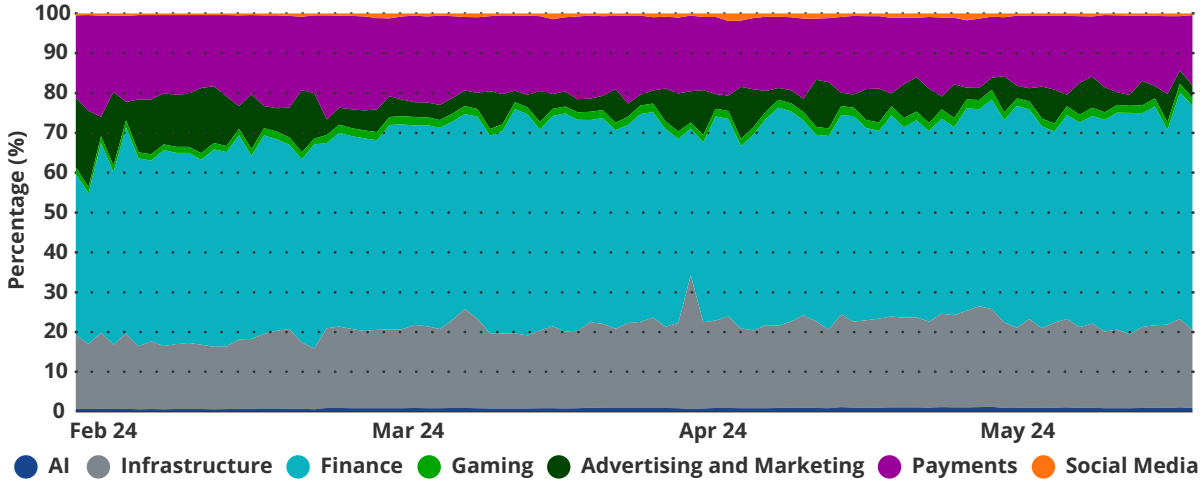
Currently, the majority of activity on Ethereum is financial activity. Decentralized exchanges and banking protocols comprise 49% of Ethereum's revenues, while **20%** is accounted for by simple transfers of value. These revenues are bucketed under Finance, Banking, and Payments (FGP). Meanwhile, Infrastructure (I) takes up the next largest share, around 19%, which relates to decentralized businesses t, and creates software to service decentralized apps. Finally, we classify activity related to social media and NFTs within the Marketing, Advertising, Social Media, and Gaming (MASG) category. MASG contributed 11% of those revenues. Currently, AI plays a very minor role in generating revenue for Ethereum.

Ethereum revenues from the aforementioned end-market activities are Ethereum revenue items. These include Transaction Fees, Layer-2 Settlement, Blockspace Ordering (MEV), and Security as a Service. Transaction Fees are charges users (and, in the future, autonomous agents) pay to engage with applications or transfer value on Ethereum. Layer-2 Settlement is the revenue derived from Ethereum Layer-2s Blockchains paying Ethereum for the privilege of "settling" transactions. **MEV** is revenue generated by users paying for the right to order a block of transactions. Security as a Service is the usage of ETH as collateral to "back" permissionless applications that need this value to perform their business functions. Over the last year, ~72% of Ethereum revenues stemmed from transactions, MEV made up around 19%, L2 settlements were around 9%, while Security as a Service has not officially launched.

As we believe Ethereum's strongest value proposition is to finance, we project in 2030 that 71% of Ethereum's revenues will derive from financial businesses (FGP). Due to experimentation and the benefits of Ethereum's open-source financial and data system, we believe MASG will grow to 17%, which will slightly displace Infrastructure, which will provide 8% of revenues. On the balance, AI will account for 2% of Ethereum's revenues. However, we could see AI's topline contribution grow by magnitude or more if decentralized AI software demonstrates its immense potential.

From the standpoint of revenue items, we estimate that individual mainnet transactions will only make up 1.5% of revenues. Layer-2 Settlements, which bundle blobs of transactions on the mainnet, will dramatically increase to roughly 76% of revenues. This is because we anticipate that the majority of activity will occur on Ethereum Layer-2 blockchains but that most of the value from those transactions will accrue to Ethereum. Meanwhile, MEV maintains its importance at 18% of proceeds, while Security as a Service will become 4.5% of Ethereum's topline.

