BITFINEX Alpha

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bitfinex.com

EXECUTIVE SUMMARY

As we head into 2024, we remain very positive on the outlook for Bitcoin and crypto assets in general. If 2023 has demonstrated anything, it is the remarkable resilience of Bitcoin despite reputational and regulatory challenges.

This does not mean that it is straight line from here. We note that we are highly likely to see pull backs, based on historical market behaviour. With the total market capitalisation of the crypto market at approximately $1.6 trillion, we believe we could see total market cap climb as high as $3.2 trillion, with asset values oscillating in this range.

Looking at range of different metrics and sentiment indicators and their performance at similar points in the cycle is constructive. On the crypto fear and greed index we forecast that there there is a high probability that we will see an extended visit to “extreme greed” sentiment area in 2024, which will correlate to new BTC highs during the middle of a bull market.
As institutional investors increase their exposure to crypto assets, of which the long awaited spot Bitcoin ETF will be a catalyst, there may be some shifting of capital into higher-risk crypto assets in the coming year, but we anticipate that institutional investment will continue to predominantly favour Bitcoin, at least through the first half of 2024.

In the shorter-term, it is instructive to look at the market value of bitcoin in relation to its realised value: the MVRV metric. Current valuations imply that the market environment is analogous to the period around June 2019 and July 2016 which saw initial dips in price before sustained recoveries. This is another reason why we expected a pullback to occur post tagging the $44,000-$45,000 zone and why we expect prices to range further at these prices or pullback instead of an immediate move upwards.

Bitcoin miner activity is also important to monitor, particularly as 2024 is a halving year, and miners fuel their operations and derive their profitability from sales of Bitcoin into the market. Facing the prospect of seeing only half the Bitcoin being earned post halving, miners will need to demonstrate that they can continue to run their operations efficiently and profitably.

An analysis of the Puell Multiple indicates that the market is currently in a healthy state, and ample room for continued growth in Bitcoin prices with limited anticipated selling by miners.

Exchange inflows from miners is also expected to remain subdued for the majority of the year even if we have some spikes in the the next 2 months due to miners upgrading machinery further and selling BTC down to fund this investment. As the price goes higher there is limited need for miners to sell.

The prospects for Bitcoin adoption in certain key markets also looks promising.

In El Salvador, where Bitcoin was declared legal tender in 2022, adoption continues to gradually increase . We believe that as 2024 unfolds, the focus on bolstering the infrastructure to support Bitcoin transactions is likely to intensify. This includes initiatives to increase public awareness and education about Bitcoin, especially among those who have traditionally been excluded from the formal banking system.

Perhaps even more significant is the possibility that Argentinians will increasingly adopt crypto assets as a means of gaining access to a relatively stable and non-inflationary asset. Even if it is less likely that Argentina will follow the same route as El Salvador, its government wants to provide economic stability for its citizens and sees the value in decentralized assets like Bitcoin. Given its history of economic volatility, especially with high inflation rates, it's reasonable to expect that citizens will continue to turn to cryptocurrencies as a hedge against currency devaluation and inflation.

Looking ahead to 2024, and contingent upon market conditions, we anticipate that the number of global cryptocurrency owners could escalate to between 850 and 950 million (from 575 million currently).

In the broader macro economy, we also maintain a positive outlook. It's likely that wage growth will continue to decelerate into 2024. Workers may be aiming for a one-time adjustment in wages to compensate for the unexpected surge in inflation experienced in 2022, which led to a decline in real wages. However, this trend is expected to stabilise in 2024 as the demand for labour diminishes. In the short term, we anticipate that the slowing of economic growth will cause an increase in the unemployment rate, averaging around 4.3 percent in 2024, up from 3.7 percent in November 2023. This increase however, is relatively moderate when compared to past economic downturns in the US.

The inflation rate is also projected to decline in 2024. A combination of factors, including a subdued global economy and more efficient supply chains, is expected to keep commodity prices in check and support the manufacturing sector. An uptick in labour supply, observed in the latter part of 2023, is likely to moderate wage increases, helping to maintain inflation at manageable levels while correlating with a softening labour market.

Core inflation, the key metric watched by the Fed and which excludes volatile food and energy prices, might even fall below expectations due to tighter credit conditions and global economic weaknesses. However, geopolitical tensions and possible oil production cuts pose risks of increased headline inflation. Avoiding a recession in 2024—still a significant possibility—doesn't guarantee a return to the ideal two percent inflation rate so coveted by central bankers. We see a return to 2.9 percent YoY headline inflation and not any lower by the end of next year.

We have really enjoyed bringing you our views on the markets and our analysis. We hope you have found it useful . We look forward to what should be a fascinating 2024.

Happy holidays and happy trading.

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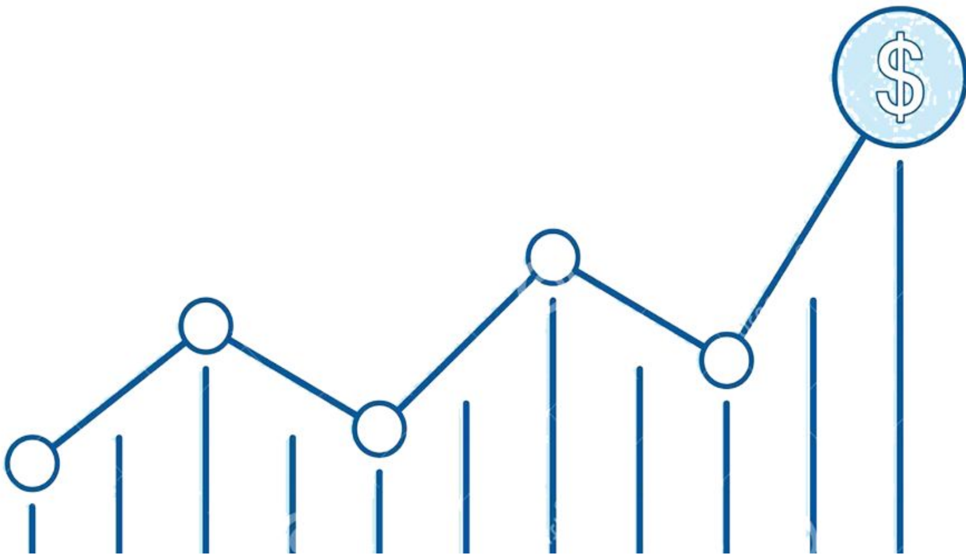


LONG-TERM METRICS

Sentiment And Profitability

Introduction: In our publications from late 2022 and early 2023, we focused on what we identified as periods of significant undervaluation in the market. The weekly *Bitfinex Alpha* reports during this period, supported by extensive data, were issued at a time when BTC was more than 77 percent below its all-time highs. These reports asserted that despite some market dislocation post-FTX, we were at the tail end of a bear market and the early stages of a bull market. Currently, with BTC at $43,000, still 38 percent below its 2021 all-time high, we maintain that the ongoing bull market has considerable potential and offers an outstanding opportunity for value investors.

Our previous reports have focused on supply dynamics among different investor cohorts, particularly noting the possibility of mid-term holders distributing their holdings as the price approached their realised price (Realised Price is the value of all BTC at the price they were last transacted on-chain or the 'average cost basis' at which all BTC was purchased).

In this edition, we revisit and analyse these market phases, referring back to the cyclical analytics initially used to predict the bear and bull market trends. We aim to determine our current position in the market cycle. Looking ahead, we anticipate the total cryptocurrency market capitalization to oscillate between $1.6 trillion and $3.2 trillion. We expect this range to persist as the current bull market establishes itself and the narratives detailed in our report solidify Bitcoin's status as a multi-trillion dollar asset class.

We have identified some key metrics that we believe are important to monitor as investors navigate the year ahead.

Sentiment And Profitability

Current Sentiment: Greed

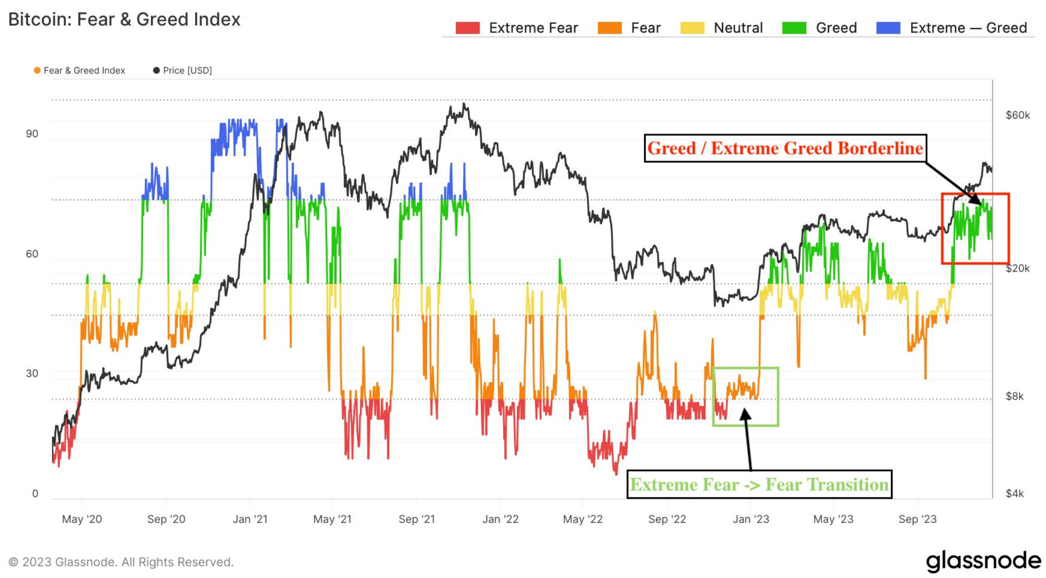


Figure 1. Bitcoin Fear And Greed Index. (source:Glassnode)

The Bitcoin fear and greed index that factors in volatility, market momentum, social media, surveys and Bitcoin dominance with respect to total crypto market capitalisation suggests that we have transitioned from a state of extreme fear to greed in the course of 2023. This is usually how the beginning of bull markets look, although such periods also feature initial pullbacks with BTC dropping to net neutral, or even fearful investor sentiment, as can be seen in September 2020.

As we move into into 2024, we expect December 2023 market activity to flatten to trigger a ranging market with the potential for pullbacks, but in terms of fear and greed cycles there is a high probability that we will see an extended visit to “extreme greed” sentiment in 2024, correlating to new BTC highs during the middle of a bull market.

Market Capitalisation Surge: In 2023, the total cryptocurrency market capitalization doubled, representing a significant move away from the “crypto winter”. The key takeaway from the past year is the resilience and potential of crypto markets, despite numerous challenges. In our view this is a testament not just to the durability of digital assets but also a clear indication of their evolving role in the financial ecosystem.

Figure 2: Bitcoin Dominance with respect to market capitalisation.

Bitcoin Dominance: In 2023, Bitcoin's market dominance climbed above 50 percent for the first time since April 2021, and is currently above 53 percent. This increase can be largely attributed to the flurry of applications for spot Bitcoin ETFs in the US, by some of the largest names in finance. The entry of these players has bolstered the credentials of crypto as an emerging asset class.

While there may be some shifting of capital into higher-risk crypto assets in the coming year, it is anticipated that institutional investments will continue to predominantly favour Bitcoin, at least through the first half of 2024. The growing market dominance of Bitcoin also underscores its emerging status as a safe-haven asset within the digital currency sphere. This is evident when comparing Bitcoin's performance with other cryptocurrencies. Among the top 10 crypto assets by market cap, Bitcoin has emerged as the third best-performing asset this year, trailing only behind LINK and SOL. With average daily returns of 0.31 percent and an annual return of 165 percent, Bitcoin's robust performance highlights its appeal and reliability in a market known for its volatility and unpredictability.

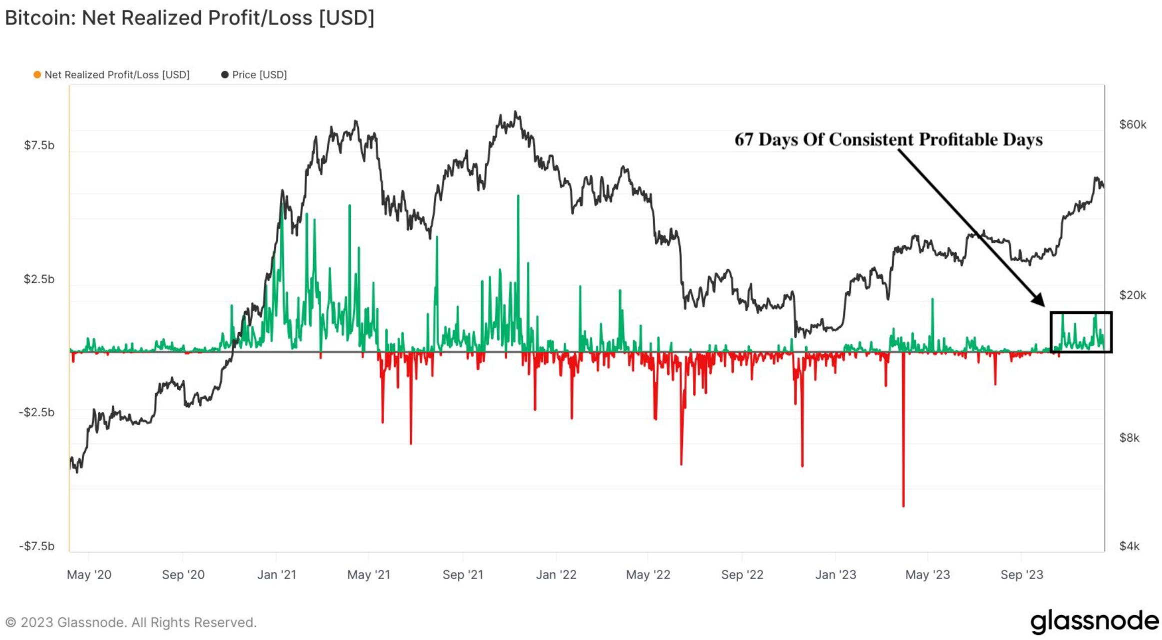


Figure 3. Bitcoin Net Realised Profit And Loss Per Day. (source: Glassnode)

Net Realised Profit/Loss is a metric that calculates the overall profit or loss of all transacted coins within a certain timeframe. It is determined by subtracting the total Realised Loss (if difference in BTC price since coins were last moved is negative) from the total Realised Profit of moved coins. This measure helps in understanding the overall financial impact of trading activities and the economic sentiment of the market at a given time. The net dollar-denominated realised profit for Bitcoin investors is currently at $324 million per day. This figure is significantly lower than the peaks seen during the later stages of the 2021 bull market, when it surpassed $3 billion per day. We have also had 67 consistent days of profitability (refer Figure above). This is the longest streak of realised profits since the period from October 2020 to February 2021, such streaks usually lead to market corrections in bull markets. Thus, the current market performance is characteristic of an early-stage, rather than a late-stage, bull market.

