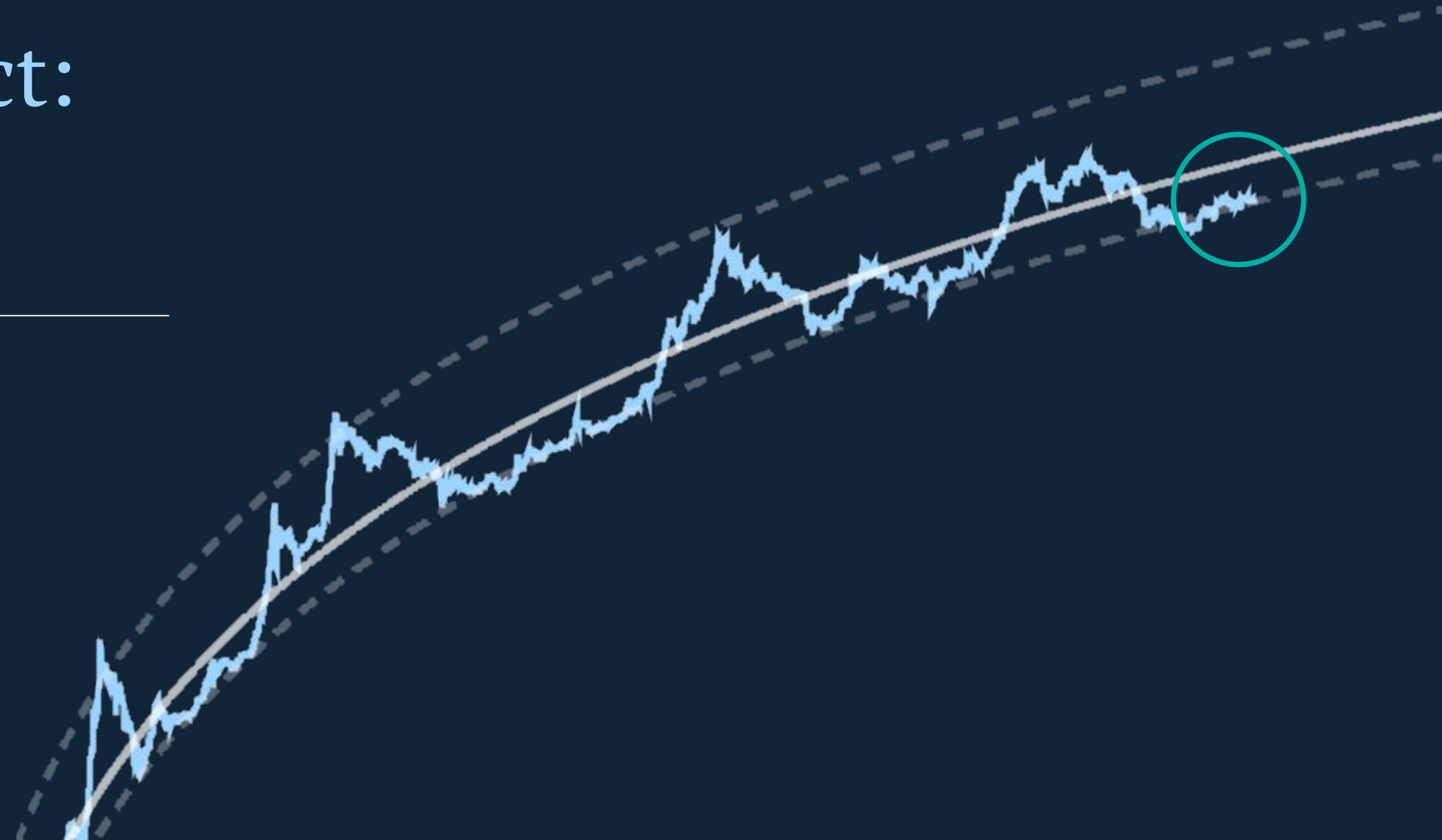


Crypto's Lollapalooza Effect:

The secular and cyclical trends creating a generational investment opportunity

August 2023



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Outline

 Executive Summary

 Secular trends

 Cyclical trends

 Final Thoughts



Executive Summary

[Back to Outline](#)

- Ten months after the FTX debacle, we believe crypto is in the early phases of a new cycle.
- While the asset class is up by more than 65% year-to-date (YTD),¹ we're convinced that there is a number of positive factors converging for digital assets.
- In our opinion, this hasn't been fully appreciated by investors yet.
- These factors consist of reassuring long-term trends and shifting short-term forces that are adding up to make the current moment a rare and unique opportunity for long-term investors to start allocating to crypto.



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Taking Charlie Munger's wisdom as an inspiration, this confluence of secular and cyclical trends is what we believe to be **Crypto's Lollapalooza effect.**

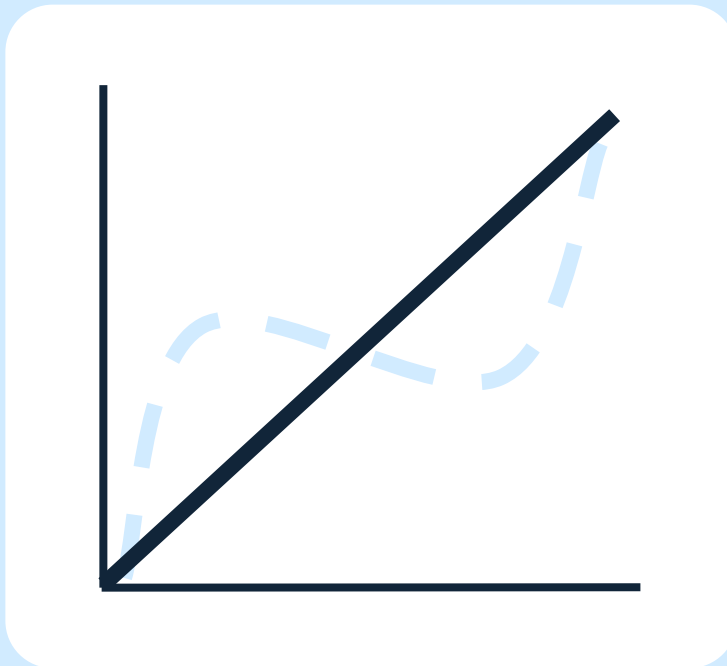
"Lollapalooza effects occur when there are multiple forces or factors moving in the same direction. The key is that when forces combine, they don't just add up; each force builds off of and strengthens the other, creating an explosive effect with huge results."

Charlie Munger

¹Taking the [Nasdaq Crypto Index](#) as the benchmark for the digital asset space.



Secular trends



- 1 Major networks are on the path to reach billions of users
- 2 Crypto's value accrual has advanced rapidly in the past 4 years
- 3 Bitcoin's value proposition was reassured in the US banking crisis
- 4 Crypto regulation is advancing worldwide
- 5 The world's largest institutions are in crypto to stay





1) Major networks are on the path to reach billions of users



Bitcoin

- **Emerging digital store of value:** the number of addresses holding BTC for the long-term accounts for a vast majority of the circulating supply.¹
- **Security:** the network's hashrate continues to reach new highs.²
- **Scalability:** Lightning Network significantly enhances BTC's use as a medium of exchange.
- **New use cases:**
 - Taro assets and stablecoins.
 - Ordinals and Inscriptions.
 - NFTs and BRC-20 tokens.