Figure 5 - Ethereum Revenues are Skewed Toward Financial Applications



AI	Infrastructure	Finance	Gaming	Advertising & Marketing	Payments	Social Media
0.80%	18.81%	48.71%	1.78%	8.93%	20.36%	0.62%

Source: **Artemis XYZ,** VanEck Research as of 5/28/2024. Not a recommendation to buy or sell any of the names mentioned herein.
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Figure 6 - Detailed Ethereum Revenue Model for 2030

End Market TAM ($M)			
Finance, Banking, Payments	$10,930,973	$10,930,973	$10,930,973
Marketing, Advertising, Social and Gaming	$1,033,109	$1,033,109	$1,033,109
Infrastructure	$1,865,527	$1,865,527	$1,865,527
Artificial Intelligence	$911,022	$911,022	$911,022

Crypto Terminal Market Share	Base	Bull	Bear
Finance, Banking, Payments	7.50%	15.00%	1.00%
Marketing, Advertising, Social and Gaming	20.00%	50.00%	5.00%
Infrastructure	10.00%	20.00%	1.00%
Artificial Intelligence	5.00%	25.00%	2.00%
Ethereum Ecosystem Value Capture			
Finance, Banking, Payments	5.00%	7.50%	2.50%
Marketing, Advertising, Social and Gaming	10.00%	15.00%	5.00%
Artificial Intelligence	5.00%	7.50%	2.50%
Infrastructure	5.00%	7.50%	2.50%
MEV Revenue			
MEV LT Take Rate	0.10%	0.15%	0.05%
MEV Value Accrual to Token	90.00%	95.00%	80.00%

Ethereum Security as a Service	Base	Bull	Bear
Percent Supply of ETH	10%	15%	5%
ETH Opportunity Cost Multiple	250%	500%	150%
Revenue Items			
Transactions	$1,242	$5,140	$22
Layer 2 Settlement	$59,330	$257,278	$2,136
MEV - Block Builder Revenue	$14,265	$56,108	$261
Ethereum Security as a Service	$3,628	$42,852	$20
Revenue Total	$78,501	$361,641	$2,477

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Bitcoin and Ether: Optimal Portfolio Allocations Analysis Overview

We performed a study to evaluate the impact of including bitcoin (BTC) and ether (ETH) in a traditional 60/40 investment portfolio, covering the period from 9/1/15 to 4/30/24. The analysis was conducted through five main components:

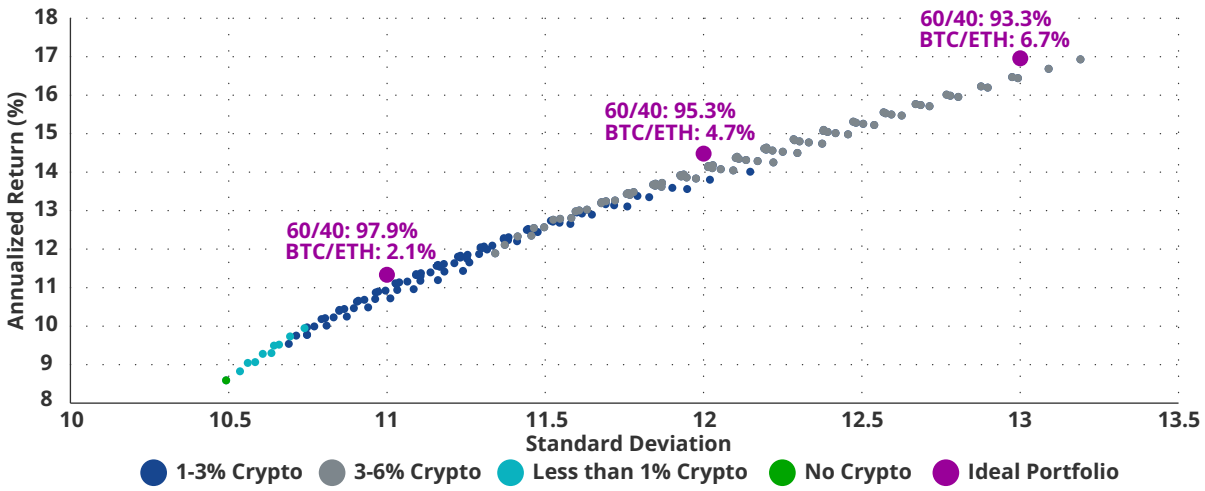
1. **Optimal constrained allocation in a traditional 60/40 portfolio:** We assessed the ideal weight of BTC and ETH in a 60% equity and 40% bond portfolio, limiting the maximum combined allocation to 6%. This was done using 169 sample portfolios with incremental additions of crypto exposure.
2. **Drawdown and Sharpe ratio analysis:** We examined the drawdown and Sharpe ratios of a subset of 16 representative portfolios to understand the risk-return tradeoffs. Adding a modest allocation of cryptocurrencies **(up to 6%)** to a traditional 60/40 portfolio can substantially improve the portfolio's Sharpe ratio with a relatively minor impact on drawdown. For investors with high-risk tolerance (up to ~20% annualized volatility), an allocation of up to 20% continues to improve the risk/reward of the overall portfolio. Between BTC & ETH, we see a roughly **70/30** weight as providing the best risk-adjusted returns.
3. **Optimal BTC and ETH allocation in a crypto-only portfolio:** We analyzed every permutation of BTC and ETH weights in a portfolio consisting only of these two cryptocurrencies, aiming to maximize the Sharpe ratio and arrive at an ideal BTC/ETH weight.
4. **Efficient frontier using the optimal crypto portfolio:** We investigated the optimal weighting of the ideal BTC/ETH portfolio to maximize return given various levels of volatility to illustrate a portion (with reasonable volatility levels) of the efficient frontier when adding crypto to the 60/40.
5. **Time dependence of efficient frontier results:** We considered the impact of various starting points on the results from study #4. By doing so, we show that a larger crypto allocation helped portfolio risk-adjusted returns across every available time period.