Realised Price and Fair Market Valuation Metrics

We analyse a range of indicators to assess valuations for Bitcoin. The MVRV Z-Score is a specialised Bitcoin chart which uses blockchain analytics to pinpoint times when Bitcoin is significantly overvalued or undervalued compared to its 'fair value'.

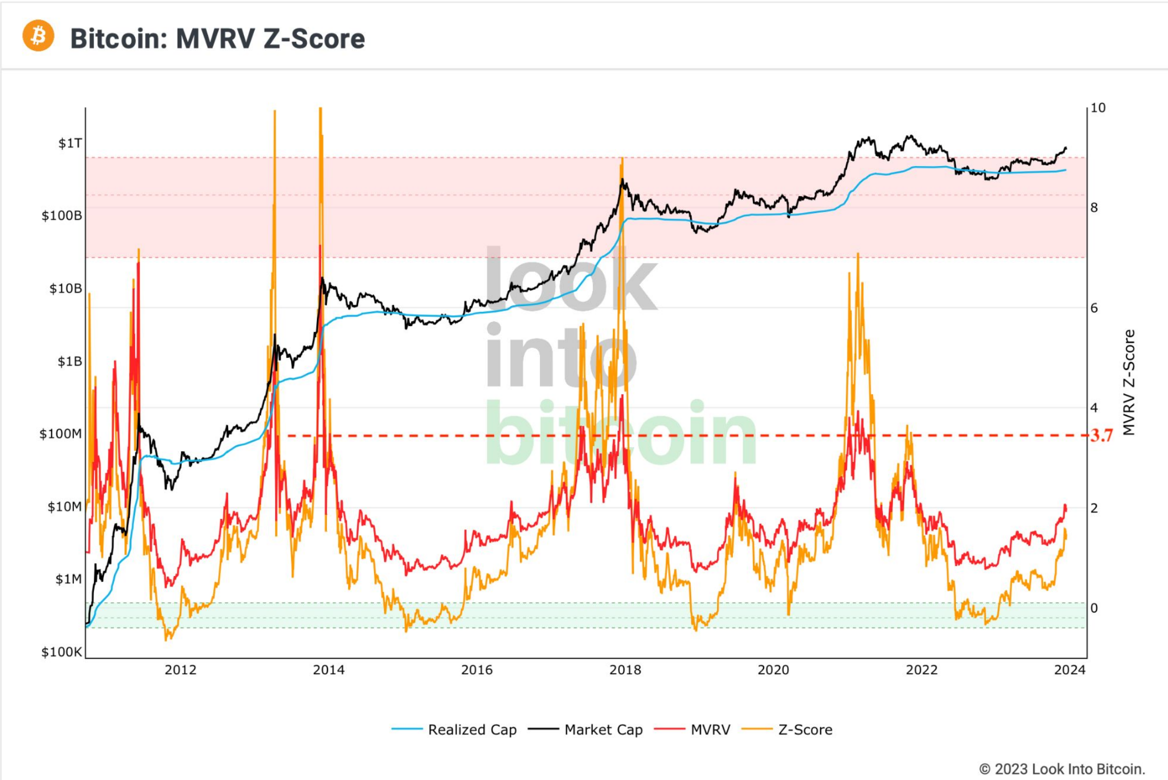


Figure 4. Bitcoin MVRV metric with Z score. (source: LookIntoBitcoin)

The above figure incorporates three distinct metrics:

1. Market Value (Blue Line): Analogous to market capitalization in traditional markets, this is calculated by multiplying Bitcoin's current price by the number of coins in circulation. It’s akin to multiplying a company's share price by its total number of shares.

2. Realised Value/Price (Orange Line): Unlike Market Value, which uses Bitcoin's current price, Realised Value calculates the price at which each Bitcoin was last moved, i.e., when it was transferred between wallets. By summing and averaging these individual transaction values, and then multiplying by the total number of coins, it provides an average price that reflects a more stable, long-term valuation of Bitcoin. This approach effectively filters out short-term market sentiments that influence the Market Value.

The current Bitcoin market capitalisation stands at $863 billion whereas the realised capitalisation is at $421 billion. Contrasting these figures from the all-time high for the asset, Bitcoin is 32.2 percent away from its bull market value peak at $1.27 trillion reached during November 2021 and 10.04 percent away from its peak realised capitalisation of $468 billion reached during April 2022.

3. Z-Score (Red Line): This is a statistical measure representing the standard deviation between Market Value and Realised Value. It is particularly useful for highlighting extreme discrepancies in the data.

The MVRV Z-Score is insightful for assessing if Bitcoin's price is overvalued (expensive) or undervalued (cheap). The ratio is derived by dividing Bitcoin's market capitalization (market price) by its realised capitalization (realised price, which is essentially the average "purchase" price for all Bitcoin holders). An MVRV ratio above 3.7, represented by the red area on the chart, suggests Bitcoin is overvalued and typically indicates market tops. This value corresponds to about 370 percent of the BTC in circulation being held in profit. Conversely, a ratio below one, shown in the green area, suggests Bitcoin is undervalued, indicating potential market bottoms.

Historically, the MVRV Z-Score has been remarkably effective in identifying periods where Market Value significantly exceeds Realised Value. These instances, where the Z-Score (red line) enters the pink box, often signal the peak of market cycles. The tool has proven its accuracy by pinpointing the market high of each cycle within a two-week margin.

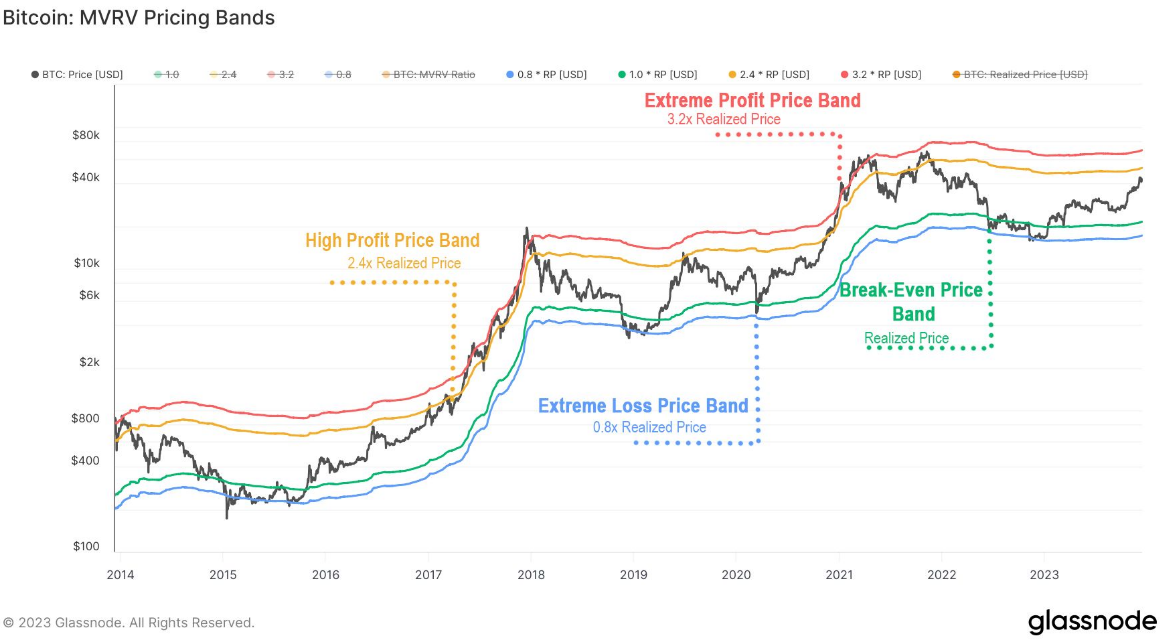


Figure 5. MVRV Pricing Bands. (source: Glassnode)

As seen in the figure above, MVRV pricing bands indicate how much the average holder is in the green and uses a multiple from the overall realised price as a yardstick. As is clear from the figure, different multiples like the 2.4x and the 3.2x band have been dynamic resistance levels throughout multiple cycles. We are shy of the 2.4x band currently at $51,700 which has acted as a pivotal resistance level resulting in the first major pullback zone coming out of the bear market lows

The current MVRV value is around 1.99 and the Z score is 1.47. This implies that the current market environment is analogous to the period around June 2019 and July 2016 which saw initial markups from the green zone for the Z score or a value under one for the MVRV which represent periods of undervaluation for Bitcoin. This is another reason why we expected a pullback to occur post tagging the $44,000-$45,000 zone and why we expect prices to range further at these prices or pullback instead of an immediate move upwards based on historical data.

An additional top signal is the MVRV divergence observed near significant market tops or bottoms, this is shown in the figure below and was one of the most important early signals of the market topping in late 2021 as shown below.

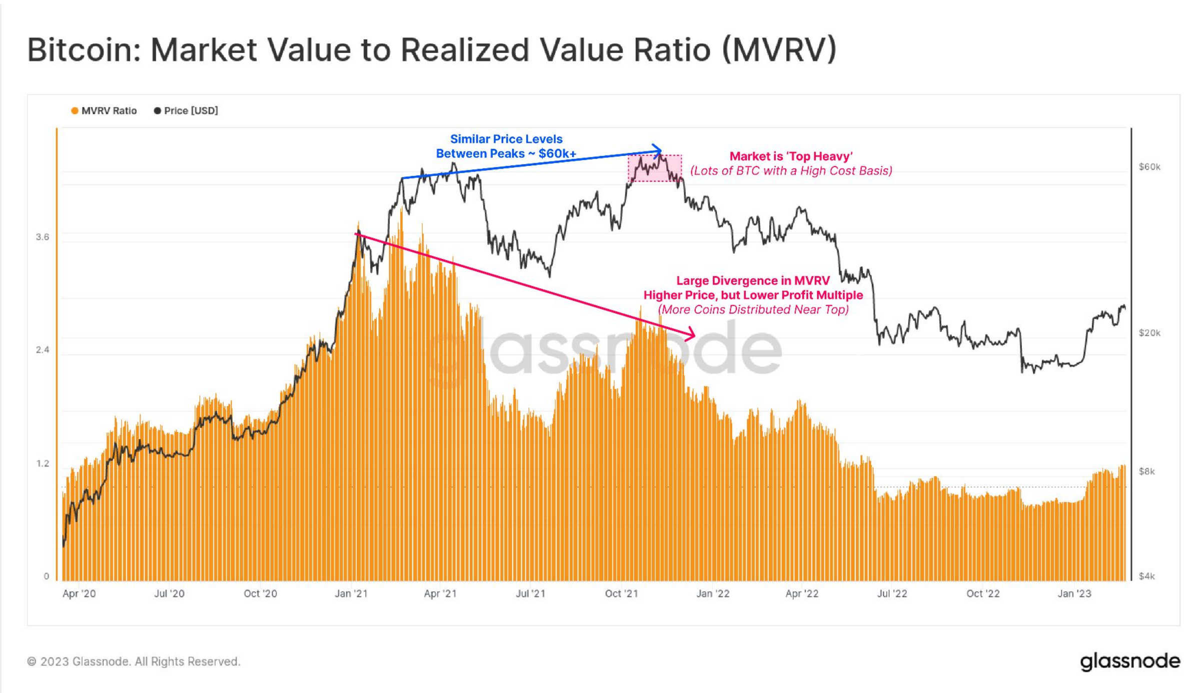


Figure 7. Bitcoin MVRV Divergence explained. (source: Glassnode)

Mining Metrics

<u>Puell Multiple:</u> The Puell Multiple is a key metric focusing on the supply side of Bitcoin's economy, particularly analysing the revenue streams of Bitcoin miners. These miners are often considered 'compulsory sellers' due to the need to offset the fixed costs of mining equipment in a market characterised by price volatility. Thus, their revenue generation plays a significant role in influencing BTC price over time. We have often discussed how miners do not even attempt to adopt a trading or investment strategy and rather sell when they “need” to in order to put up collateral for mining infrastructure, or sell when they are forced to liquidate their holdings during bear market bottoms. In doing so however, they are significant drivers of price.

This metric is computed by dividing the daily issuance (BTC mined) value of BTC (in USD), by the 365-day moving average of the daily issuance value.