Ethereum

- **Operationally de-risked:** The transition to Proof-of-Stake has finally been completed with **The Merge** and **Shanghai**.
- **New tokenomics:** ETH, the native token, became a **yield-bearing asset**, and potentially **deflationary** in periods of high network activity.
- **Scalability:** rollups such as Arbitrum and Optimism are making Ethereum cheaper and faster.³
- **New Use Cases:**
 - Developments in DeFi, NFTs, stablecoins.
 - Decentralized social networks and decentralized identities.



Better technology, higher security, and new use cases will lead to more demand for blockspace, and thus, for BTC and ETH. That happens alongside the beginning of crypto's broadband phase.

¹<https://www.coindesk.com/markets/2023/07/24/bitcoin-long-term-holders-control-75-of-circulating-supply-glassnode/> (accessed 08/15/2023)

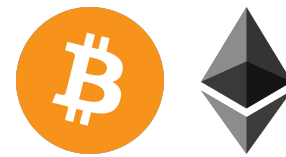
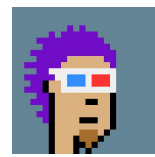
²<https://decrypt.co/120199/bitcoin-mining-difficulty-hits-new-all-time-high> (accessed 08/15/2023)

³<https://ethereum.org/en/developers/docs/scaling/optimistic-rollups/> (accessed 08/15/2023)





2) Crypto's value accrual has advanced rapidly in the past 4 years



	Market Capitalization¹	Monthly DeFi Volume²	Monthly NFT Volume³	Wallets with Non-zero Balances (BTC & ETH)⁴	Monthly Crypto Developers⁵	Coinbase Users⁶	TVL on Ethereum²
Represents	Market-Size	User-Demand	User-Demand	User-Adoption	Developer Activity	Retail Adoption	User-Demand
Dec/2018	\$121B	-*	\$87k	44M	10,261	22M	\$1.4M
Dec/2020	\$756B	\$58B	\$5M	85M	12,043	35M	\$28.5B
Dec/2022	\$810B	\$46B	\$757M	135M	22,770	98M	\$44.9B
Multiple '18 vs '20	6.3x	-*	61.9x	1.9x	1.2x	1.6x	19,752.2x
Multiple '20 vs '22	1.1x	-*	140.9x	1.6x	1.9x	2.8x	1.6x
Multiple '18 vs '22	6.7x	-*	8,727.4x	3.1x	2.2x	4.5x	31,167.8x



The growth of all market and on-chain metrics in major networks (such as Bitcoin and Ethereum) shows that the long-term value accrual of crypto assets continues at full speed.

¹Messari, ²Defillama, ³Dune Analytics, ⁴Glassnode, ⁵Electric Capital and ⁶Business of Apps (accessed 05/31/2023).
*DeFi volume was basically nonexistent in 2018.





3) Bitcoin's value proposition was reassured during the US banking crisis

- The Fed's fastest rate hike in many decades has put US regional banks under a lot of pressure.
- BTC's emerging digital store of value thesis played out exactly when the traditional financial system was shaken out.
- The native token of the Bitcoin network experienced an upward spike in its YTD performance right in midst of the Silicon Valley Bank (SVB) collapse in early March.
- As of late April, the First Republic Bank (FRC) went bust, renewing fears of a continued US banking crisis, leading to another "flight-to-quality" moment for BTC.

Performance of bitcoin and gold in 2023 until the end of April



Fourteen years after its creation, BTC was perceived as an alternative to the fragilities of our legacy financial system, reacting positively to the collapse of regional banks in the US.

¹Hashdex Research with data from Bloomberg (from 12/31/2022 to 04/30/2023)





4) Crypto regulation is advancing worldwide



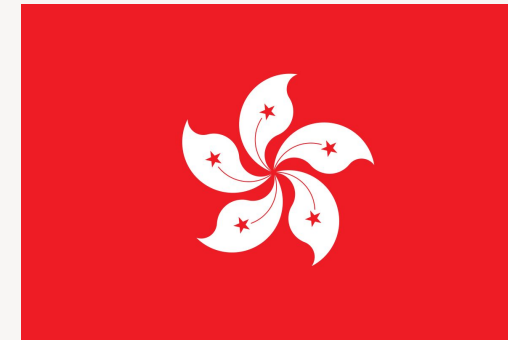
EU Parliament approves Markets in Crypto-Assets (MiCA)¹

MiCA is being celebrated as the most comprehensive regulatory framework for digital assets to date, putting the EU a step ahead of the US and the UK.



Brazil's unlikely bid to become a global crypto hub²

Head of the Brazilian SEC states that "the crypto space is really a big opportunity for us to make things better."



Hong Kong's crypto licensing regime to be launched in May 2023³

Hong Kong regulators are conducting several pilot projects to assess the advantages of digital assets and their applications in financial markets.



Government sets out plan to make UK a global cryptoasset technology hub⁴

UK policymakers and regulators are taking an approach that is uniquely tailored to blockchain and digital asset regulation.



Crypto's long-awaited regulated clarity is finally coming in several jurisdictions, reassuring the asset class and providing the appropriate protections to both retail and institutional investors.

¹<https://www.cnbc.com/2023/05/16/eu-states-approve-worlds-first-comprehensive-crypto-rules.html>

²<https://fortune.com/crypto/2023/05/10/brazil-unlikely-bid-global-crypto-hub/>

³<https://decrypt.co/138158/hong-kongs-crypto-licensing-regime-expected-launch-next-month>

⁴<https://www.gov.uk/government/news/government-sets-out-plan-to-make-uk-a-global-cryptoasset-technology-hub>





5) The world's largest institutions are in crypto to stay

BlackRock

BlackRock, the world's largest asset manager, files for a Spot Bitcoin ETF in the US¹



Payments, loyalty programs, token-gated commerce



Deutsche Bank



Deutsche Bank applies for Digital Asset Custody License in Germany²

SOCIETE GENERALE



Société Générale obtains France's first license for crypto custody and brokerage³

A16z Crypto, the world's most important crypto investor, to open its first international office in the UK⁴



The world's largest asset manager, the largest German bank, and the world's largest crypto investor have made significant announcements. Major companies are integrating crypto in their services.