1. Optimal allocation in a traditional 60/40 portfolio

The primary goal was to identify the optimal allocation of BTC and ETH within a traditional 60/40 portfolio, constrained to a maximum of **6%** combined weight in cryptocurrencies. The analysis involved creating 169 model portfolios with incremental crypto exposure (up to 3% each for BTC and ETH).

The results indicated that a portfolio with 3% bitcoin and 3% ether (alongside 57% S&P 500 and 37% U.S. Bonds) provided the highest return per unit of risk (standard deviation). In other words, while maintaining a conservative overall allocation of 6%, the maximum allowable allocation to crypto achieved the highest risk-adjusted returns.

Optimal BTC/ETH Allocation in a Traditional 60/40 Portfolio for Risk-Adjusted Returns (9/1/2015 – 4/30/2024)



Source: VanEck Research as of 5/28/2024. **Past performance is no guarantee of future results. The information, valuation scenarios, and price targets in this blog are not intended as financial advice or any call to action, a recommendation to buy or sell, or as a projection of how ETH and BTC will perform in the future. Actual future performance of ETH and BTC is unknown, and may differ significantly from the hypothetical results depicted here. There may be risks or other factors not accounted for in the scenarios presented that may impede the performance. These are solely the results of a simulation based on our research, and are for illustrative purposes only. Please conduct your own research and draw your own conclusions.**

2. Drawdown and Sharpe ratio analysis

To evaluate the risk-return tradeoffs, we analyzed 16 representative 60/40 portfolios with incremental increases in crypto allocation, up to the same 6% maximum. The key findings were:

- **Sharpe Ratio Improvement:** Portfolio Sharpe ratio improves significantly as the crypto allocation increases.
- **Minimal Impact on Drawdown:** Maximum drawdown only increased marginally, making the higher crypto allocation an attractive tradeoff for many investors.

Data on max drawdown and Sharpe ratio showed that a 6% crypto allocation resulted in a Sharpe ratio nearly double that of the 60/40 portfolio, while only modestly increasing drawdown. This emphasizes the very favorable risk-return tradeoff when adding BTC and ETH to a traditional portfolio.