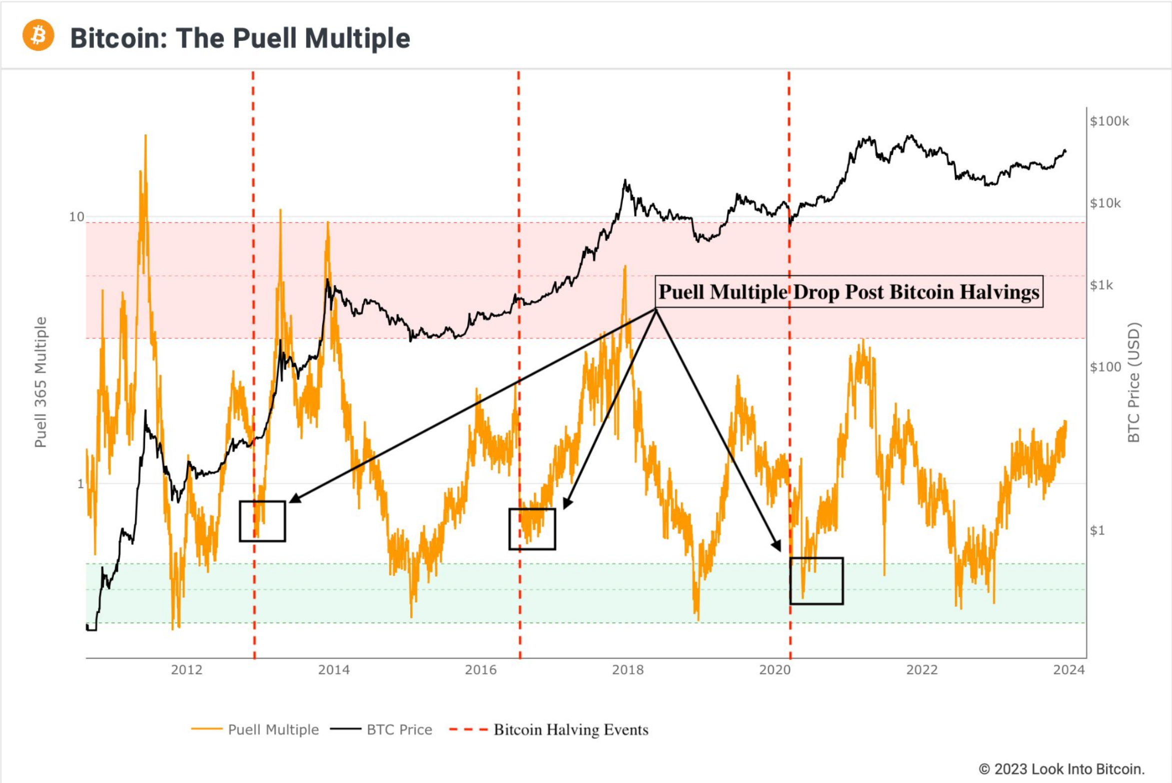


Figure 8. Bitcoin Puell Multiple with Halving Events and BTC price. (source: LookIntoBitcoin)

The Puell Multiple helps identify periods when the value of newly mined BTC entering the ecosystem is unusually high or low compared to historical standards. A value of above 3.5 (red box) indicates a high daily issuance value which has historically been correlated with price peaks. Conversely, when the Puell Multiple enters the green box (value below 0.5), it indicates periods where the daily issuance value has been historically low. Such periods have typically offered substantial returns for investors who purchased BTC during these times.

As we build the bullish case for Bitcoin in 2024, the Bitcoin Halving, expected to occur in April 2024 based on current estimates, also plays a pivotal role. This significant event reduces the per-block issuance of Bitcoin by 50 percent, consequently affecting the Puell Multiple metric. Historically, prior halvings have been characterised by a noticeable price rally following a bear market, where the Puell Multiple was situated in the green zone. This rally was then followed by a departure from the green zone. After the halving, a typical pattern observed was a decline in the Puell Multiple, either nearing or returning to the green zone, indicating a second downward movement in the bull cycle.

The 2020 market crash, which correlated with the halving event and the shift of the Puell Multiple into the green zone, is particularly noteworthy. While this occurred during the COVID-19 crisis, which was an extraordinary event, its correlation with other metrics suggests the likelihood of a market pullback occurring before or near the next halving. This pullback, along with the movement of the Puell Multiple towards the green zone, could present an advantageous buying opportunity for investors. Currently, the Puell Multiple's reading of 1.73 indicates a healthy market state, as it is well away from the red zone that denotes overheated conditions. This suggests ample room for continued growth in the current bull market. Thus, as we approach the 2024 Bitcoin Halving, observing the patterns of the Puell Multiple will be essential for investors, offering valuable insights into potential market trends and investment strategies.

<u>Miner Exchange Flows:</u> The quantity of BTC that miners transfer to exchanges, and the timing of these transfers, are key indicators of market sentiment. The figure provided below highlights the behaviour of miners in terms of sending their mined BTC to exchanges.

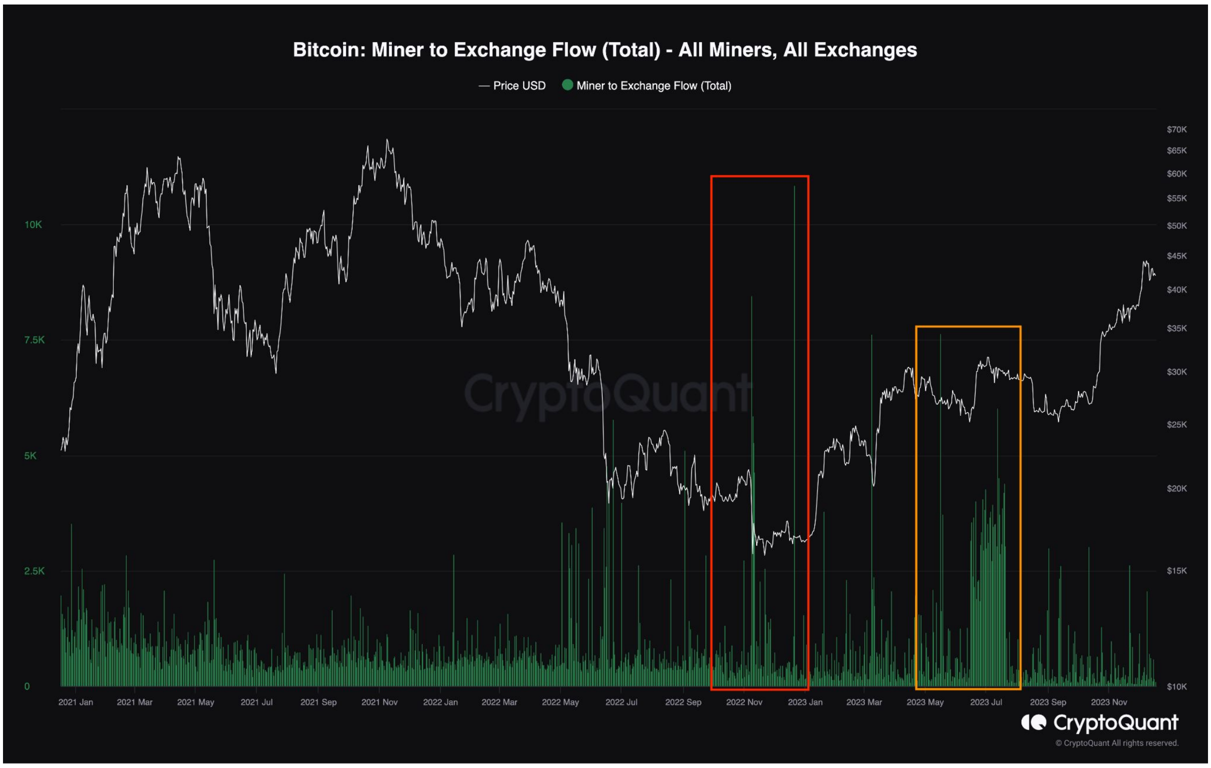


Figure 9. Bitcoin Miner To Exchange Flows. (source: CryptoQuant)

A lower exchange flow value indicates that miners are sending less BTC to exchanges, suggesting a reluctance to sell. Conversely, a higher value suggests increased sending of BTC to exchanges, implying active selling.

There has also been a recent trend highlighting the amount of Bitcoin miners are sending to exchanges. When miners reduce the amount they send, it often signals their inclination to hold onto their Bitcoin, possibly in anticipation of a further price increase. On the other hand, an uptick in this moving average value may suggest that miners are capitalising on what they perceive as favourable selling prices, leading to more Bitcoin being sent to exchanges. Such behaviour could foreshadow a potential decrease in Bitcoin's market price due to an increased supply from selling miners.

Miners usually send BTC to exchanges on two very specific occasions, during bear market capitulations and before halvings as they update their mining machinery to prepare for maintaining profitability in their operations while their rewards get halved. November 2022 saw a large number of exchange inflows because of the bear market, and we believe that the large number of inflows we saw in May and July of this year was a precursor to the halving in about three months' time. However, we expect inflows to remain subdued for the majority of the year even if we have some spikes in the metric in the next 2 months due to miners upgrading machinery further.
Mining Difficulty: Mining difficulty is determined by an algorithm that sets the challenge level for miners to mine a block. This difficulty ensures the stability and security of the blockchain.

Figure 10. Bitcoin Difficulty Ribbon. (source: Glassnode)

The "ribbon" in the figure above is a visual representation comprising simple moving averages of mining difficulty. It helps in easily tracking the rate of change in this difficulty over time.

As part of their operations, miners often sell a portion of their newly mined coins to cover production costs. This action can exert a bearish pressure on BTC. Particularly, the weaker miners, who operate on thinner margins, tend to sell a larger proportion of their coins to stay afloat. However, when maintaining operations becomes unsustainable, these weaker miners are forced to capitulate. This capitulation leads to a reduction in the network's hashing power and mining difficulty, a phenomenon observable as a compression in the mining difficulty ribbon. Compression is characterised by the movement of the smaller moving averages towards the longer-term moving averages.

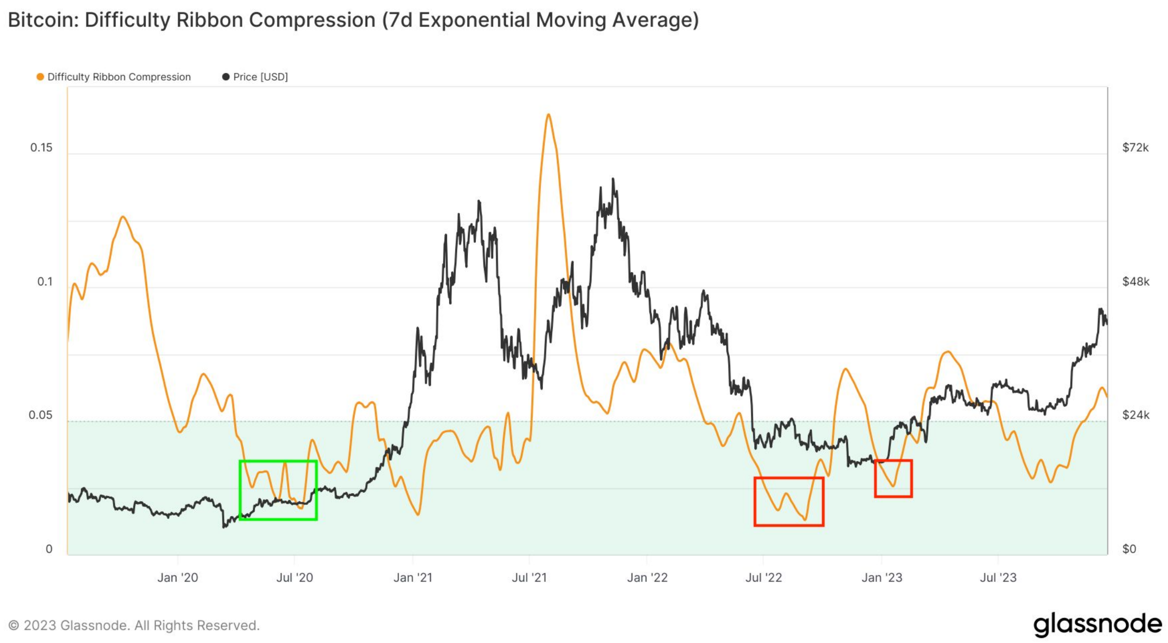


Figure 11. Bitcoin Difficulty Ribbon Compression (source: Glassnode)

The compression metric is a derived metric directly showing the compression in the ribbon defined above. This typically marks the end of bear cycles, and was seen in 2020 and also in the latter half of 2022 (red box in figure above). After such miner capitulation, the reduced selling pressure from miners allows BTC to stabilise and potentially start an upward trend, laying the groundwork for what is often referred to as the classic accumulation bottom.

This phase is crucial as it paves the way for more bullish market behaviour, primarily driven by the remaining stronger miners who sell less of their mined coins, thereby reducing the selling pressure on Bitcoin's price. As can be seen above, there is always a dip back to the green “buying zone”, but a sustained period of compression in the mining difficulty ribbon, provides a bullish environment. Currently, we are above the green zone but we expect a market pullback to allow for one more buying opportunity as was seen in the previous cycles before BTC moves higher than the current 2023 high.

Performance Against Other Markets

Bitcoin started to de-correlate from traditional markets in Q2 2023, following a period of significant rises in both global stock markets as well as the crypto markets.

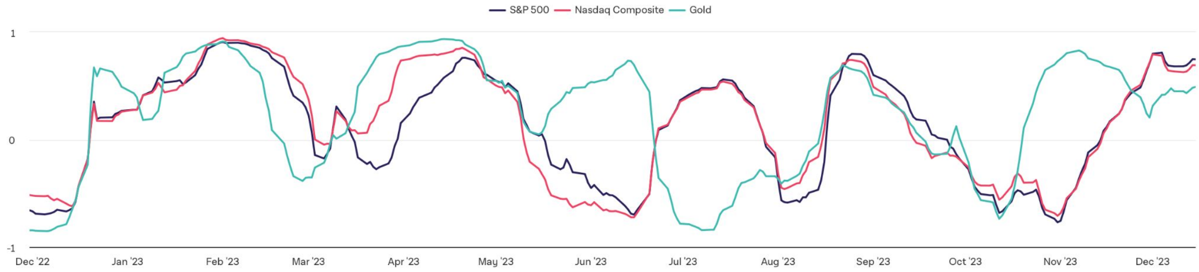


Figure 12. BTC vs Gold vs S&P 500 vs NASDAQ Pearson Correlation Metric. (source: TheBlock)

2022 might have been a challenging year for Bitcoin, but 2023 has turned into a period of recovery and resilience. Despite facing a landscape of depressed crypto prices, low trading volumes, and tough economic conditions, Bitcoin has demonstrated a remarkable comeback. After enduring a slump over the summer, the cryptocurrency found renewed momentum in October.