¹<https://www.cnbc.com/2023/06/15/blackrock-files-for-spot-bitcoin-etf-with-coinbase-as-a-crypto-custodian.html>

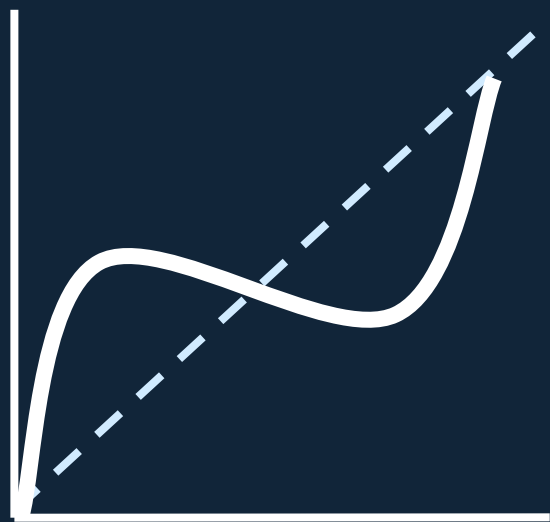
²<https://www.bloomberg.com/news/articles/2023-06-20/deutsche-bank-applies-for-digital-asset-license-amid-growth-push>

³<https://www.reuters.com/business/finance/societe-generale-obtains-frances-first-crypto-licence-2023-07-19/>

⁴<https://www.cnbc.com/2023/06/12/andreessen-horowitz-to-open-office-in-london-could-become-crypto-hub.html>



Cyclical trends



- 1 FTX was the turning point for a new cycle
- 2 US inflation figures have recently crossed below the Fed Funds Rate
- 3 The US will continue monetizing its debt
- 4 The Bitcoin halving is just around the corner
- 5 Crypto is still far below its long term “fair” value trend

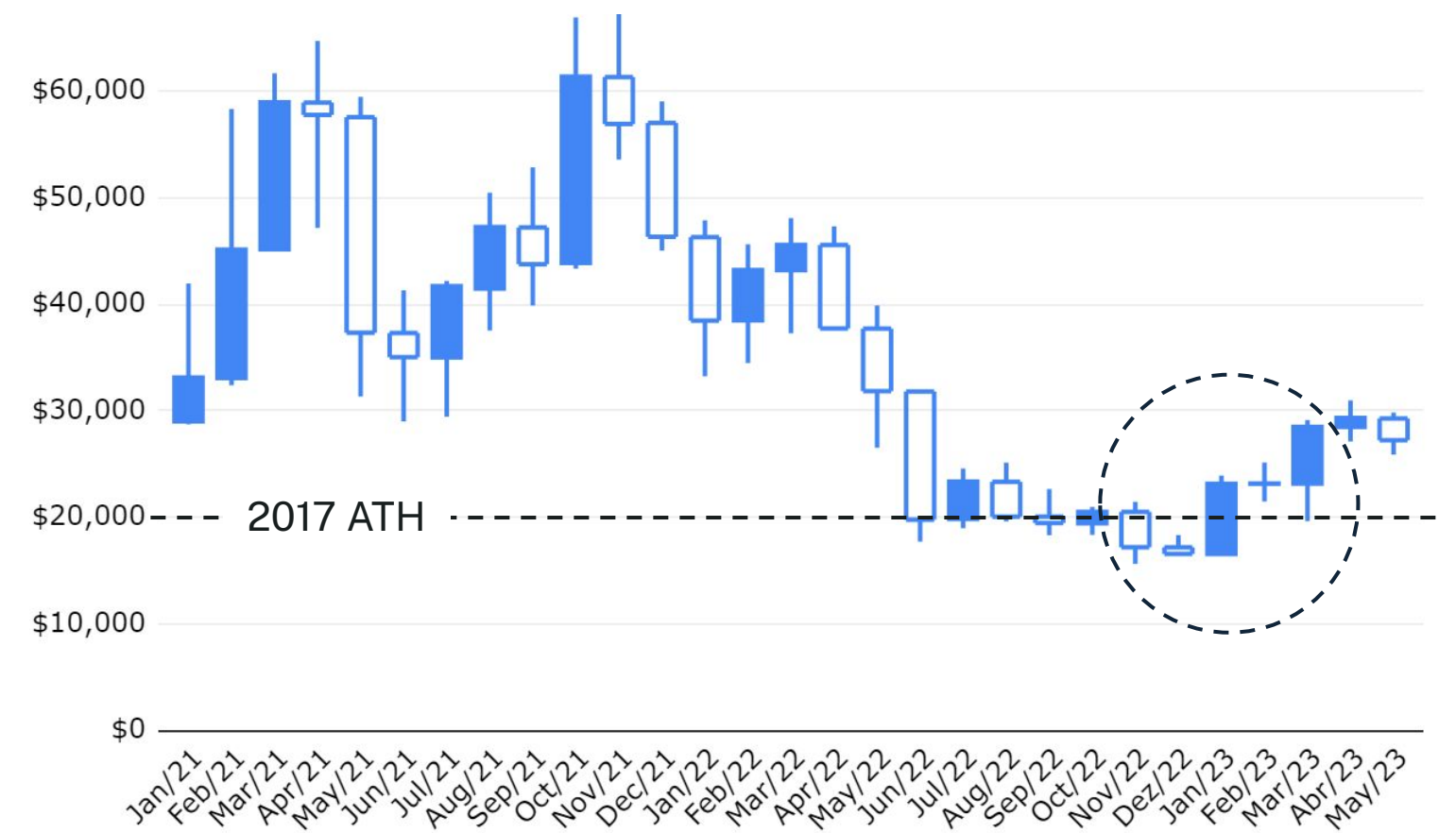




1) FTX was the turning point for a new cycle

- Bear markets like the one we've been through in 2022 usually come to an end after a climax.
- In the case of crypto, this climax seems to have been the fallout of FTX in early November of last year, cleaning out the final reminiscent leverage in the system.
- That reversal has been accompanied by a sideways move as a follow-through, giving the opportunity for market participants to settle-down the idea that the worst of the bear market is already behind us.
- We believe that this follow-through is exactly what we've been experiencing since the middle of March.

BTC monthly chart since the beginning of 2021¹



BTC reclaimed its **\$20,000** psychological price level originally lost during the FTX climax last year, holding it back as support two months later, and staying above that level since then.

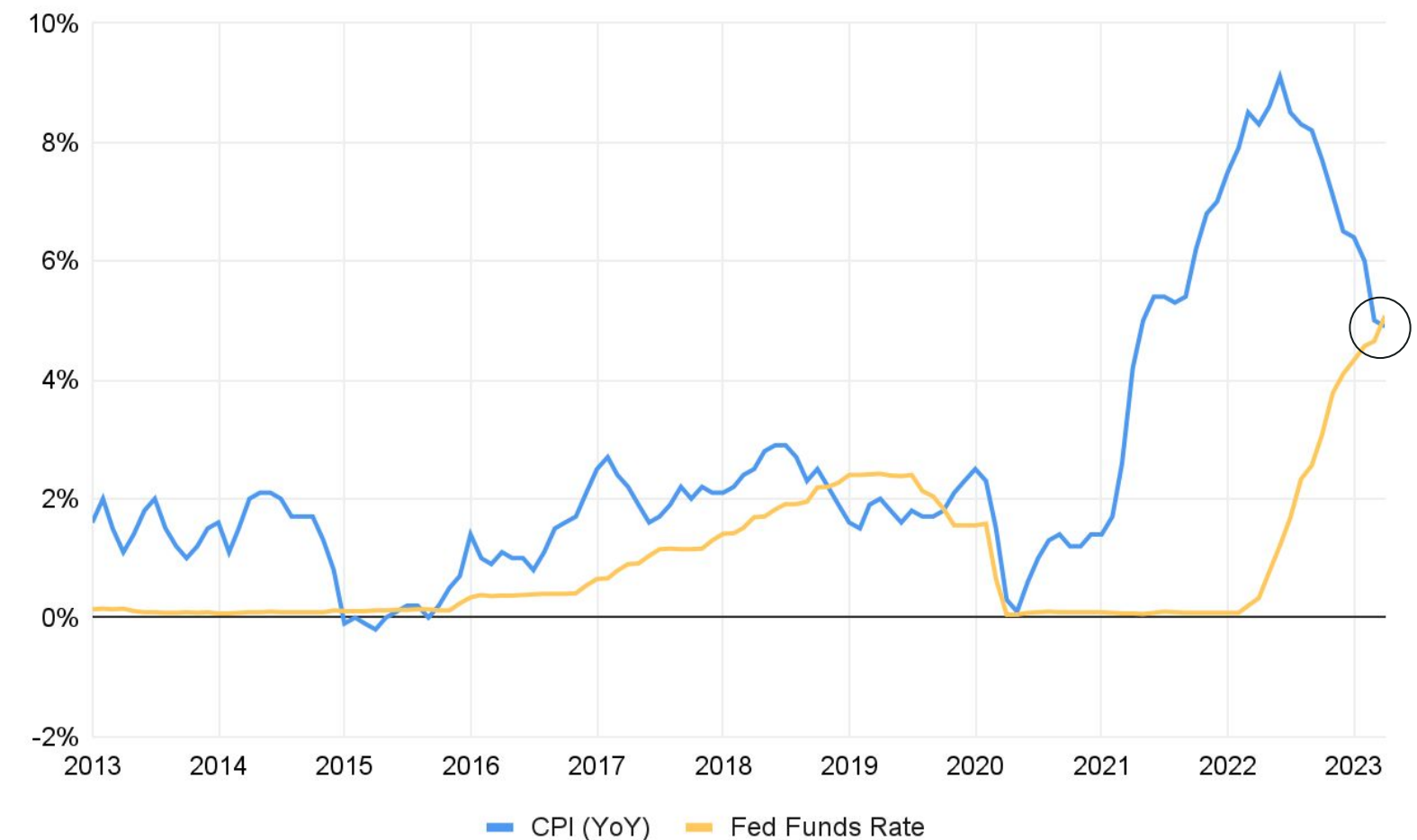
¹Hashdex Research with data from Glassnode (01/01/2021 to 05/31/2023).