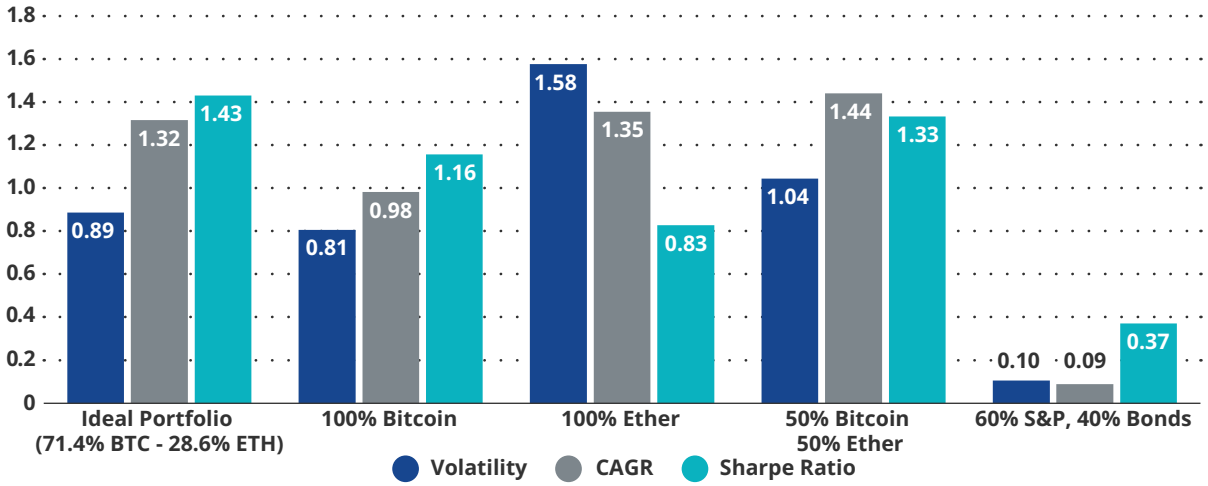
	Max Drawdown	Sharpe Ratio
6040	-21.54	0.78
6040 1.00% Bitcoin	-21.74	0.87
6040 2.00% Bitcoin	-21.94	0.96
6040 1.00% Ethereum	-21.98	0.95
6040 1.00% Bitcoin and 1.00% Ethereum	-22.18	1.04
6040 3.00% Bitcoin	-22.21	1.04
6040 2.00% Bitcoin and 1.00% Ethereum	-22.38	1.12
6040 2.00% Ethereum	-22.42	1.10
6040 1.00% Bitcoin and 2.00% Ethereum	-22.62	1.19
6040 3.00% Bitcoin and 1.00% Ethereum	-22.64	1.20
6040 2.00% Bitcoin and 2.00% Ethereum	-22.82	1.26
6040 3.00% Ethereum	-22.85	1.24
6040 1.00% Bitcoin and 3.00% Ethereum	-23.05	1.31
6040 3.00% Bitcoin and 2.00% Ethereum	-23.08	1.33
6040 2.00% Bitcoin and 3.00% Ethereum	-23.25	1.38
6040 3.00% Bitcoin and 3.00% Ethereum	-23.60	1.44

Source: VanEck Research as of 5/28/2024. **Past performance is no guarantee of future results. Sharpe ratio** is a measure used in finance to evaluate the performance of an investment compared to a risk-free asset, after adjusting for its risk. It is calculated by subtracting the risk-free rate of return (such as the return on U.S. Treasury Bonds) from the rate of return for a portfolio and then dividing the result by the standard deviation of the portfolio returns. This ratio helps investors understand how much excess return they are receiving for the extra volatility that they endure for holding a riskier asset. A higher Sharpe ratio indicates a more attractive risk-adjusted return. **The information, valuation scenarios, and price targets in this blog are not intended as financial advice or any call to action, a recommendation to buy or sell, or as a projection of how ETH and BTC will perform in the future. Actual future performance of ETH and BTC is unknown, and may differ significantly from the hypothetical results depicted here. There may be risks or other factors not accounted for in the scenarios presented that may impede the performance. These are solely the results of a simulation based on our research, and are for illustrative purposes only. Please conduct your own research and draw your own conclusions.**

3. Optimal BTC and ETH allocation in a crypto-only portfolio

Focusing solely on a BTC and ETH portfolio, we tested every possible weighting combination to determine the optimal mix for maximizing the Sharpe ratio. **The analysis revealed that the ideal allocation was 71.4% bitcoin and 28.6% ether.** This configuration yielded the highest Sharpe ratio, indicating the best risk-adjusted return **for a crypto-only portfolio**. The findings underscored investors' need to hold both cryptocurrencies to maximize benefits. The naïve allocation of 50% BTC and 50% ETH also demonstrated substantial advantages, reinforcing the value of diversification within the crypto asset class.