Figure 13. BTC vs other asset classes performance in 2023. (source: CCData)

As of the time of writing, BTC has surged 164 percent since the start of the year and is trading above $40,000. This impressive performance has seen it outstrip traditional assets: gold, which has climbed 10 percent, and the S&P 500, which has seen a 20 percent gain.

A major contributing factor to a positive trend across markets was the burgeoning AI narrative, significantly propelled by the rise of ChatGPT. This development sparked widespread interest in technological advancements, enhancing the appeal of high-growth companies that are integrating AI into their strategies. Consequently, the Nasdaq witnessed strong YTD performances, particularly driven by companies such as NVDA, META, and TSLA, which are at the forefront of this emerging AI trend.

This wave of optimism also extended to digital assets, with AI-related cryptocurrencies showing notable outperformance. Despite this, BTC maintained its dominant position in the cryptocurrency market. This continued dominance is attributed to improvements in its fundamental metrics, underscoring its resilience and appeal in a market increasingly influenced by technological advancements and macroeconomic shifts.

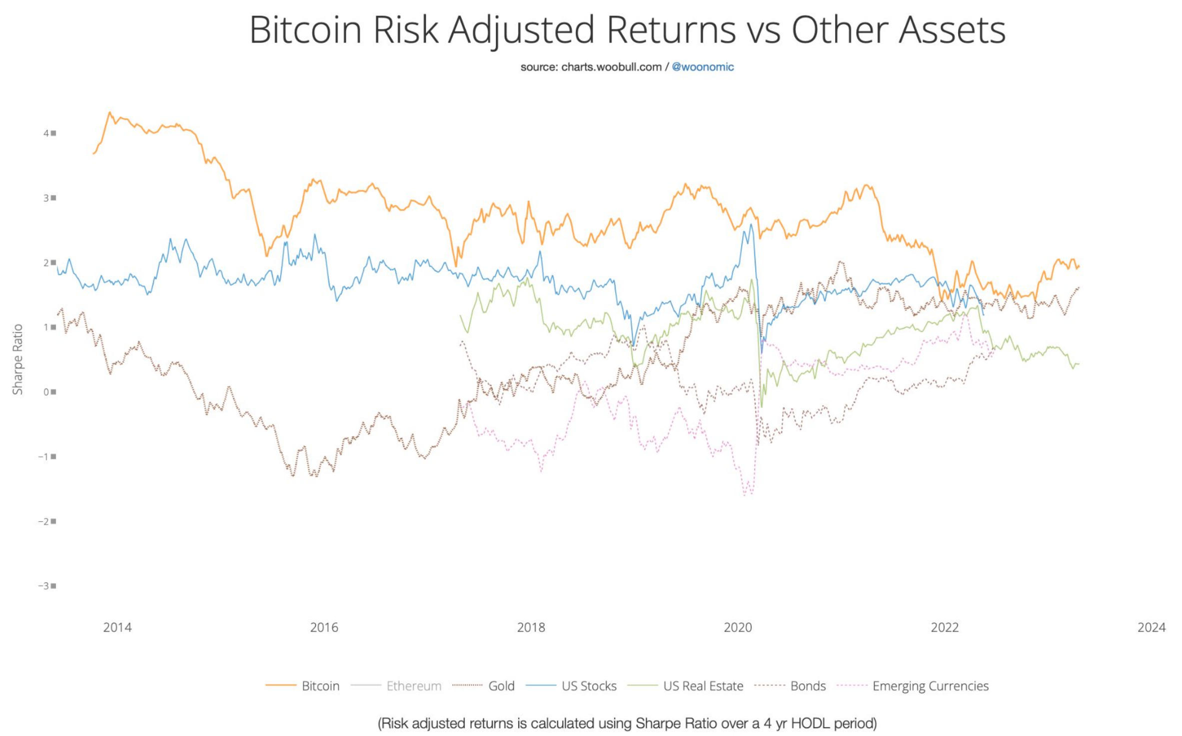


Figure 14. Bitcoin Risk Adjusted Returns vs Stocks and Gold. (source: woobull)

As per the figure above, risk-adjusted returns using the sharpe ratio over a dynamic four-year period, has shown Bitcoin delivering better returns even after accounting for risk. The metric implies that just holding BTC would have provided returns correlating to a sharpe ratio of over 2.08 (current value) which is a significantly high number for trading strategies. All other asset classes also saw an increase in their risk-adjusted returns apart from the real estate sector in 2023.

A significant portion of Bitcoin's gains occurred later in the year, fueled by the anticipation of a potential U.S. spot Bitcoin exchange-traded fund (ETF) and the prospects of more accommodative monetary policy, reinvigorating investor interest.

Trading volumes have also rebounded. The combined spot and derivatives trading volume on centralised exchanges reached $3.61 trillion in November, a substantial increase from about $2.9 trillion in January, as per data from *CCData*.

Additionally, the market for stablecoins, which are cryptocurrencies pegged to real-world assets like the dollar, has seen growth. Tether, the largest stablecoin, has reached an all-time high market cap of over $90 billion, underscoring the expanding interest and trust in these digital assets.
Prominent asset management firms, including BlackRock and Fidelity, are among the 13 entities that have applied to the U.S. Securities and Exchange Commission to launch a spot Bitcoin ETF. The launch of such a fund is expected to attract significant investment, with projections suggesting it could draw as much as $3 billion from investors in the initial days of trading, and potentially billions more in the long term. The initial demand estimate comes from the market capitalisation of GBTC by Grayscale at the time of the first spot Bitcoin ETF news earlier this year which is another proxy investment for Bitcoin. Most investors in GBTC should be willing to convert their investment to a spot ETF. The higher estimates range around $28 billion which is the current market capitalisation for GBTC.

However, not all market analysts share this view. J.P. Morgan expresses caution about the extent of adoption success the broader market is expecting. Their projections for the Bitcoin ETFs' asset pull are more conservative, anticipating it will amount to just low or mid-single digit percentage of the current total $1.7 trillion crypto market cap. This contrasts with more optimistic forecasts of around 10 percent.

If investment flows are less than 10 percent, it is possible the crypto market sees a reversal of its recent gains.

US MACROECONOMIC OUTLOOK

The US Labour Market

US LABOUR MARKET: 2023 OVERVIEW

JAN FEB

January 2023

The beginning of 2023 set the stage for the labour market's performance throughout the year. Underscoring the labour market's vibrancy was the unemployment rate sliping to 3.5 percent, its lowest level since 1969.

February 2023

Initial Jobless Claims dropped to lowest since 2022, suggesting a tight labour market

MAR APR

March 2023

LAYOFF

Layoffs increased to 1.8 million, the highest level since December 2020, majority of which from tech companies. Consumer sentiment showed its first decline in the year, reflecting the growing concerns about the possibility of a recession.

April 2023

Job reports came out strong, exceeding consensus forecasts amid recession concerns, ongoing layoffs and the instability in the banking sector that took place in March

MAY JUN

May 2023

As pandemic restrictions ease and consumer demand rises, service providers experience capacity constraints. Nonfarm payroll came out 80 percent higher than consensus fore-cast.

June 2023

The US economy has added the lowest number of jobs for a 30 month period in the past two and a half years. However, wage growth remains strong.

JUL AUG

NO VACANCY

July 2023

US job openings saw a significant decline in July, with the numbers plunging to 8.8 million – the lowest mark in almost two and a half years.

August 2023

There was an uptick on job openings and a surprising surge in employment. However, signs of a loosening job market start to appear. Job openings ratio to unem-ployed individuals reduced, showing that while there's an increase in job openings, there are more people looking for work. This is due to an uptick in Labour participation rate, which boosts labour supply.

SEPT

September 2023

Continuing jobless claims fell to its lowest since the beginning of 2023 suggesting that laid-off workers are still finding new jobs quickly. However, September saw a decline in full-time employment, indicating that people are taking multiple jobs to combat inflation.

OCT NOV

October 2023

Job openings saw a drop, the lowest in over two and a half years, further indicating a cooling labour demand, as a consequence of high interest rates.
The unemployment rate rose to 3.9 percent, the highest level since January 2022
US job growth slowed in October in part as strikes by the United Auto Workers

November 2023

Striking workers in the auto and entertainment industries returning their jobs resulting in an uptick in nonfarm payrolls but underlying job gains cools.
US worker productivity climbed to its fastest pace since the third quarter of 2020. Labour force participation rate is 0.5 percent higher than the first two quarter of the year

DEC

December 2023

As the year concluded, the labour market showed signs of cooling, but with increased financial vulnerability among households. Despite this, real wages remained in positive territory, although nominal wage growth was slowing.

In 2023, Economic uncertainty was a significant concern in the United States, along with escalating living costs and tighter credit conditions. Additionally, international conflicts, particularly the Ukraine/Russia and Israel/Hamas conflicts, complicated the global business environment.

US Labour Market: A 2024 Outlook

As we look towards 2024, the United States labour market is set to navigate a period of significant change and potential challenges. This forecast is drawn from various economic indicators, trends, and policy responses.

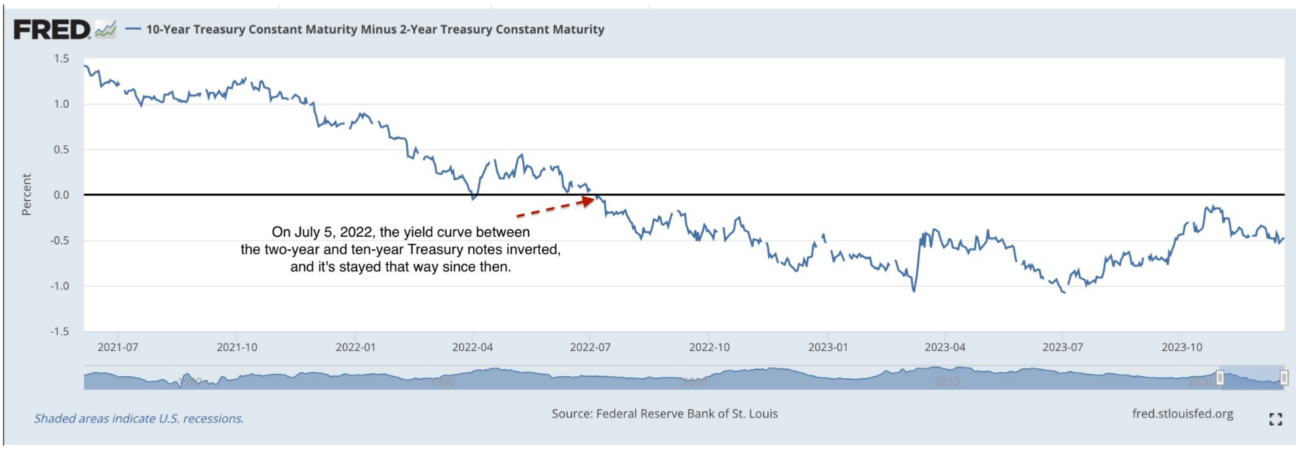


Figure 16. Occurs when US 10-Year Treasury Constant Maturity Minus 2-Year Treasury Constant Maturity

Date of Inversion prior to the recession	Time to recession
April 11, 1969	19 months
March 9, 1973	7 months
August 18, 1978	16 months
September 12, 1980	9 months
December 13, 1988	18 months
February 2, 2000	12 months
June 8, 2006	17 months

The onset of a bond yield curve inversion has historically been a precursor to economic downturns, with the risk of recession being most pronounced within 9 to 19 months following such an event. This timeline suggests that 2024 may still fall within a high-risk period for a recession, signalling a challenging year ahead for the labour market. However, the current recession risk stems from the global pandemic-induced lockdown and is not the usual backdrop to yield curve inversion. In our view, there is a probability that the Fed will achieve a soft landing for the economy as it seeks to reduce inflation.

The US economy is gradually stepping out of the shadow of the pandemic and traditional economic principles, which seemed to be in abeyance during the pandemic, are expected to reassert themselves. In particular higher interest rates, which are projected to slow down growth, will likely come into play.

Obviously, maintaining elevated interest rates for an extended period could eventually have adverse effects on businesses, particularly within the private sector. It also has the potential to impede business growth and development, which in turn, could negatively impact job creation and the broader employment landscape.

That said, the US has continued to enjoy productivity gains even as there has been a stronger than anticipated labour supply. These developments have eased the tightness in the US labour market, even in the face of above-trend growth.

The improvement in productivity could be a key factor behind robust GDP growth in 2023, despite rate increases, as it suggests that increased supply is driving demand. This boost in productivity has also contributed to reducing prices, which in turn has enabled the growth of real wages and higher consumption levels among workers. However, sustained restrictive monetary policies are likely to gradually impact the health of the private sector, and hence the labour market.

We anticipate that the ripple effects of increased interest rates on businesses will lead to a renewed decrease in job growth. This decline, which initially began in the middle of 2021, briefly stalled, likely influenced by the robust performance of the gross domestic product in recent times. Yet, it's possible that this deceleration in job growth will pick up again soon, potentially dipping to near or just under zero in the first half of 2024. Already, there are indications of this downturn, such as a 0.6 percent reduction in average weekly hours worked in 2023 compared to the previous year. Reduced working hours may precede a slower rate of job creation.

Regarding wages, the average increase in private hourly earnings over the last three months was approximately 3.4 percent on an annual basis, a noticeable decrease from the 4.5 percent rate seen at the start of 2023. The year-on-year growth rate dropped significantly to 4.0 percent in November, a stark contrast to the peak rate of 5.9 percent in March 2022.

It's likely that wage growth will continue to decelerate into 2024. Workers may be aiming for a one-time adjustment in wages to compensate for the unexpected surge in inflation experienced in 2022, which led to a decline in real wages. However, this trend is expected to stabilise in 2024 as the demand for labour diminishes.

In the short term, we anticipate that the slowing of economic growth will cause an increase in the unemployment rate, averaging around 4.3 percent in 2024, up from 3.7 percent in November 2023. This increase is relatively moderate when compared to past economic downturns in the US.