2) US inflation figures have recently crossed below the Fed Funds Rate

- The Federal Reserve carried out a year-long effort to tame inflation in the US.
- CPI figures have been on a consistent downtrend since June 2022, with latest numbers falling below the effective Fed Funds Rate in recent months.
- While there's a hot debate on whether tighter monetary conditions will soon lead to a recession, it seems only a matter of time before the Fed reaches the terminal rate for this cycle, be it due to a soft landing or to no landing at all.
- Once this pivot takes place, crypto's is likely to be one of the first asset classes to respond positively.

Inflation figures and Fed Funds Rate in the past 10 years¹



As inflation continues to cool off and risk appetite increases, crypto is very likely to continue responding positively to more ordinary macroeconomic conditions.²

¹Hashdex Research with data from the [St. Louis Fed](#) and the [US Bureau of Labor Statistics](#).

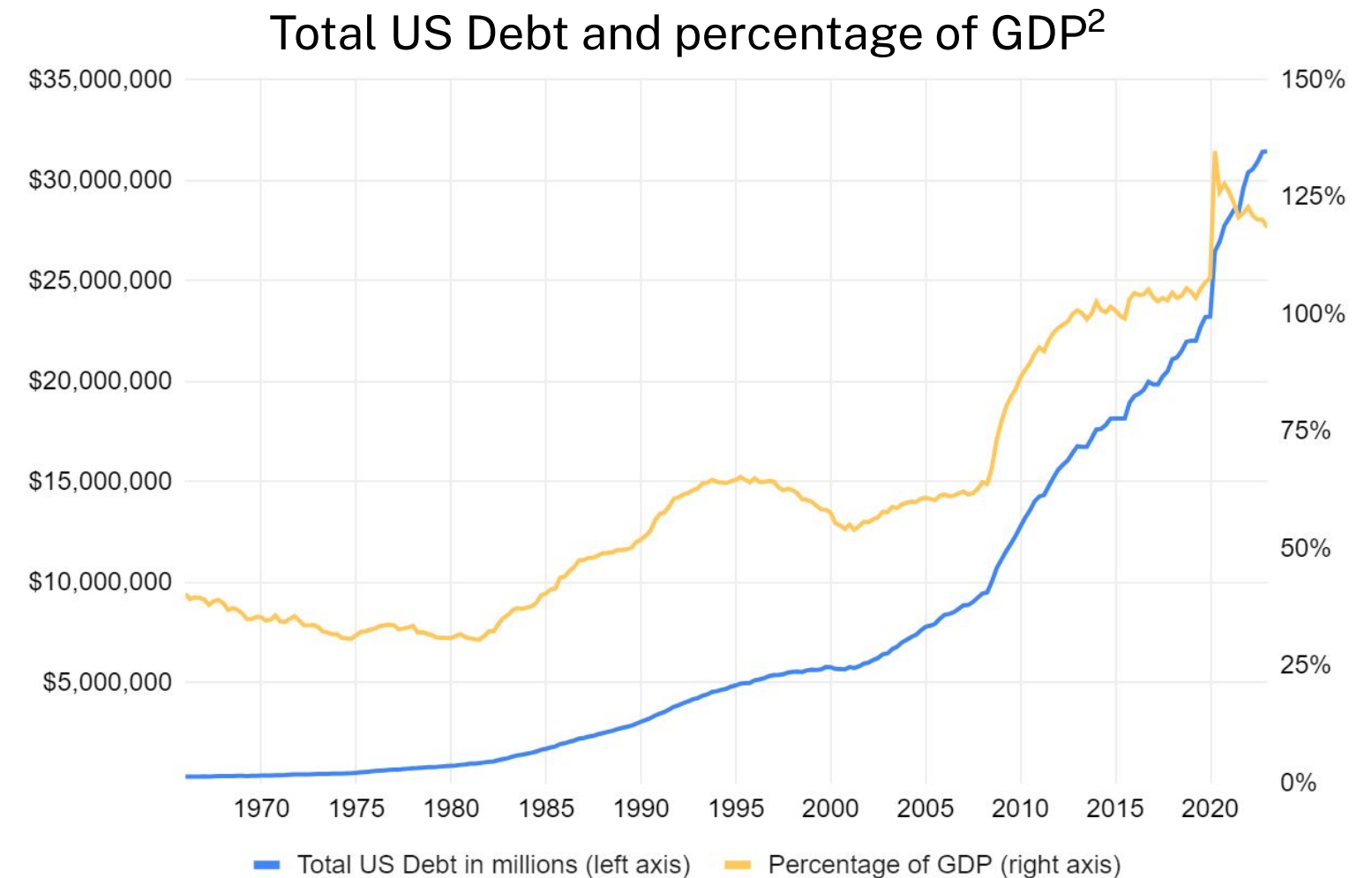
²<https://www.hashdex.com.br/en-US/insights/crypto-investment-outlook>





3) The US will continue monetizing its debt

- And while inflation shows clear signs of a cool off, the total public debt in the US has recently surpassed \$32 trillion,¹ in a clear parabolic rise since the closing of the gold window in 1971, with debt-to-GDP consolidating above 100%.
- After a months-long debate on the debt ceiling issue, the US Congress has finally approved yet another raise of the upper limit for indebtedness of the American government.
- In other words, the US will continue monetizing its debt through monetary expansion, leading to more liquidity flowing into the system, which eventually goes to hard assets and vehicles at the tail end of the risk curve.