Comparative Metrics of Various BTC-ETH Portfolio Allocations



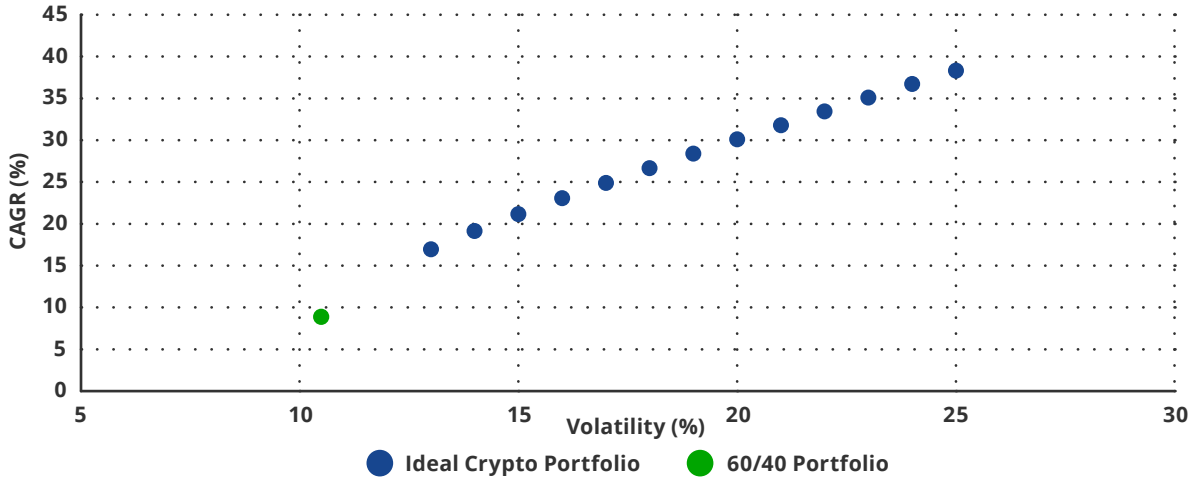
	Volatility	CAGR	Sharpe Ratio
Ideal Portfolio (71.4% BTC - 28.6% ETH)	0.89	1.32	1.43
100% Bitcoin	0.81	0.98	1.16
100% Ether	1.58	1.35	0.83
50% Bitcoin 50% Ether	1.04	1.44	1.33
60% S&P, 40% Bonds	0.10	0.09	0.37

Source: VanEck Research as of 5/28/2024. **Past performance is no guarantee of future results. Volatility** refers to the fluctuation in the returns of an asset or portfolio as measured by the standard deviation of returns. Higher volatility indicates greater risk and potentially higher returns, affecting the risk-adjusted returns measured by the Sharpe Ratio. **Compound Annual Growth Rate (CAGR)** represents the rate at which the value of ether (ETH) has grown annually over a specified time period. This metric is used to provide a smoothed annual growth rate, eliminating fluctuations and giving a clearer picture of long-term investment performance. **Sharpe ratio** is a measure used in finance to evaluate the performance of an investment compared to a risk-free asset after adjusting for its risk. It is calculated by subtracting the risk-free rate of return (such as the return on U.S. Treasury Bonds) from the rate of return for a portfolio and then dividing the result by the standard deviation of the portfolio returns. This ratio helps investors understand how much excess return they are receiving for the extra volatility that they endure for holding a riskier asset. A higher Sharpe ratio indicates a more attractive risk-adjusted return. **The information, valuation scenarios, and price targets in this blog are not intended as financial advice or any call to action, a recommendation to buy or sell, or as a projection of how ETH and BTC will perform in the future. Actual future performance of ETH and BTC is unknown, and may differ significantly from the hypothetical results depicted here. There may be risks or other factors not accounted for in the scenarios presented that may impede the performance. These are solely the results of a simulation based on our research, and are for illustrative purposes only. Please conduct your own research and draw your own conclusions.**

4. The efficient frontier when Including crypto

To arrive at the optimal allocation to crypto without constraints while maintaining reasonable volatility, we looked at the optimal weighting of the ideal crypto portfolio (28.6% ETH and 71.4% BTC) to be added to the traditional 60/40 portfolio. The goal was to maximize returns while maintaining given levels of volatility (13%-25%) and hence produce a portfolio of the efficient frontier using those assets, with levels of volatility typically associated with broad investor portfolios. The resulting scatterplot demonstrated that incorporating the optimal crypto portfolio into a traditional 60/40 portfolio could significantly enhance returns with varying degrees of risk.