Considering the unemployment rate's recovery to roughly 3.5 percent-4.0 percent since its peak at 14.7 percent in April 2020, the ongoing gap in employment is mainly attributed to reduced participation in the labour force, indicating a higher number of individuals simply opting out of the workforce.

The persistent gap in labour force participation seems to be largely due to individuals aged 55 and older, who chose early retirement during the pandemic and are unlikely to return to the workforce. In contrast, the participation rate among those aged 25 to 54 has slightly exceeded pre-pandemic levels.

Over the next few years, it's expected that labour force participation among older Americans will gradually recover, although the lasting effect of increased early retirements will continue to influence the labour market.

Inflation and Monetary Policy

A Quick Look Back

At the start of 2023, the headline Consumer Price Index (CPI) continued its downward trajectory from a peak of 9.1 percent in June of 2022, measured on a year-over-year basis. This trend marked a significant cooling from the previous year's high inflation rates. The CPI report for July, however, indicated a reversal in this trend, registering the first increase in headline prices in a year. This upturn was somewhat anticipated, particularly in light of the rebound in energy prices from their lows in the previous year. Concurrently, the Core Personal Consumption Expenditures (PCE) Price Index, which is the Federal Reserve's preferred measure of inflation due to its exclusion of volatile food and energy prices, maintained a consistent year-over-year decline.

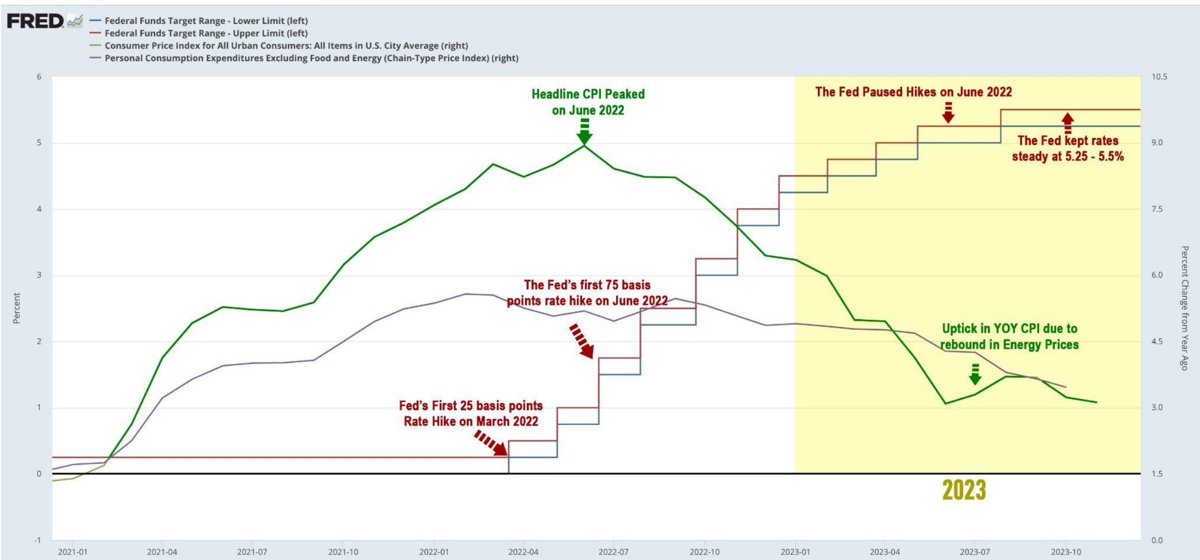


Figure 17. CPI Headline Inflation, Core Personal Consumption Expenditure and Federal Funds Rate

Inflation posted its biggest monthly increase this year in August as consumers faced higher prices on energy and a variety of other items. Both PCE and CPI inflation were flat in October providing a hopeful sign that stubbornly high prices are easing their grip on the US economy.. Though CPI picked up slightly in November, the core inflation metrics were aligned with consensus forecasts.

Despite the slowdown in inflation, the Federal Reserve persisted with its tightening monetary policy in the first half of the year, implementing consistent monthly rate hikes of 25 basis points each through the first two quarters. The central bank paused these hikes in June and resumed with a single hike of 25 basis points in July, before maintaining steady interest rates for the rest of the year. The Federal Open Market Committee's (FOMC) December meeting marked a notable pivot in their monetary policy narrative, transitioning from a focus on rate hikes to discussing the potential for rate reductions in 2024.

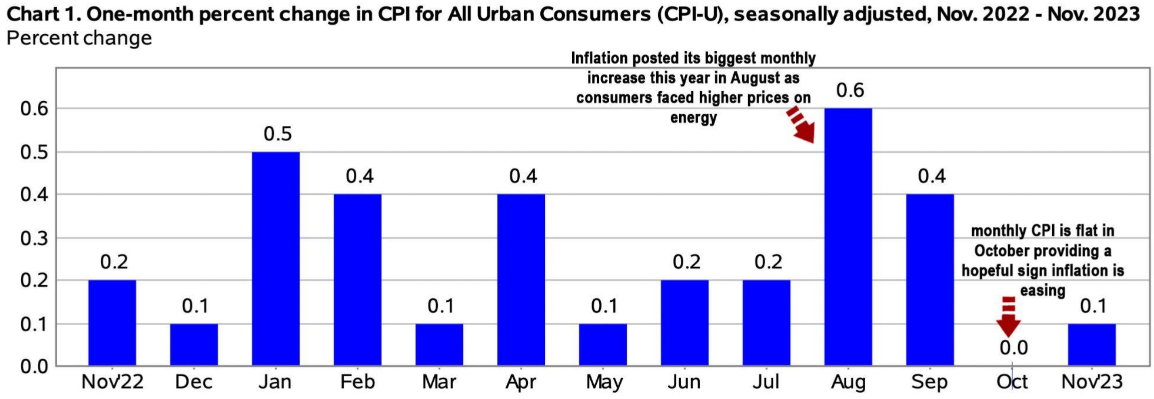


Figure 18. One-Month Percent Change in CPI

Since March 2022, the Fed has hiked a total of 500 basis points, which takes benchmark borrowing costs to their highest level in more than 22 years. The decision to cut rates in 2024 will be quite significant but the immediate jump up in fed futures rates forecasting six rate cuts in 2024 was a knee-jerk reaction to the Fed chair's statements on potentially reducing rates, and the timing of rate cuts remains uncertain.

Inflation and Monetary Policy: A 2024 Outlook

The aftermath of the pandemic has cast a prolonged shadow over the US economy. Unlike the swift course of the pandemic itself, its economic repercussions have been lingering for years. Businesses and households that secured favourable borrowing rates before the pandemic years are now somewhat shielded from the Federal Reserve's interest rate hikes. The quantitative easing policies of that period have had more enduring effects than anticipated, with their influence persisting well into 2023.

As we turn our gaze to 2024, we see wage growth up comfortably and helping consumers outpace inflation - at least in the first half of the year. This should support spending in sectors like health, leisure, and hospitality, fueling job creation and economic vitality. The resilience of the US consumer is expected to continue being a cornerstone of the nation's economy. Nonetheless, challenges await, including the lagged impact of prior rate hikes.

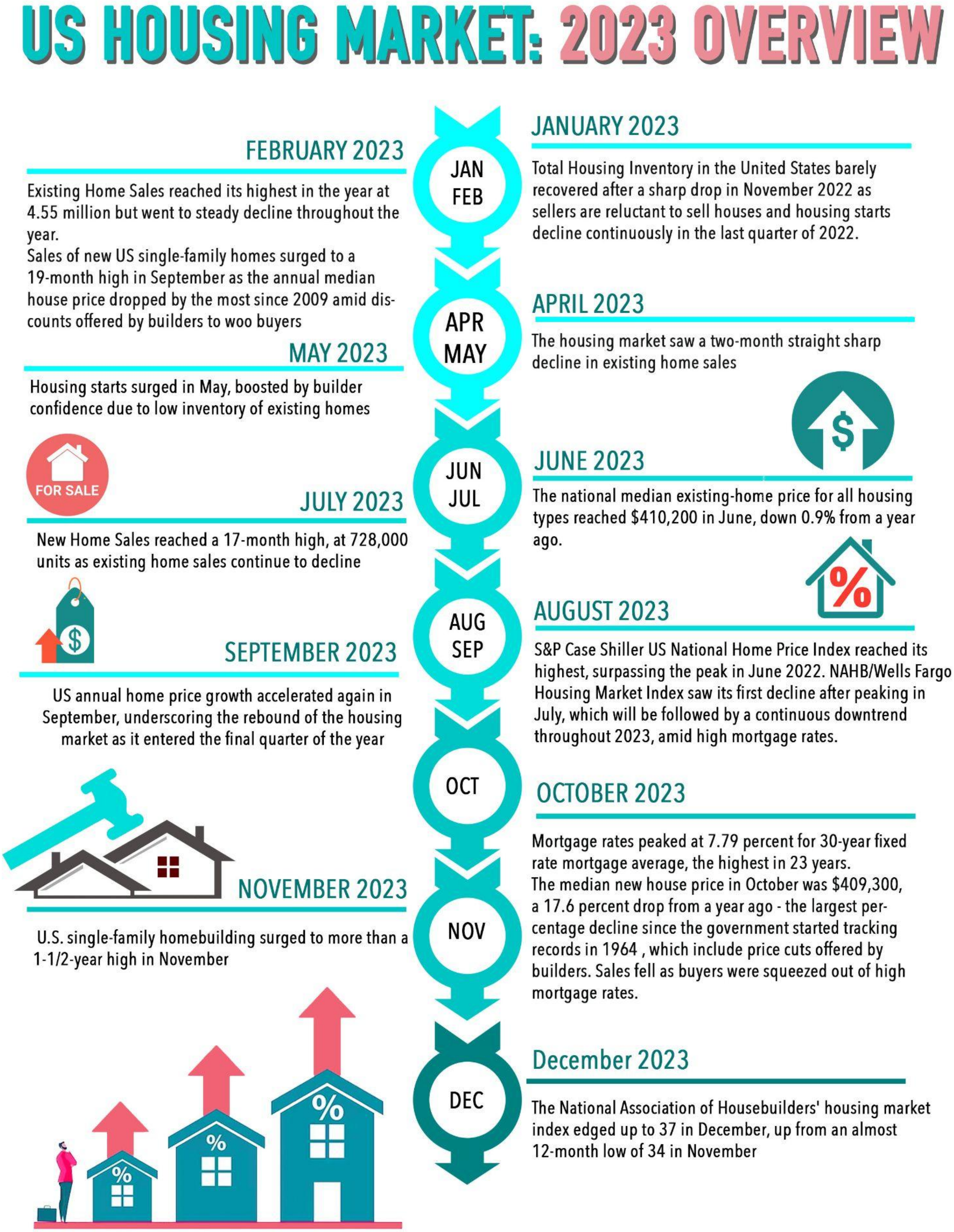
CME FEDWATCH TOOL - MEETING PROBABILITIES										
MEETING DATE	325-350	350-375	375-400	400-425	425-450	450-475	475-500	500-525	525-550
1/31/2024				0.0%	0.0%	0.0%	0.0%	10.3%	89.7%
3/20/2024	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	7.6%	69.0%	23.3%
5/1/2024	0.0%	0.0%	0.0%	0.0%	0.0%	6.8%	62.1%	28.5%	2.6%
6/12/2024	0.0%	0.0%	0.0%	0.1%	7.6%	61.6%	28.1%	2.6%	0.0%
7/31/2024	0.0%	0.0%	0.1%	6.6%	53.9%	32.9%	6.2%	0.4%	0.0%
9/18/2024	0.0%	0.1%	5.7%	47.7%	35.6%	9.7%	1.1%	0.0%	0.0%
11/7/2024	0.0%	3.6%	32.3%	40.1%	19.2%	4.3%	0.4%	0.0%	0.0%
12/18/2024	2.7%	25.1%	38.1%	24.5%	8.0%	1.4%	0.1%	0.0%	0.0%

Figure 19, CME Fedwatch Tool- Meeting Probabilities

In the next year, the US Federal Reserve is likely to centre its attention on core inflation and broader global economic risks, including those posed by the banking sector. The anticipated reduction in short-term interest rates to around 4.25 percent by the end of 2024 and further to 3.5 percent in 2025 indicates a more gradual approach compared to previous rate reduction cycles. This cautious pace reflects the underlying strength of the US economy. The Fed is prepared to accelerate rate cuts if necessary, especially if downside risks materialise and inflation continues to decline.

Despite potential dampening in demand due to previous rate hikes, the supply side of the economy has been gaining momentum throughout 2023. This progress, even if partially sustained into the next year, could help alleviate inflationary pressures. However, avoiding a recession in 2024—still a significant possibility—doesn't guarantee a return to the ideal two percent inflation rate. The Fed targets still include a return to 2.9 percent YoY headline inflation and not any lower by the end of next year. While the Federal Reserve might find room to ease its grip on the economy, a complete return to neutral interest rates seems unlikely. With inflation projected to remain between two and three percent, the Fed is expected to maintain a moderately restrictive policy stance, and will allow external factors like supply-side developments or an unforeseen recession to bring down inflation to the Fed's target.

The US Housing Market



A Quick Look Back

The US housing market has experienced significant fluctuations since the onset of the COVID-19 pandemic in early 2020. Initially, the pandemic caused a dramatic drop in housing prices, parallel to the declines in the stock market and the broader economy. However, this trend rapidly reversed, resulting in a housing boom characterised by soaring prices.

By 2023, the dynamics of the housing market have shifted again. A noticeable decrease in housing prices is evident in many areas throughout the first two quarters, leading to widespread speculation about whether this trend represents a temporary downturn or a more profound change in the market.

The housing market is inherently influenced by the principles of supply and demand, with prices fluctuating based on the equilibrium between the number of buyers and sellers. The recent decline in home prices can be attributed to several factors impacting this balance.