More debt monetization leads to more liquidity flowing into the market. Eventually, this liquidity goes to the tail end of the risk curve, with digital assets being one of the key beneficiaries.

¹<https://fiscaldata.treasury.gov/americas-finance-guide/national-debt/> (accessed 08/15/2023)

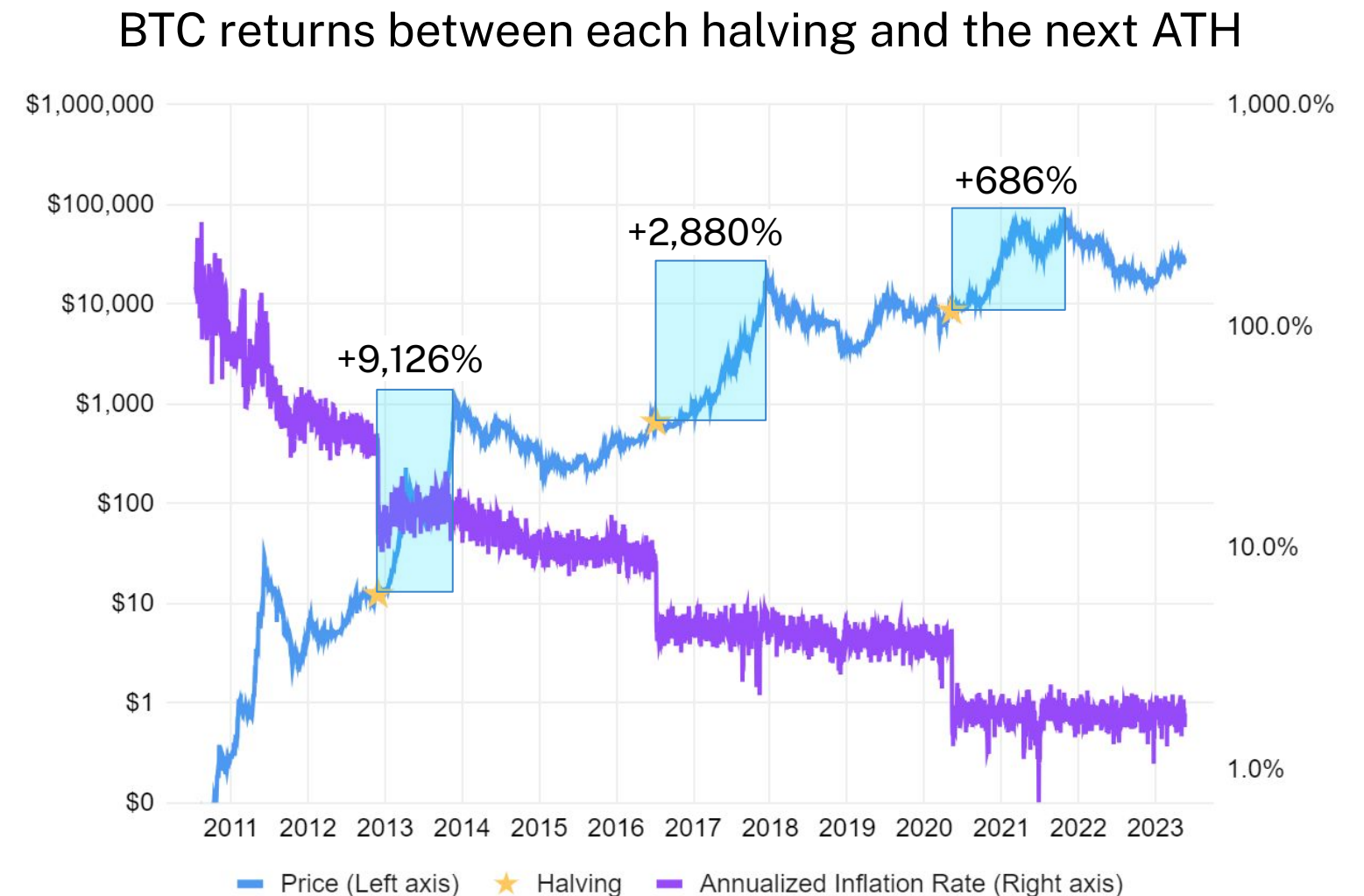
²Hashdex Research with data from the [St. Louis Fed](#) (accessed 08/15/2023)





4) The Bitcoin halving is just around the corner

- The Bitcoin halving is taking place somewhere between late April and early May of 2024.
- The next halving will immediately cut the emission of new BTC from today's 6.25 tokens per block to 3.125 newly issued coins approximately every 10 minutes.
- This will take place at a point in time in which 93.75% of the total BTC supply will have already been issued.
- At that point in time, BTC will be one of the most scarce investable assets in existence, with an inflation rate falling below that of gold and other precious metals, significantly improving its case as an emerging digital store of value.