Additional Volatility from Digital Assets Helps Overall Returns



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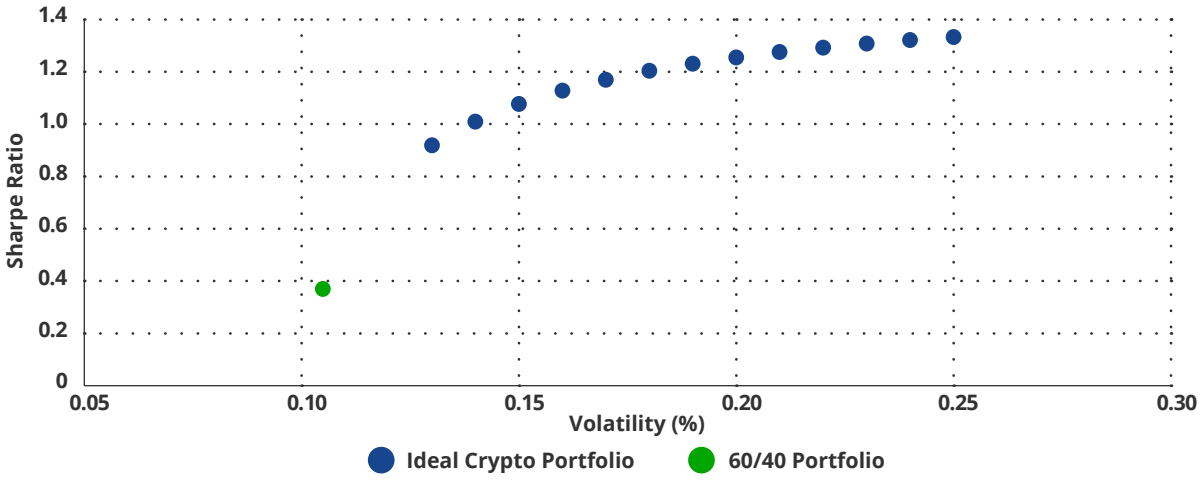
This analysis revealed a nearly linear relationship, a rarity when looking at efficient frontiers, between risk and return as volatility rose. The conclusion is that increased crypto exposure led to very attractive risk/return tradeoffs.

Sharpe Ratio for Blended Portfolio Levels off at 22% Vol



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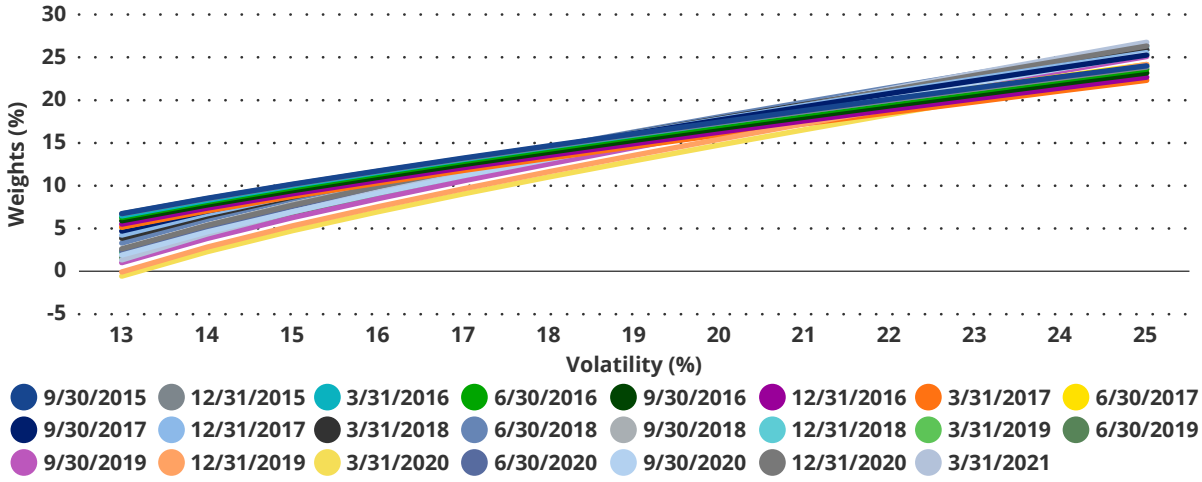
5. Time dependence of efficient frontier results

To determine whether different starting points have an impact on the risk/reward profile of the combined ideal crypto and 60/40 portfolios, we repeated the analysis in 4, while repeatedly moving the starting point 1 quarter forward. Our only constraint was to include at least 3 years of returns. As such, we were able to produce 23 sets of results, and remove time dependence as a variable from the analysis.

Our findings were:

- The optimal weight of the ideal crypto portfolio increased as risk is added across all time periods.