One significant factor is the rapid increase in housing prices since the pandemic's initial impact. In some areas, housing prices more than doubled in under two years, an unprecedented rate of growth for a market typically characterised by more modest annual increases. This sharp rise in prices has contributed to a decrease in housing affordability, subsequently leading to reduced demand. With fewer buyers entering the market, home prices have begun to soften.

Additionally, the sharp increase in mortgage rates has played a crucial role in reducing housing affordability. Homebuyers who were benefiting from historically low mortgage rates below 3 percent in 2020 are now facing much steeper rates, sometimes exceeding 7 percent, even for those with excellent credit. This contributed to the decline in existing home sales throughout 2023.

United States Housing Market: A 2024 Outlook

2023 witnessed soaring mortgage rates, peaking at an unprecedented 7.79 percent, alongside median home prices exceeding $400,000. This trend marked a stark contrast to the record low of 2.65 percent for average 30-year fixed rates in January 2021.

The federal funds rate is key to overnight loans between financial institutions. These rates indirectly influence the housing market, notably affecting mortgage rates. There's optimism from the Federal Reserve's decision to pause rate hikes, bolstered by stabilised inflation rates late in 2023. However, housing affordability remains a challenge in 2024 due to persistent demand and limited inventory, keeping property prices high. Despite a potential decrease, mortgage rates are unlikely to reach pandemic-era lows within the year.

This is amidst the Federal Reserve's approach to sustaining higher interest rates for longer, affected by factors like high bond yields, which means mortgage rates will stay above historical averages. Even with anticipated rate cuts in 2024, mortgage rates typically reduce more slowly than these cuts.

For a real recovery in the housing market, an increase in available homes is essential to balance escalating prices, along with a moderate decrease in interest rates. A rapid rate reduction could spur demand, negating inventory gains and pushing prices up. The housing inventory remains tight, as many homeowners are reluctant to sell due to enjoying low rates or deterred by high prices, a trend likely to continue into 2024. Housing market remained resilient for the most part in 2023 despite the increase in mortgage rates to over eight percent. However, 2024 is likely to be a frozen or stagnant market due to low existing housing supply being accompanied by higher interest rates.

Home builder sentiment, as per the NAHB/Wells Fargo Housing Market Index, declined in late 2023, although a rise in new single-family building permits hints at more home construction in 2024. Home prices have soared in recent years, with builders now focusing on smaller, affordable homes and offering mortgage incentives, especially for first-time buyers. Inflation easing could lower material costs, yet labour shortages and costs pose challenges, particularly for smaller builders facing tighter credit availability.

A significant drop in home prices in 2024 is improbable, we expect the highest drop in the housing market to be curtailed at five to six percent. Unless there's a major shift in demand, dramatic price reductions aren't anticipated. The housing market may face further challenges before a meaningful recovery is seen.

The US Manufacturing Sector

US MANUFACTURING SECTOR: 2023 OVERVIEW

YEAR 2022

2022

Labour Market Challenges: The manufacturing sector faced difficulties in workforce recruitment and retention, driving wages up as companies competed for skilled labour.

Rapidly Rising Interest Rates: In response to inflationary pressures, the Federal Reserve increased interest rates multiple times throughout 2022. This action aimed to curb inflation but also had implications for manufacturing as it affected borrowing costs and investments.

Q1

JANUARY 2023

Early in 2023, the manufacturing sector continued to experience the effects of high inflation and interest rates- factory orders dropped by 1.7 percent

MARCH 2023

US labor market remains relatively tight despite relatively high job opening levels

Q2-Q3

APRIL-JUNE 2023

In April 2023, S&P Global Purchasing Managers Index reached the expansion territory for the first time in the year, before dropping to its lowest on June

JULY - SEPTEMBER 2023

The manufacturing sector fell back to contraction, Durable goods in July order fell the sharpest in the year. Labour Force participation rate rose to 62.8 in August, the highest since March 2020

Q4

OCTOBER 2023

ISM Manufacturing PMI fell after three consecutive months as business became concerned of the Hamas-Israel conflict.

There were 1.34 job openings for every unemployed person in October, the lowest since August 2021.

NOVEMBER 2023

Producer price inflation dropped by 0.4 percent , and remained unchanged in November -further signs of easing inflation

In November NonFarm Payroll Increased after the United Auto Workers (UAW) union ended their strikes against Detroit's "Big Three" car makers, yet softening in the Labour market is still becoming apparent.

Productivity in the United States increased to 110.97 points in the third quarter of 2023 from 109.57 points in the second quarter of 2023, the highest in the last six quarters.

In 2023, the US manufacturing sector faced several challenges and opportunities, shaped by various economic factors including inflation, interest rates, labour market conditions, and consumer spending patterns.

Inflation had a significant impact on the manufacturing sector, particularly through its influence on the labour market. As the cost of living rose, businesses were compelled to increase wages to attract and retain skilled workers. This rise in overhead costs led to a reduction in profits for many manufacturing businesses. The labour market in 2023 remained tight, posing a challenge for manufacturers in terms of attracting and retaining quality workforce.

Despite economic uncertainties, consumer spending remained robust in 2023. Households, particularly those with higher incomes, maintained strong balance sheets, enabling continued spending.

2024 Outlook US Manufacturing

The US manufacturing sector in 2024 is set to be buoyed by robust consumer spending and private investment. Growth is expected to hover around the long-term rate of 1.8 percent, thanks to the support of real personal income gains. However, the manufacturing sector is not without its challenges, notably in the labour market.

As we saw in the last quarter of 2023, the unemployment rate began an upward trend, a pattern likely to continue into 2024, reaching a cyclical peak of around 4.3 percent. This rise in unemployment is partly due to the Federal Reserve's substantial rate hikes, intended to moderate demand in the broader economy. Despite this, there's a silver lining with the expanding labour pool and rising Labor Force Participation Rate, which could help slow down wage growth. This slowdown is crucial for the Fed's efforts to bring inflation down to its two percent target.

A key highlight of the year has been the surge in productivity, which saw a significant increase in the third quarter and maintained robust growth over the previous six months. If this trend of rising productivity continues, the economy could see an uptick in output without fueling inflationary worries.

The manufacturing sector has also been buoyed by business investment, particularly in structures, which has shown strong growth this year. This growth is in part due to incentives provided by legislation such as the Inflation Reduction Act (IRA) and the Creating Helpful Incentives to Produce Semiconductors and Science Act (CHIPS)—which provide hundreds of billions of dollars in incentives to manufacture products in the United States. However, an essential aspect of the economic landscape is how businesses are coping with monetary policy changes, especially the rising interest expense. While coverage ratios in most sectors have adjusted from exceptional to normal levels, the extended period of high-interest rates could increasingly strain profit margins.

Challenges and Risks Ahead

Looking ahead, the primary domestic risk for the US manufacturing sector revolves around the adaptation of households and firms to the changing interest rate environment. The Federal Reserve's policy rate has risen sharply, affecting long-term rates like the 10-year Treasury yield. If the Fed continues to hike its policy rate, the risks to economic expansion will likely increase. Additionally, the sector faces the challenge of refinancing more than $3 trillion in corporate debt, particularly those acquired at lower rates in 2020 and 2021. The higher rates expected for these rollovers could dampen growth prospects in late 2024 and shape the economic outlook for 2025.

Bitcoin and Crypto Adoption

El Salvador's Bitcoin Odyssey: A Nation's Trailblazing Journey into Bitcoin as Legal Tender

El Salvador’s journey to Bitcoin adoption is a pioneering tale of bold moves and innovation. This timeline captures the significant milestones in El Salvador's embrace of Bitcoin as legal tender.

June 5, 2021 - Nayib Bukele, President of El Salvador, announces plans to make Bitcoin legal tender at the Bitcoin 2021 conference in Miami. This move would make El Salvador the first country to officially adopt a cryptocurrency as legal tender.

June 9, 2021 - The Salvadoran Congress approves the Bitcoin Law, making Bitcoin legal tender in El Salvador. This law mandates that all businesses accept Bitcoin as a form of payment, alongside the US dollar, which is El Salvador's other official currency.

June 10 2021- Nayib Bukele announced that the country's state-run geothermal energy utility would begin using power derived from volcanoes for Bitcoin mining

September 7, 2021 - The Bitcoin Law comes into effect. To promote its use, the Salvadoran government launches a digital wallet app called Chivo, offering a $30 Bitcoin bonus to citizens who sign up.

January 5 2022 - The International Monetary Fund’s board urged El Salvador to strip Bitcoin of its status as legal currency due to its perceived risks and volatility

June 30 2022 - El Salvador bought 80 Bitcoin at a price of $19,000 each.

April 11 2023 - Bitfinex Securities El Salvador S.A. de C.V. (“Bitfinex Securities El Salvador”), became the world’s first international digital asset platform to receive approval to be licenced as a Digital Asset Service Provider under El Salvador’s ground-breaking new Digital Assets Issuance Law. It is a fully-regulated digital asset exchange that will enable the issuance and trading of innovative real-world tokenized assets such as equities and bonds,

June 5 2023 - Tether joins El Salvador's billion-dollar renewable energy initiative, investing in "Volcano Energy" - a 241 MW renewable energy park in Metapán, promoting sustainable Bitcoin mining

December 7 2023 - El Salvador launched the Freedom Visa program. This initiative aims to raise $1 billion by inviting at least 1,000 individuals to invest $1 million each into the country, in return for residency benefits offered by the program.

December 12 2023 - The Volcano Bond receives regulatory approval from the Digital Assets Commission (CNAD). The bonds are set to be offered on Bitfinex Securities.

The SEC plans to implement a ban on Binance within three months of the date of their advisory, issued on November 28th. This period is meant to provide Filipino users with sufficient time to withdraw their investments from the cryptocurrency exchange. Moreover, the SEC has reached out to Google and Meta, Facebook's parent company, requesting them to prohibit Binance's online advertisements in the Philippines. The commission has also issued a warning that individuals involved in persuading others to invest in it may face criminal charges.

2024 Outlook for El Salvador Bitcoin Adoption

El Salvador's foray into Bitcoin adoption was primarily aimed at improving financial inclusion for its sizable unbanked population. The decision has been both applauded for its forward-thinking nature and scrutinised for its potential risks.

As 2024 unfolds, the focus on bolstering the infrastructure to support Bitcoin transactions is likely to intensify. This includes initiatives to increase public awareness and education about Bitcoin, especially among those who have traditionally been excluded from the formal banking system. The Salvadoran government envisions that Bitcoin can provide a digital gateway for financial services to its unbanked citizens, potentially revolutionising how they engage with money. The success of this endeavour hinges not only on the technological and regulatory framework but also on the population's readiness to adopt and understand this new form of currency.

The Volcano Bonds, a cornerstone of El Salvador's Bitcoin strategy, are a critical element in this financial experiment. El Salvador's "Volcano Bond" has been approved by the Digital Assets Commission (CNAD). These bonds will be issued through Bitfinex Securities. Set to be issued in the first quarter of 2024, they aim to raise $1 billion to fund a Bitcoin mining industry powered by the country’s volcanic geothermal energy.

The profitability of El Salvador's Bitcoin investment, which turned positive at the end of 2023 (Nayib Bukele announced on December 4th a profit of 3.6 million dollars in its Bitcoin investments) , demonstrates a promising start.

Figure 20. El Salvador Portfolio

El Salvador's Bitcoin journey is not without its challenges. The nation faces the enormous task of fostering digital literacy and ensuring robust internet infrastructure to support widespread Bitcoin use. The Salvadoran government's ability to manage these challenges, along with the volatile nature of Bitcoin, will be crucial in determining the success of this ambitious project.

Moreover, the Salvadoran experiment with Bitcoin has attracted international attention, raising concerns among global financial institutions, like the International Monetary Funds (IMF). The country’s bold move serves as a test case for Bitcoin as legal tender, with implications that extend far beyond its borders. As 2024 progresses, the world will be keenly watching El Salvador’s Bitcoin venture, not only as a financial experiment but also as a potential blueprint for other nations considering similar pathways.

Embracing the Future: Lugano's Revolutionary Journey in Cryptocurrency Adoption

The City of Lugano, Switzerland, made a significant move by adopting Bitcoin, along with Tether (USDt) and its own token LVGA, as de facto legal tender in 2022. This pioneering decision allows residents to use these cryptocurrencies for a variety of services, including tax payments, public services, and retail transactions. The adoption is part of the "Plan B" initiative, a collaboration between the city and Tether, aimed at establishing Lugano as a blockchain and crypto hub. Here’s a short timeline of the Lugano’s journey in Bitcoin adoption:

March 3 2022 - The City of Lugano and Tether announced their partnership, aimed at creating a comprehensive ecosystem for the use of digital assets in the city. Lugano's "Plan B" is an ambitious initiative by the Swiss city to become a significant blockchain hub in Europe.

March 4 2022 - Legal Tender Announcement: Tether announced that Lugano plans to accept Bitcoin, Tether (USDt), and its own digital token LVGA as legal tender.

October 4 2022 - Plan B Foundation announced a collaboration with GoCrypto to officially bring Bitcoin, Tether and LVGA payments to the city of Lugano.

December 5 2023 - The City of Lugano announced that it has broadened its payment options by including cryptocurrencies for the payment of tax invoices and all other community fees. Lugano will accept Bitcoin (BTC) and Tether (USDt) as a means of payment

2024 Outlook

In 2024, Lugano's Plan B, in partnership with Tether, is set to continue revolutionising the city's financial landscape. Following the successful integration of Bitcoin and Tether Tokens (USDt) for municipal transactions, including taxes and fees, the city, in collaboration with Tether, anticipates further expansion of its blockchain initiatives. One of which is a dedicated hub for blockchain enterprises and educational scholarships at local universities to promote blockchain learning. The city's adoption of crypto assets is aimed at lowering infrastructure costs, enhancing access to global financial markets, and boosting the transparency of its services and products. Lugano aspires to set an example in the practical, everyday application of blockchain technology on a broad scale.

Shaping Argentina's Economic Future with Cryptocurrency

Over the past few years, Argentina has experienced a remarkable journey in the realm of cryptocurrencies, reflecting both the nation's economic volatility and its evolving relationship with digital assets.