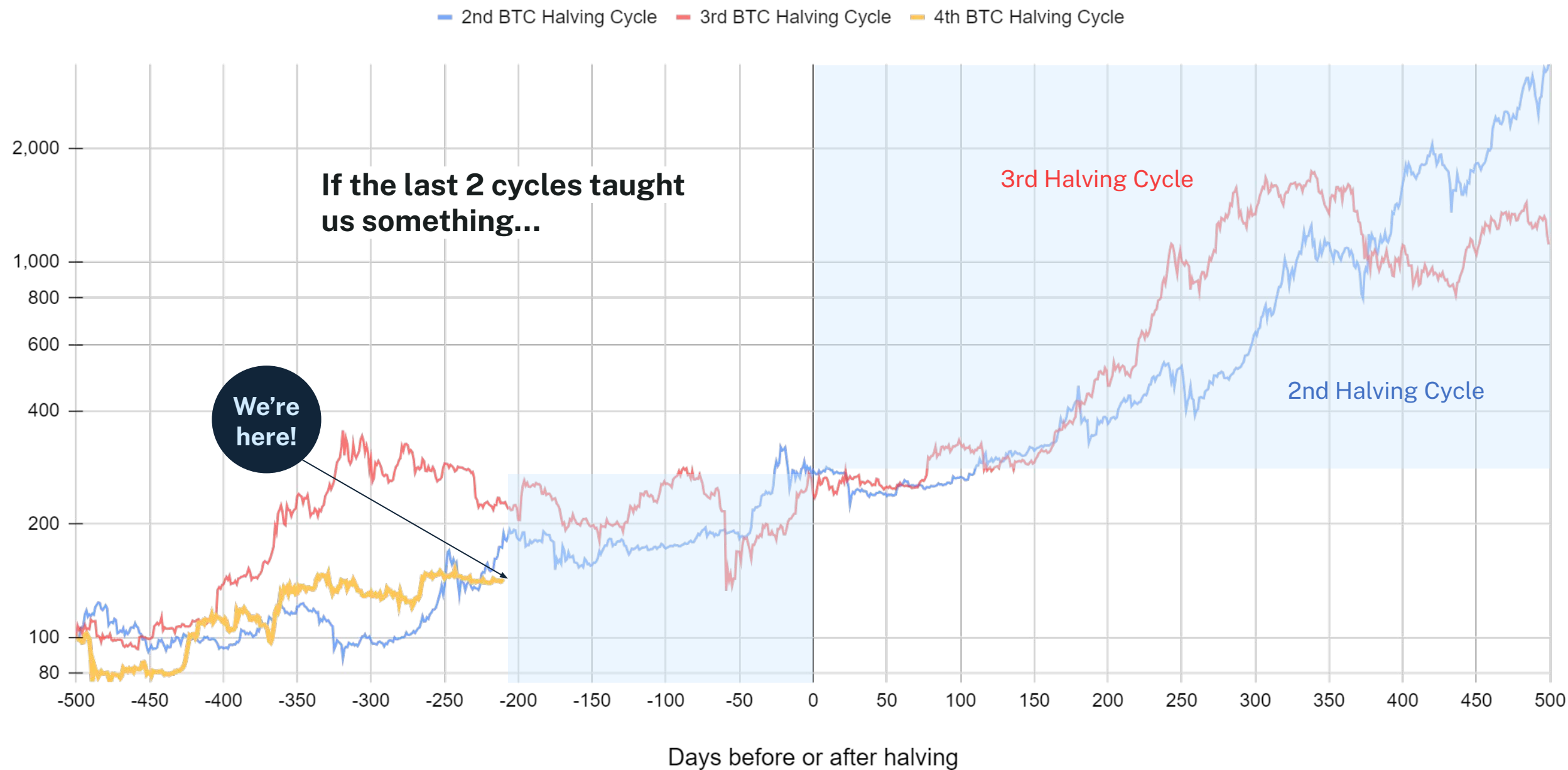


While halvings are known since Bitcoin's launch, historically speaking, the 12 to 18 months following each halving have been marked by strong price rises (more on next slide).



4) The Bitcoin halving is just around the corner

Bitcoin price performance before and after halving events¹



Price Performance ¹			
Halving Cycle	Reward Cut	500 Days Before Halving	500 Days After Halving
2012 (1st)	50 → 25 BTC	5,455%	2,853%
2016 (2nd)	25 → 12.5 BTC	178%	1107%
2020 (3rd)	12.5 → 6.25 BTC	139%	364%

¹Hashdex Research with data from Messari (accessed 08/15/2023).

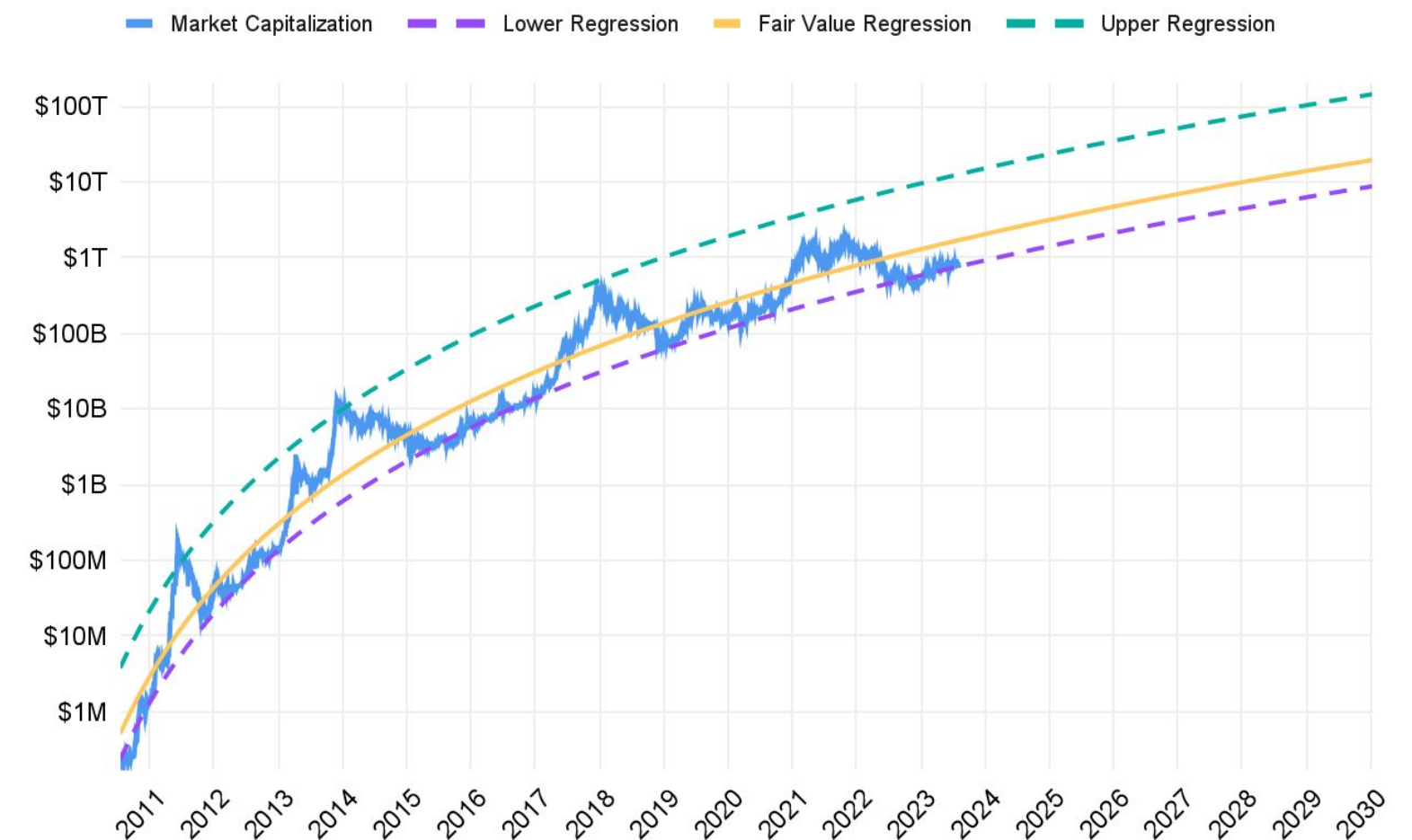




5) Crypto is still far below its long term “fair” value trend

- Logarithmic regression is an interesting way to assess the market capitalization growth of crypto assets, allowing us to model a more explosive growth early on, followed by diminishing growth rates as assets mature.
- A fair value regression trend can be derived by fitting a logarithmic regression to the combined market cap of Bitcoin and Ethereum since inception until the end of 2022.
- We choose the combination of BTC and ETH as a good proxy for the asset class value since Bitcoin is the first, most mature, and most valuable blockchain, and Ethereum is the leader among smart contracts platform and gathers most of the value and activity in decentralized applications.

Logarithmic regression for the market capitalization of BTC + ETH¹



The long term logarithmic growth of the combined market capitalization of BTC and ETH suggests that the two crypto blue-chips are still far below their long term fair value.