Weights Across Volatility for Time Independent Portfolios



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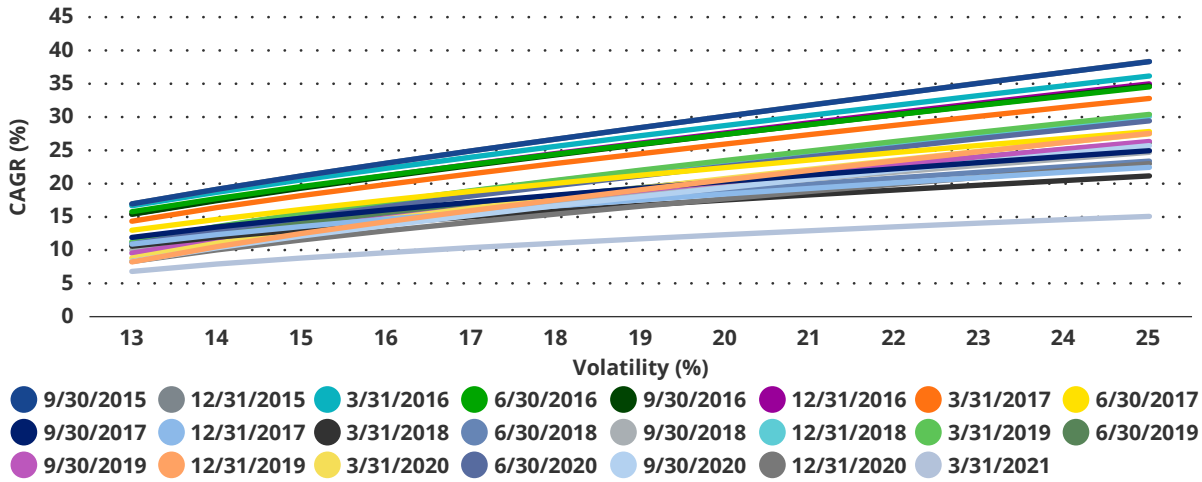
- Higher crypto allocations allowed for higher CAGRs across all time periods.

CAGR Across Volatility for Time Independent Portfolios



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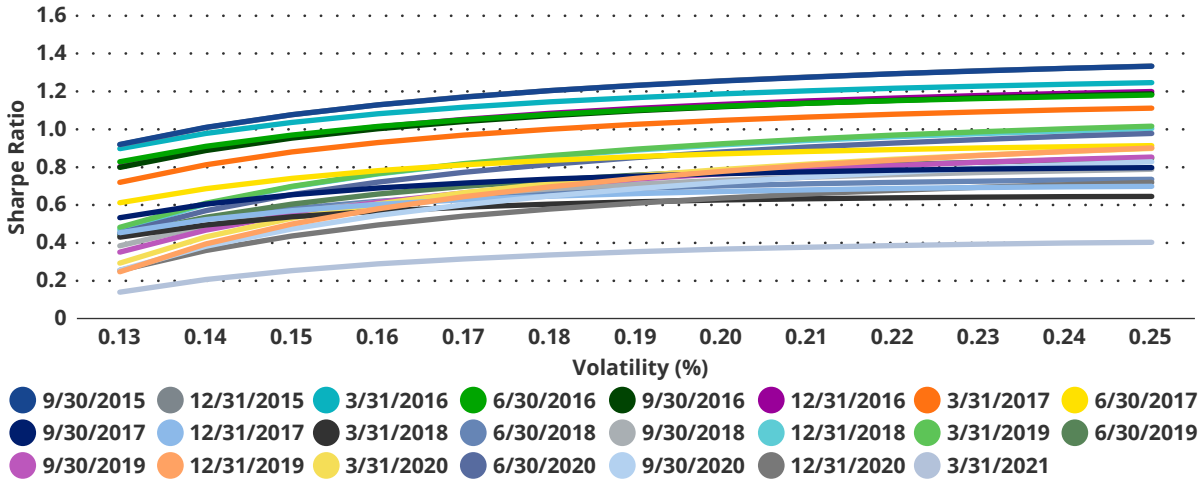
- Sharpe Ratios generally increased with volatility and crypto allocations.

Sharpe Across Volatility for Time Independent Portfolios



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In other words, the results from study #4 are independent of the starting point, and thus bolster the case for including a balanced mix of ETH & BTC up to the 6% weight we studied.

Ether Investment Risks

While ETH boasts a market cap of over $400 billion and is considered a well-established smart contracts platform, it's important to note that investing in ETH comes with significant risks.