2020

The COVID-19 pandemic causes increased economic uncertainty, pushing more Argentinians towards cryptocurrencies as a hedge against inflation.

At the start of 2020, Ripio, one of Argentina's largest crypto exchanges, had around 400,000 users. It's finishing the year with 1 million.

2021

- April 2021: Regulatory Focus on Cryptocurrencies The Argentine government begins drafting regulations to provide a legal framework for cryptocurrencies..

2022

- May 2022: "Crypto penetration" in Argentina had reaches 12 percent,
- July 2022: The Argentinian Central Bank has issued a resolution that excludes companies and individuals that have purchased cryptocurrencies from accessing dollars at the official rate.

2023

- February 2023: Inflation in Argentina surpassed 100 percent marking the first time since 1991 that the country's inflation rate reached such high levels.
- April 2023: Argentina's Securities Commission approves Bitcoin Futures
- May 2023: Argentina's central bank bans payment providers from offering crypto transactions, and indicates that it intends to reduce the country's payment-system exposure to digital assets
- November 2023 : Pro-Bitcoin president Javier Milei Wins Argentine Presidency; Bitcoin Gains Nearly three percent

2024 Outlook

Given Argentina's history of economic volatility, especially with high inflation rates, it's reasonable to expect that citizens will continue to turn to cryptocurrencies as a hedge against currency devaluation and inflation. This trend has been observed in other economies facing similar issues.

If the Argentine government takes a more positive or even neutral stance towards cryptocurrency, it would likely boost adoption. This could include implementing supportive regulations, or at the very least, not imposing stringent restrictions.

Crypto Market Sizing And Retail/Institutional Adoption

The entire crypto industry continued to see robust growth in adoption throughout 2023. By November, the total number of cryptocurrency owners had surged to 575 million, (refer Figure below) growing at an average monthly rate of 2.8 percent.

Figure 21. Estimated Total number of global crypto owners.

Looking ahead to 2024, and contingent upon market conditions, we anticipate that the number of global cryptocurrency owners could escalate to between 850 and 950 million as the monthly rate of growth usually increases to over 3.8-4.4 percent if we take 2021 bull market as a reference point and assume the current bullish market conditions to carry over throughout the entirety of 2024. This projection underscores the increasing global interest in and acceptance of cryptocurrencies.

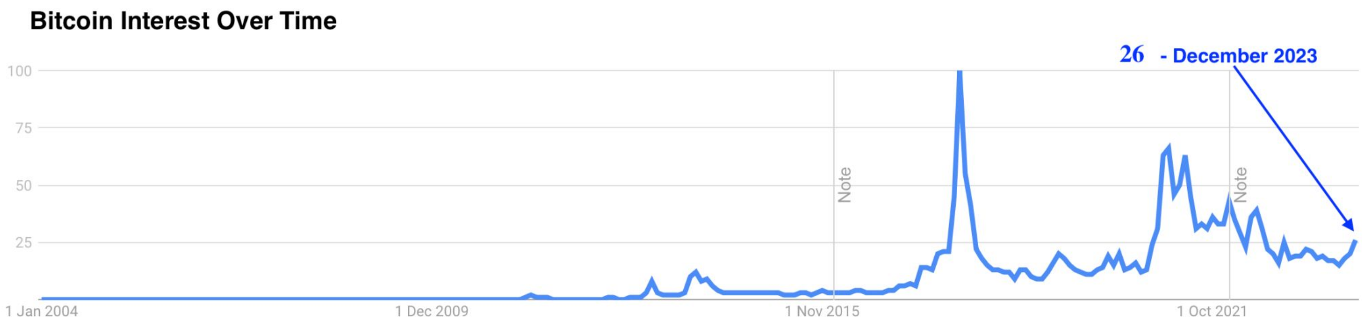


Figure 22. Bitcoin Interest Over Time Based On Google Trends. (source: Google Trends)

As of December 2023, the search interest value for Bitcoin stands at 26 (on a scale of 100), which is a decline from its peak. The highest recorded value was in December 2017, when it reached the maximum score of 100, indicating the term's peak popularity. In February 2021, which marked the peak of the 2021 bull market, the search interest reached 66, reflecting a heightened but not peak level of interest compared to its all-time high in 2017.

Investment activity however continues to grow. Digital asset Exchange-Traded Products (ETPs) and Exchange-Traded Funds (ETFs), have seen a discernible upward trend in Assets Under Management (AUM). Over the span of twelve months in 2023, ten have shown month-over-month gains.

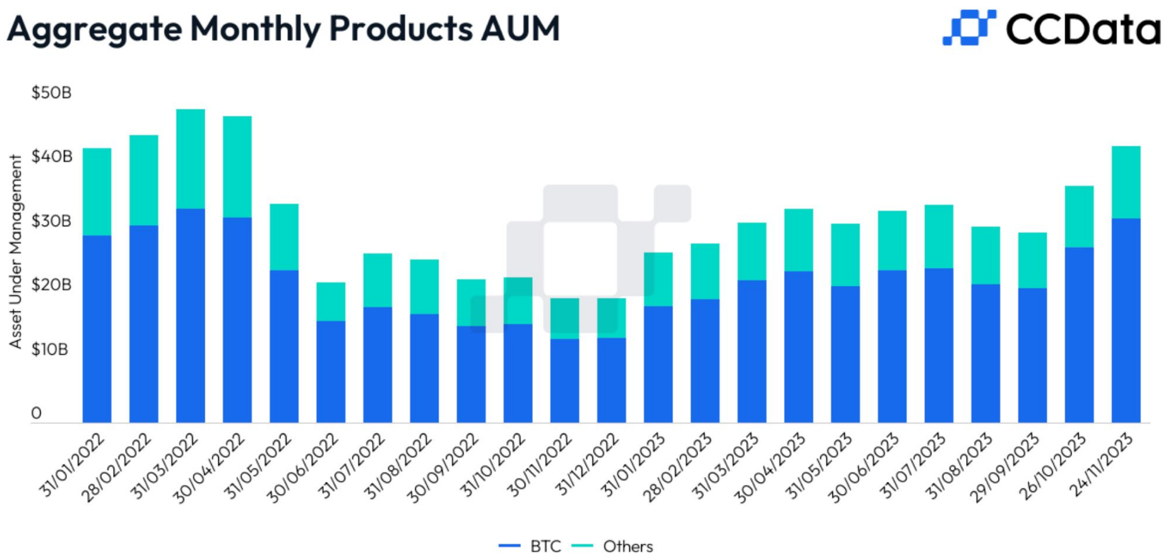


Figure 22. Aggregate Monthly Products Assets Under Management. (source: CCData)

Year-to-date, aggregated AUMs have seen a substantial increase of over 150 percent, growing from $19 billion at the end of December 2022 to $49 billion as of December 2023 after a significant slump in the latter half of 2022. This growth indicates significant capital inflows into these investment products, particularly from institutional investors who may have limited access to digital assets outside of these instruments.

Should a spot Bitcoin ETF be approved, the market is expected to experience even larger inflows than currently anticipated. A Spot ETF, in particular, is viewed as a more attractive option for institutional investors compared to the existing investment instruments. Its superiority stems from the potential to attract demand from previously untapped demographics, such as wealth managers and passive investors. Such an expansion in accessibility is likely to significantly impact the market, drawing in new segments of investors and further driving the growth of digital asset investments.

Pivotal Narratives To Look Out For

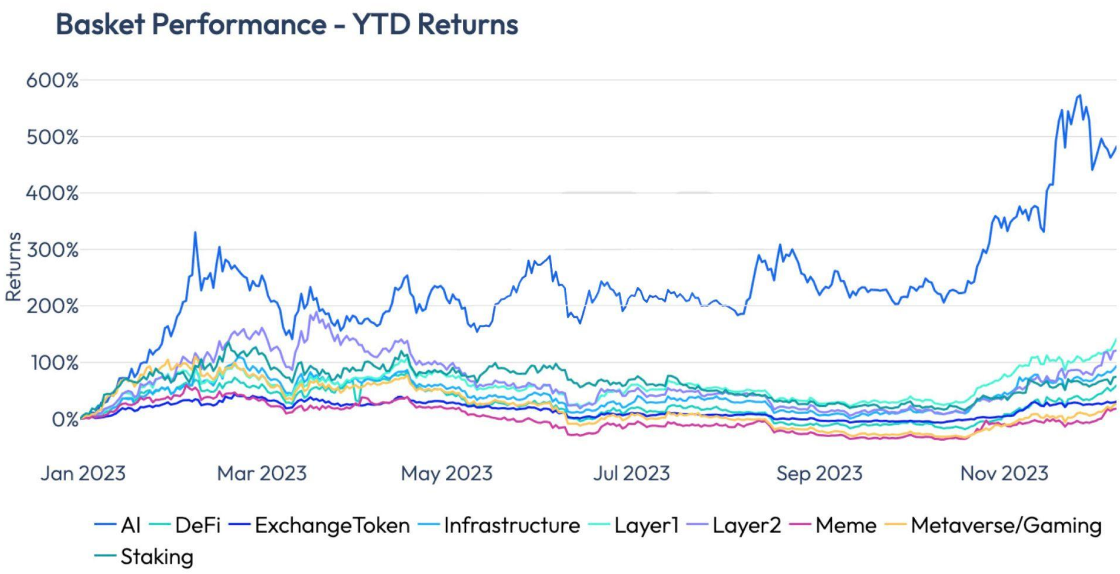


Figure 23. Basket Sector-Wise Performance for 2023. (source: CCData)

AI - The year 2023 marked a pivotal moment for generative artificial intelligence (AI), significantly propelled by OpenAI's launch of ChatGPT. This development sparked a wave of innovation among technology giants like Google and Meta, who are also venturing into large language models (LLMs) to stay competitive. OpenAI further advanced its offerings with significant updates, including the release of GPT-4 and DALL·E 3.

The industry has started exploring the diverse applications of AI-generated content within Web3. Generative AI is emerging as a valuable tool in various domains, including assisting with design tasks in the NFT sector, gaming, smart contract code development, and enhancing quality assurance processes.

A notable trend in 2023 was the fusion of AI and Web3, particularly in areas concerning decentralised infrastructure and ownership models. Alethea AI, for instance, is at the forefront of this integration, blending AI and blockchain technology to transform the creation, distribution, and monetization of AI-generated content. Their approach is centred on the principles of decentralised and democratic ownership of AI technologies.

Figure 24. Market Ca of All AI-Related Tokens

This surge in interest and development in AI has also been reflected in the markets with GPU manufacturer Nvidia among the best-performing stocks of the year. In crypto markets, the AI basket of crypto assets consists of projects such as Render Network (RNDR), Singularity Network (AGIX), and Ocean Network (OCEAN). The market capitalization of AI-related tokens witnessed a substantial increase, soaring from just over $8 billion at the beginning of 2023 to nearly $28 billion by November 30, 2023. This growth underscores the escalating enthusiasm and investment in AI technologies, and signals a significant shift in the digital landscape towards AI-themed investment plays.

Real-World Assets - Boston Consulting Group's report sheds light on the burgeoning market of on-chain Real-World Assets (RWA), forecasting it to potentially reach $16 trillion by 2030. This projection is backed by recent survey data revealing a strong inclination from institutional investors towards tokenized assets, with approximately 91 percent of respondents expressing interest in such investments.

Some players providing comprehensive solution e.g., Sygnum, also work on tokenization

	Tokenization players across asset categories, including financial assets like equity share, private fund									Niche asset classes like real estate	
Name	Tzero	Consensys Codefi	Securitize	ADDX	Polymath	Securrency	BitBond	Tokeny Solutions	Tokensoft	Liquefy	Digishare
HQ	US, New York	US, New York	US, San Francisco	Singapore, Singapore	Canada, Toronto	US, Washington	Germany, Berlin	Luxembourg, Luxembourg,	US, San Francisco	Hong Kong, China	Nordjylland, Denmark
Years of Establishment	2014	2017	2017	2017	2017	2015	2013	2017	2017	2018	2018
Funding	$330.3 Mn	$82.5 Mn	$73.0 Mn	$120.0 Mn	$58.7 Mn	$49.4 Mn	$7.6 Mn	$5.6 Mn	$4.0 Mn	$3.0 Mn	$1.1 Mn
Team Size	~84	~5	~90	>100	~44	~71	~91	~27	~20	~8	48
Category of Play	Secondary Market, Custody	Tokenization Platform	Tokenization Platform, Primary Market, Secondary Market, Custody	Tokenization Platform, Primary Market, Secondary Market, Custody	Tokenization Platform, Primary Market, Secondary Market	Tokenization Platform	Tokenization Platform, Custody	Tokenization Platform, Secondary Market	Tokenization Platform, Primary Market	Tokenization Platform	Tokenization Platform, Primary Market
# Tokenized Assets	4	-	115	40	225	-	5	45	50	-	-
Used Blockchain	Ethereum, Tezos Algorand	Ethereum, Quorum	Ethereum, Algorand, Avalanche	Ethereum (Private)	Polymesh, Ethereum	Ethereum, Stellar, Ripple, Gochain, EOS	Stellar	Ethereum, Polygon	Ethereum, Stellar, Corda, Hyperledger	-	Ethereum
Token	TZROP	-	-	-	POLYX	-	BB1	-	TSFT	-	DIGI
Token Standard	ERC20	Universal Token	DS Token Protocol	ERC20	Polymesh, ERC1400	CAT-20, CAT-721	Stellar Assets	ERC3643	ERC1404	-	Polymesh, ERC1400
KYC/AML Complliant	✓	✓	✓	✓	✓	✓	✓	✓	✓		✓
Operates a (Secondary Marketplace)	✓	✓	✓	✓					✓		
Notable partners	Overstock	Societe Generale	Morgan Stanley, ARCA	SGX, SET, UOB	Marketlend, Redswan	US Bank, State Street	Standard, Chartered Vonovia	Principality of Monaco, Euronext	SEBA, CELO	-	tZERO

Source: Blockdata (Oct. 2021); pitchbook, BCG analysis

Blockchain Infrastructure · Tokenization Platform · Primary Market · Secondary Market · Custody

Figure 25. Range Of Emerging Tokenisation Players. (source: Boston Consulting Group)

This growing institutional interest in tokenized RWAs is further evidenced by the expansion of the Total Value Locked (TVL) in RWA protocols. Key players in this space, such as Ondo Finance, Centrifuge, and Tangible, have been instrumental in driving this growth. As of the end of November, the TVL in RWA protocols stood at $2.8 billion, reflecting the increasing traction and viability of integrating traditional asset classes with blockchain technology. Total Value Locked (TVL) in real-world assets (RWA) has surged by over 700 percent this year. This trend underscores a significant shift in asset tokenization, highlighting both the growing acceptance and the potential of blockchain technology in transforming traditional financial markets.