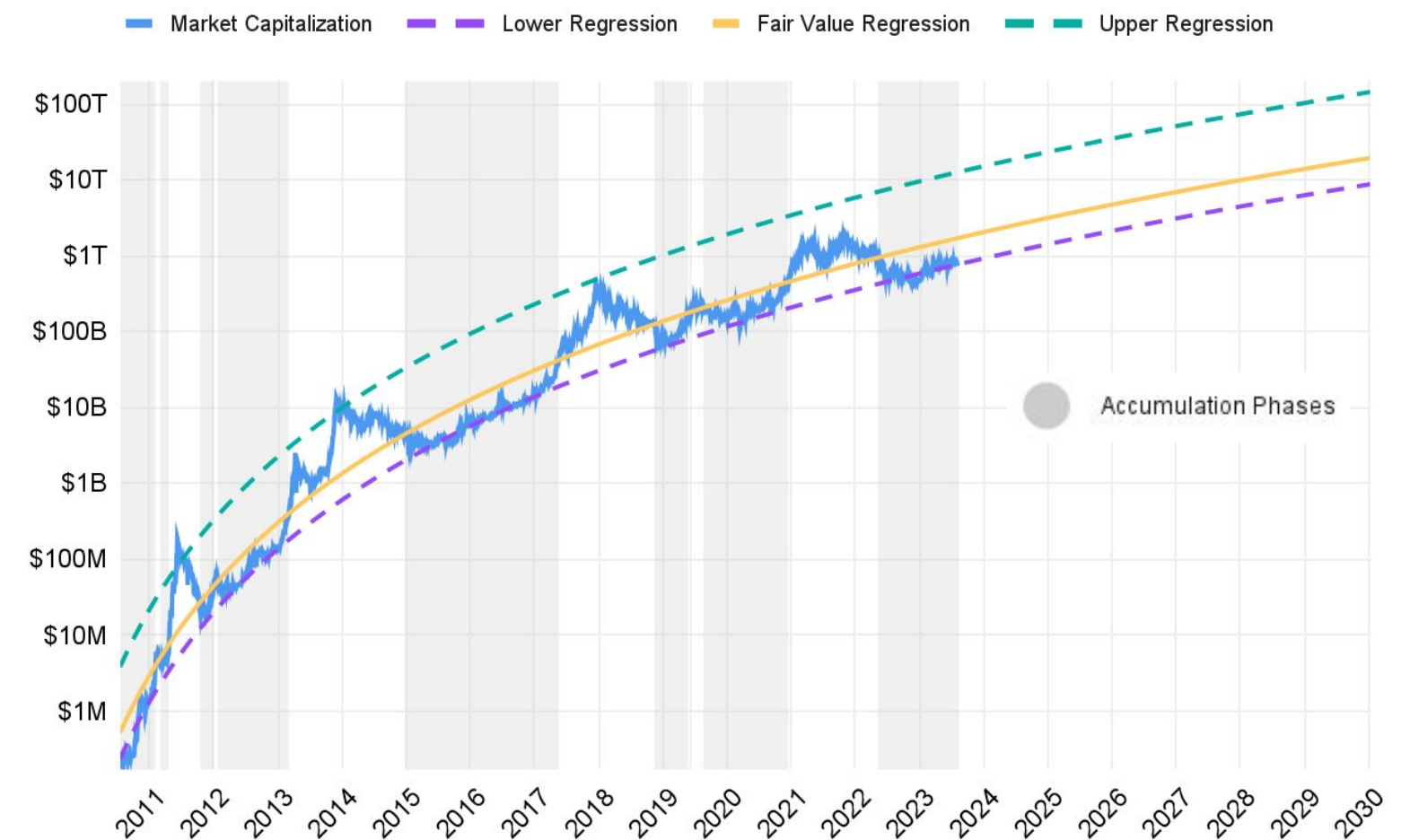
¹Hashdex Research with data from Glassnode (accessed 08/13/2023).



5) Crypto is still far below its long term “fair” value trend

- The grey shaded areas on the right represent the regions where the combined market caps of BTC and ETH was below their fair value regression trend.
- Until the end of last year, accounted for 56% of the days since Bitcoin’s inception.
- From 2014 to 2017, BTC and ETH have stayed inside this region for 880 days. From 2018 to 2021, the combined market cap has stayed in this same region for 698 days.
- The market has entered this accumulation region again in the middle of 2022 and has stayed there for around 400 days so far.

Logarithmic regression for the market capitalization of BTC + ETH¹



These regions have historically proven to be great accumulation phases for both BTC and ETH. If history rhymes, prices are now roughly halfway into the current accumulation region.

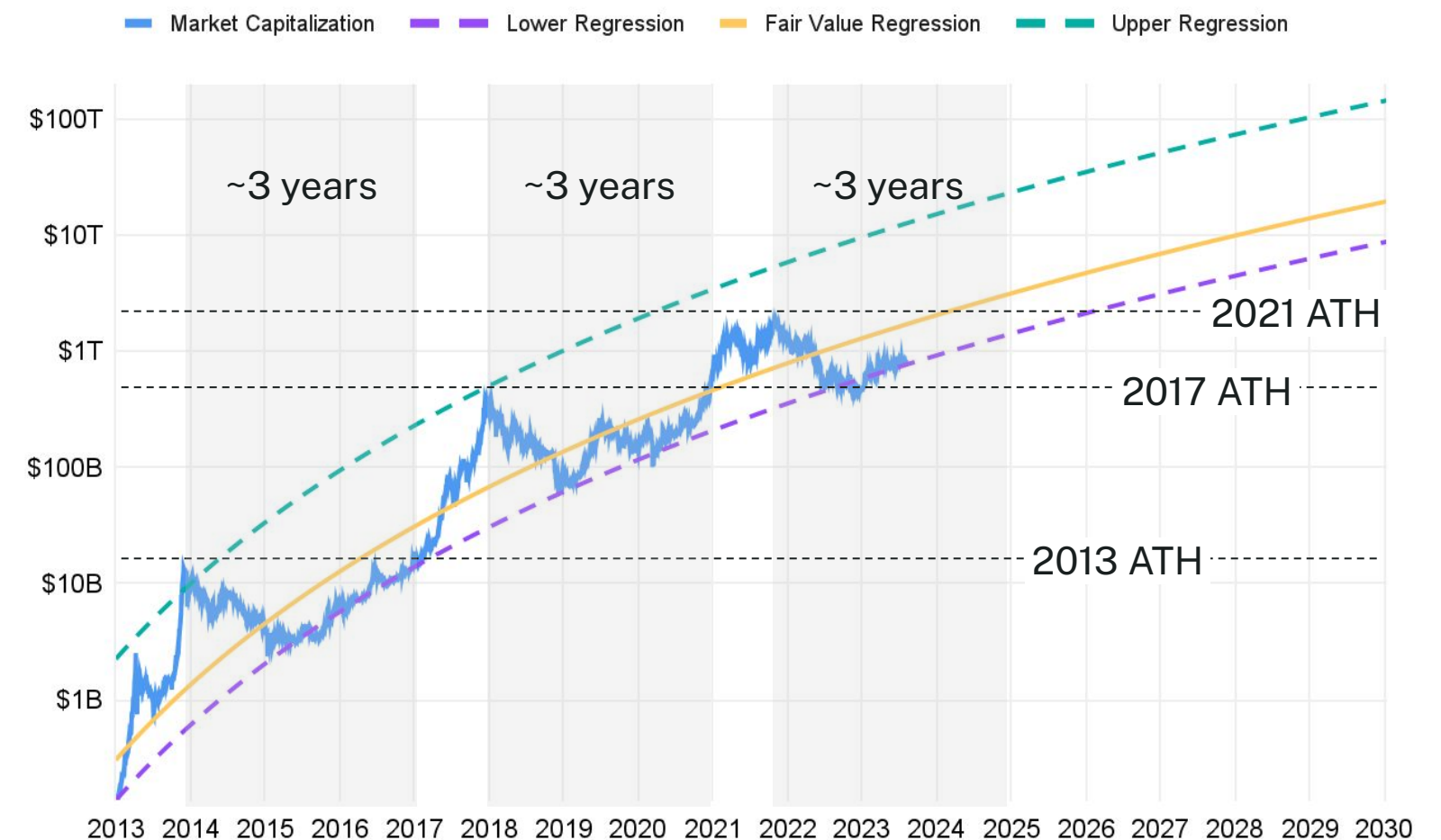
¹Hashdex Research with data from Glassnode (accessed 08/13/2023).