1. Dependence on speculation
   a. At this stage, Ethereum's ecosystem is heavily dependent upon speculation to generate revenues. If the overall appetite for risk declines, ETH may exhibit substantial downside beta to the SP500 or NASDAQ Composite.
2. Regulatory risk
   a. Depending upon regulation. ETH or many of the assets within its ecosystem may be classified as securities. This could cause many Ethereum businesses to have to register with the SEC or face serious legal consequences.
   b. The largest financial firms have substantial lobbyist presence as well as former employees appointed to the highest levels of most governments around the world. These former employees could create regulatory moats that disfavor disrupters like Ethereum.
3. Interest rate risk
   a. As a high-risk asset, rate hikes or otherwise restrictive global liquidity could have an outsized impact on ETH's valuation compared to other asset classes.
4. Competition
   a. The emerging smart contract platform space is incredibly competitive. Though Ethereum has a substantial lead, high performance blockchain such as Solana and Sui have some technical advantages and have focused on business development and user experience. This may allow them to challenge Ethereum's dominance over the long run.
5. Financial firms evolve
   a. One of the biggest advantages of Ethereum is that it enables a cheaper financial system because it removes many high-cost aspects of the current financial system. If financial firms pivot to implement cost savings measures, they could retain user base.
   b. Existing financial firms could also create rival blockchain smart contract platforms that cut into Ethereum's long-term potential.
6. Geopolitical
   a. Money control is the most important domain of government power. Geopolitical events, such as major regional war or even elevated geopolitical tensions, could push the governments around the world to squash non-sovereign financial systems and forms of money.

Conclusion

The analysis clearly shows that adding a modest allocation of cryptocurrencies (up to 6%) to a traditional 60/40 portfolio can substantially improve the portfolio's Sharpe ratio with a relatively minor impact on drawdown. **An allocation close to 70/30 between bitcoin and ether for a crypto-only portfolio provided the best risk-adjusted returns.**

Investors should consider their individual risk tolerance, but the data suggests that a balanced inclusion of BTC and ETH can offer outsized benefits in terms of return enhancement relative to the incremental risk introduced. The findings highlight the potential of cryptocurrencies to improve portfolio performance in a controlled and measurable way.

Disclosures

Coin Definitions

- **Ethereum (ETH)** is a decentralized, open-source blockchain with smart contract functionality. Ether is the native cryptocurrency of the platform. Amongst cryptocurrencies, Ether is second only to Bitcoin in market capitalization.
- **Bitcoin (BTC)** is a decentralized digital currency, without a central bank or single administrator, that can be sent from user to user on the peer-to-peer bitcoin network without the need for intermediaries.

Risk Considerations

This is not an offer to buy or sell, or a recommendation to buy or sell any of the securities, financial instruments or digital assets mentioned herein. The information presented does not involve the rendering of personalized investment, financial, legal, tax advice, or any call to action. Certain statements contained herein may constitute projections, forecasts and other forward-looking statements, which do not reflect actual results, are for illustrative purposes only, are valid as of the date of this communication, and are subject to change without notice. Actual future performance of any assets or industries mentioned are unknown. Information provided by third party sources are believed to be reliable and have not been independently verified for accuracy or completeness and cannot be guaranteed. VanEck does not guarantee the accuracy of third party data. The information herein represents the opinion of the author(s), but not necessarily those of VanEck or its other employees.

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Index performance is not representative of fund performance. It is not possible to invest directly in an index.

General Digital Assets Disclosures

Investments in digital assets and Web3 companies are highly speculative and involve a high degree of risk. These risks include, but are not limited to: the technology is new and many of its uses may be untested; intense competition; slow adoption rates and the potential for product obsolescence; volatility and limited liquidity, including but not limited to, inability to liquidate a position; loss or destruction of key(s) to access accounts or the blockchain; reliance on digital wallets; reliance on unregulated markets and exchanges; reliance on the internet; cybersecurity risks; and the lack of regulation and the potential for new laws and regulation that may be difficult to predict. Moreover, the extent to which Web3 companies or digital assets utilize blockchain technology may vary, and it is possible that even widespread adoption of blockchain technology may not result in a material increase in the value of such companies or digital assets.

Digital asset prices are highly volatile, and the value of digital assets, and Web3 companies, can rise or fall dramatically and quickly. If their value goes down, there's no guarantee that it will rise again. As a result, there is a significant risk of loss of your entire principal investment.

Digital assets are not generally backed or supported by any government or central bank and are not covered by FDIC or SIPC insurance. Accounts at digital asset custodians and exchanges are not protected by SPIC and are not FDIC insured. Furthermore, markets and exchanges for digital assets are not regulated with the same controls or customer protections available in traditional equity, option, futures, or foreign exchange investing.

Digital assets include, but are not limited to, cryptocurrencies, tokens, NFTs, assets stored or created using blockchain technology, and other Web3 products.

Web3 companies include but are not limited to, companies that involve the development, innovation, and/or utilization of blockchain, digital assets, or crypto technologies.

All investing is subject to risk, including the possible loss of the money you invest. As with any investment strategy, there is no guarantee that investment objectives will be met and investors may lose money. Diversification does not ensure a profit or protect against a loss in a declining market. Past performance is no guarantee of future performance.

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