5) Crypto is still far below its long term “fair” value trend

- It took ~3 years for the combined market of BTC and ETH to reach its late 2013 ATH.
- The same thing happened in the past cycle: in late 2020, the market value of the two crypto blue chips reached their 2017 ATH.
- If this cycle repeats, it is expected that the combined market capitalization of BTC and ETH reach its prior 2021 ATH in late 2024.
- This is similar to previous cycles, meaning we can expect their combined market value to lie anywhere between the lower and the fair value regression trend lines by the end of 2024.

Logarithmic regression for the market capitalization of BTC + ETH¹



Taking the lower regression trend as a base case and the fair trend as an optimistic case, this would entail an upward movement between 79% and 297% from current levels.

¹Hashdex Research with data from Glassnode (accessed 08/13/2023).



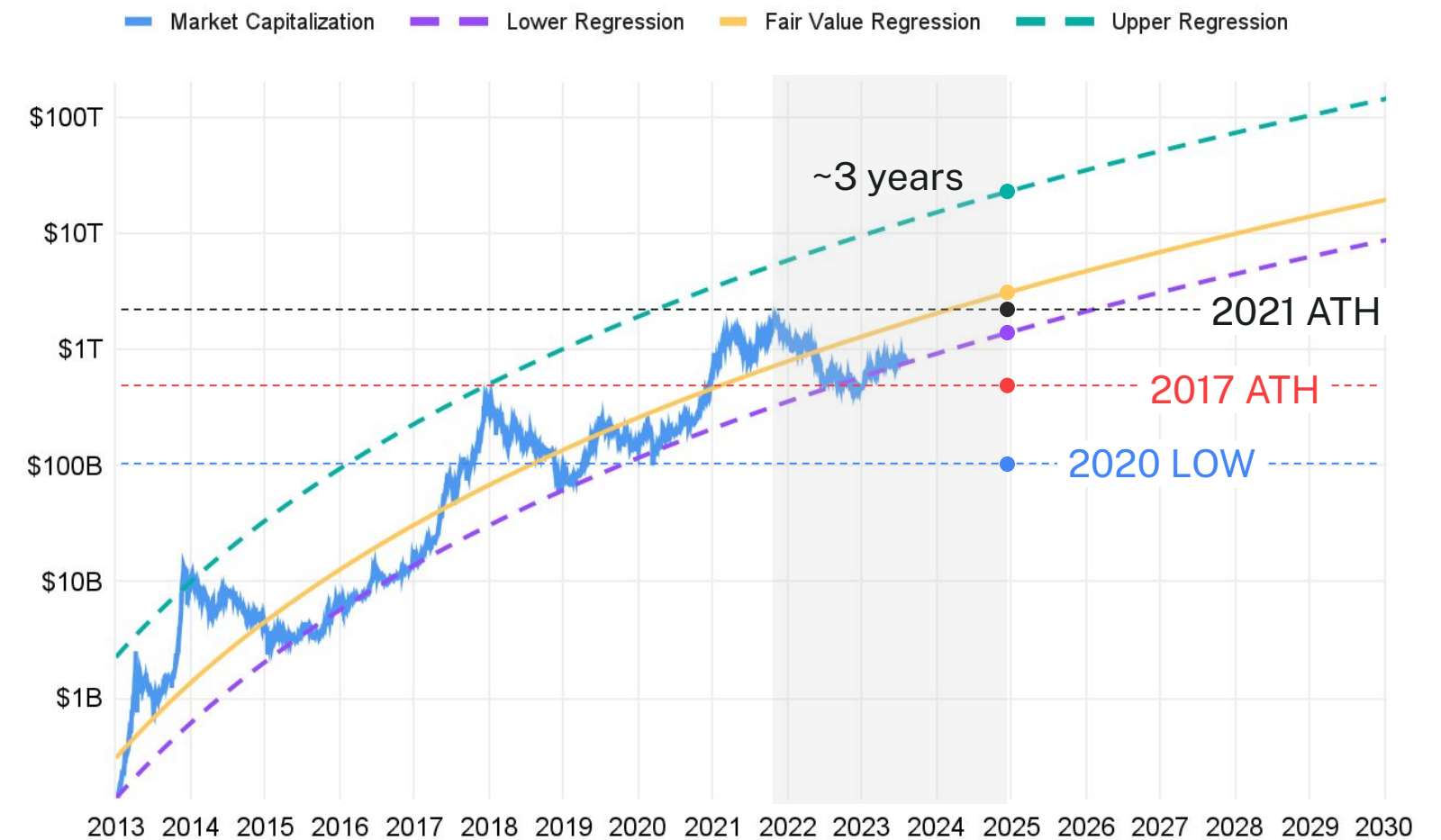
5) Crypto is still far below its long term “fair” value trend

Value projections for the end of 2024 (including probabilities)

Current Market Cap (BTC + ETH) ¹				\$794.7B	
Scenario	Return	Market Cap	Prob*	Est Value	%
Ultra Bearish	-87%	\$101.0B	3.0%		
Bearish	-50%	\$395.2B	22.0%		
Base	79%	\$1.4T	32.0%	\$2.2T	274%
4Y Cycle Pattern	132%	\$1.8T	25.0%		
Bullish	297%	\$3.2T	15.0%		
Ultra-bullish	2,839%	\$23.4T	3.0%		
			100.0%		

*Probabilities are an average estimate provided by the members of Hashdex’s investment committee.
 ** Please refer to the appendix for comments on the fair value model

Logarithmic regression for the market capitalization of BTC + ETH¹



The 2017 ATH and the 2020 low are used as bearish and ultra-bearish scenarios, respectively. These would imply that prices should react negatively to all factors presented herein. Both scenarios seem very unlikely to us.

¹Hashdex Research with data from Glassnode and Messari (accessed 08/13/2023).



Final Thoughts

[Back to Outline](#)



- 1) Our belief is that the crypto market, especially when it comes to **BTC** and **ETH**, is currently undervalued. The advancements in the technology are also evident, user and institutional adoption continues increasing, and all infrastructure investments are starting to pay off.
- 2) We believe now is an exceptionally rare and unique moment where long-term secular trends are aligned with improving cyclical forces, which reassure the investment case for digital assets (BTC and ETH in particular). This convergence of factors, in our opinion, increase significantly the likelihood for value accrual in crypto in the coming years.
- 3) Considering the well-known volatility of digital assets, dollar cost averaging in the next several months seems to be the right strategy for long-term investors to prepare for what we believe is an upcoming bull phase.



Hashdex Products

[Back to Outline](#)

To capture this generational opportunity, Hashdex offers simple and secure products worldwide:



 HASH



 HASH11



 DEFI





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