GameFi - As the markets embark on a new cycle, the GameFi sector, recognized for its standout performance in the 2021 crypto bull market, is poised to regain significant attention. Even in the recent bear market for GameFi, projects like Parallel TCG ($PRIME) still managed to maintain a steady user base.

GameFi projects typically require extensive development periods, and consequently, those projects that were initiated and developed during the bear market are now well-positioned to capitalise on the emerging market cycle. The foundation laid during the quieter market period could provide these projects with a significant advantage, enabling them to emerge as key players in the GameFi landscape as market momentum picks up.

In the second half of 2023, Web3 gaming experienced a notable revival of interest following a significant decline in transaction activity during the early stages of the recent crypto winter. Currently, the focus of this sector is primarily on attracting mainstream gamers, who often reside outside the typical "crypto first" communities. The gaming industry at large presents a substantial total addressable market, currently valued at around $250 billion. This figure is expected to grow to $390 billion in the next year if the current momentum is sustained, highlighting the immense potential for investment in this space.

Despite these prospects, there has been a general reluctance among users to embrace the existing "play-to-earn" models, a trend initially popularised by early projects like Axie Infinity. These models, while innovative, have contributed to increasing scepticism among many mainstream gamers about the integration of Web3 elements into gaming. This hesitation suggests that while the opportunities within Web3 gaming are vast, there remains a need for more refined and gamer-centric models that can bridge the gap between traditional gaming experiences and the new possibilities offered by Web3 technologies. Addressing these concerns and aligning with gamer expectations will be crucial for the continued growth and acceptance of Web3 gaming.

The Evolving Crypto Landscape and the Anticipated Dawn of Bitcoin and Ethereum ETFs

In the early part of 2023, the cryptocurrency market began to recover from the high-profile collapses of major entities such as Terra/Luna, FTX, and Three Arrows Capital. Historically, the crypto market has grappled with challenges like trust deficits, complexities in trading mechanisms, custody concerns, and a lack of clear regulatory frameworks. These issues have historically acted as deterrents for potential investors.

Here is a timeline of major SEC actions, further back to 2020

December 22, 2020: The SEC initiates a lawsuit against Ripple, alleging that it conducted an unregistered securities offering worth $1.3 billion, signifying a more aggressive stance from the SEC towards cryptocurrencies.

August 9, 2021: Poloniex, a cryptocurrency exchange, is charged by the SEC for functioning as an unregistered digital exchange and settles the case by agreeing to pay $10 million.

September 1, 2021: The SEC takes action against Bitconnect and its associates for purportedly scamming investors out of $2 billion through a Ponzi scheme.

February 14, 2022: BlockFi consents to pay $100 million in penalties for offering an unregistered lending product. Later in November, the company declares bankruptcy, partly due to the FTX collapse.

March 8, 2022: The Barksdale siblings are charged by the SEC for allegedly swindling investors out of over $124 million through Ormeus Coin.

July 21, 2022: Former Coinbase manager Isahn Wahi and two others are charged in a $1.1 million insider trading case. Wahi later admits guilt in February 2023.

August 1, 2022: The SEC charges 11 individuals associated with Forsage for operating a $300 million Ponzi scheme.

September 30, 2022: Arbitrade and Cryptobontix, along with their principals, are accused by the SEC of orchestrating a $36.8 million pump-and-dump scheme named "Dignity."

October 3, 2022: Kim Kardashian faces a $1.26 million penalty from the SEC for promoting securities without disclosing her personal investments.

December 13, 2022: Following the FTX collapse, its founder Sam Bankman-Fried is charged by the SEC for fraud. The SEC also investigates other potential securities law violations.

December 21, 2022: Former Alameda Research CEO Caroline Ellison and former FTX CTO Zixiao Wang are charged by the SEC for their alleged involvement in defrauding FTX's investors.

January 4, 2023: The founder of CoinDeal and seven others are charged by the SEC for allegedly defrauding over 10,000 individuals of more than $45 million.

January 12, 2023: Genesis and Gemini are charged by the SEC for allegedly offering and selling unregistered securities. Genesis later files for bankruptcy.

January 19, 2023: Crypto lender Nexo agrees to pay $45 million and cease U.S. operations of its interest-earning product after being accused by the SEC of offering an unregistered crypto lending product.

February 9, 2023: The SEC orders Kraken to halt its U.S.-based staking service and imposes a $30 million settlement for offering returns up to 21%.

February 13, 2023: The SEC alleges that the stablecoin Binance USD (BUSD) is a security and orders Paxos to cease its issuance. Paxos responds by terminating its association with Binance and halting the minting of BUSD.

June 6, 2023: SEC sues Coinbase for securities law violations, alleging operation as an unregistered national securities exchange, broker, and clearing agency.

June 5 2023: SEC files a lawsuit against Binance, alleging significant misconduct including operating unregistered exchanges and misrepresentation.

July 13 2023: Ex-Celsius CEO Alex Mashinsky Arrested and Sued by SEC

November 21 2023: The founder and CEO of Binance, Changpeng Zhao, agreed to plead guilty to money laundering violations and to step down as CEO, as part of a sweeping settlement with US SEC

The shift towards a more stringent regulatory landscape by the Securities and Exchange Commission (SEC) marks a crucial transition in the digital asset domain. This evolution towards regulation and trust is pivotal in restoring confidence among retail and institutional investors in the burgeoning digital asset market. This new era of regulation paves the way for the introduction of cryptocurrency Exchange-Traded Funds (ETFs), which stand at the forefront of a transformative phase in digital asset investing.

Ethereum and Bitcoin ETF's

Cryptocurrency ETFs, especially those based on major cryptocurrencies like Bitcoin (BTC) and Ethereum (ETH), are redefining the investment landscape. An ETF combines characteristics of both individual stocks and mutual funds, offering a diversified portfolio of assets that are traded on major stock exchanges. Unlike mutual funds, which are priced once at the end of each trading day, ETFs offer the advantage of real-time pricing, mirroring the dynamic nature of the stock market. This allows investors to trade these funds throughout the trading day.

In particular, a Bitcoin ETF represents a significant milestone in the maturation of the cryptocurrency market. It mirrors Bitcoin's value, providing an opportunity for investors to engage with the Bitcoin market without the complexities of direct ownership. This is particularly advantageous for traditional investors, offering them exposure to Bitcoin's price movements without the need to hold the cryptocurrency itself. This development is a significant step in bridging the gap between conventional investment mechanisms and the evolving world of digital assets.

Bitcoin Spot ETF Key Dates To Watch CoinMarketCap

Issuer (Ticker)	Company	19b-4 Federal Register	First Deadline	Second Deadline	Third Deadline	Final Deadline
Grayscale Bitcoin Trust (Re-file) *Conversion(GBTC)*	Grayscale	11/8/21	12/23/21	2/6/22	5/7/22	7/6/22
ARK 21Shares Bitcoin ETF (Re-filing) *(ARKB)*	21Shares & ARK	5/15/23	6/29/23	8/13/23	11/11/23	1/10/24
iShares Bitcoin Trust	BlackRock	7/19/23	9/2/23	10/17/23	1/15/24	3/15/24
Bitwise Bitcoin ETP Trust (Re-filing)	Bitwise	7/18/23	9/1/23	10/16/23	1/14/24	3/14/24
VanEck Bitcoin Trust (Re-filing)	VanEck	7/19/23	9/2/23	10/17/23	1/15/24	3/15/24
Wisdomtree Bitcoin Trust (Re-filing) *(BTCW)*	Wisdomtree	7/19/23	9/2/23	10/17/23	1/15/24	3/15/24
Invesco Galaxy Bitcoin ETF (Re-filing)	Invesco & Galaxy	7/19/23	9/2/23	10/17/23	1/15/24	3/15/24
Wise Origin Bitcoin Trust (Re-filing)	Fidelity	7/19/23	9/2/23	10/17/23	1/15/24	3/15/24
Valkyrie Bitcoin Fund (Re-filing) *(BRRR)*	Valkyrie	7/21/23	9/4/23	10/19/23	1/17/24	3/19/24
Global X Bitcoin Trust (Re-filing)	Global X	8/23/23	10/7/23	11/21/23	2/19/24	4/19/24
Hashdex Bitcoin ETF *Strategy Change(DEFI)*	Hashdex	10/3/23	11/17/23	1/1/24	3/31/24	5/30/24
Franklin Bitcoin ETF	Franklin	10/3/23	11/17/23	1/1/24	3/31/24	5/30/24

Source: Bloomberg

Figure 25. Bitcoin Spot ETF Deadlines

In 2023, major traditional financial organizations filed multiple applications seeking approval for Bitcoin (BTC) spot Exchange-Traded Funds (ETFs). The U.S. Securities and Exchange Commission (SEC) begins the approval process for these Bitcoin Spot ETFs by reviewing the submitted applications. This process involves a detailed examination of the applications, a period for public comments, and occasionally, requests for amendments. Key decision dates are set during this process, leading to either the approval, rejection, or postponement of the decision for further evaluation. This procedure is particularly significant for the first-of-its-kind ETF in the U.S. Despite these efforts, to date, all such proposals have faced intense scrutiny, resulting in repeated delays and extensive reviews by the SEC.

As of January 2024, there appears to be a more favorable environment for the approval of these ETFs. The cryptocurrency community is eagerly awaiting a definitive decision date.

Issuer *(Ticker)*	Company	Filing Date	Replication Strategy	Highest Act	Status	SEC Date
"Physically" Backed						
EtherIndex Ether Trust	Distributed Capital	7/15/2016	Coin-based (Ethereum)	1933 Act	Withdrawn for Now	9/6/2017
VanEck Ethereum Trust	VanEck	5/7/2021	Coin-based (Ethereum)	1933 Act	Awaiting Approval	No 19b-4
Kryptoin Ethereum ETF Trust	Kryptoin Invst Advisrs	8/12/2021	Coin-based (Ethereum)	1933 Act	Awaiting Approval	No 19b-4
Derivatives Based						
The Ethereum Strategy ETF	VanEck	8/18/2021	Futures/Derivs-based	1940 Act	Withdrawn for Now	8/20/2021
Ether Strategy ETF	Proshares	8/18/2021	Futures/Derivs-based	1940 Act	Withdrawn for Now	8/20/2021
Kelly Ethereum Ether Strategy ETF	Kelly ETFs	11/29/2021	Futures/Derivs-based	1940 Act	Withdrawn for Now	12/3/2021
Grayscale Ethereum Futures ETF *(ETHG)*	Grayscale	5/9/2023	Futures/Derivs-based	1940 Act	Withdrawn for Now	5/17/2023
Bitwise Ethereum Strategy ETF	Bitwise	5/10/2023	Futures/Derivs-based	1940 Act	Withdrawn for Now	5/17/2023
Direxion Ether Strategy ETF	Direxion	5/10/2023	Futures/Derivs-based	1940 Act	Withdrawn for Now	5/18/2023
Roundhill Ether Strategy ETF	Roundhill	5/10/2023	Futures/Derivs-based	1940 Act	Withdrawn for Now	5/24/2023
Valkyrie Ethereum Strategy ETF *(BTFD)*	Valkyrie Investments	5/12/2023	Futures/Derivs-based	1940 Act	Withdrawn for Now	5/18/2023
Ether Strategy ETF *(ETHU)*	Volatility Shares	7/28/2023	Futures/Derivs-based	1940 Act	Awaiting Approval	10/11/2023
Bitwise Ethereum Strategy ETF	Bitwise	8/1/2023	Futures/Derivs-based	1940 Act	Awaiting Approval	10/16/2023
Roundhill Ether Strategy ETF *(ETHX)*	Roundhill	8/1/2023	Futures/Derivs-based	1940 Act	Awaiting Approval	10/16/2023
Ethereum Strategy ETF	VanEck	8/1/2023	Futures/Derivs-based	1940 Act	Awaiting Approval	10/16/2023
Short Ether Strategy ETF	Proshares	8/1/2023	Futures/Derivs-based	1940 Act	Awaiting Approval	10/16/2023
Ether Strategy ETF	Proshares	8/1/2023	Futures/Derivs-based	1940 Act	Awaiting Approval	10/16/2023
Grayscale Ethereum Futures ETF *(ETHG)*	Grayscale	8/1/2023	Futures/Derivs-based	1940 Act	Awaiting Approval	10/16/2023
Direxion Bitcoin Ether Strategy ETF	Direxion	8/2/2023	Futures/Derivs-based	1940 Act	Awaiting Approval	10/16/2023
Bitcoin & Ether Strategy ETF	Proshares	8/2/2023	Futures/Derivs-based	1940 Act	Awaiting Approval	10/16/2023
Bitcoin & Ether Equal Weight Strategy ETF	Proshares	8/3/2023	Futures/Derivs-based	1940 Act	Awaiting Approval	10/17/2023
Bitwise Bitcoin & Ether Equal Weight Strategy ETF	Bitwise	8/3/2023	Futures/Derivs-based	1940 Act	Awaiting Approval	10/17/2023
Bitwise Bitcoin & Ether Market Wght Strategy ETF	Bitwise	8/3/2023	Futures/Derivs-based	1940 Act	Awaiting Approval	10/17/2023
Kelly Ethereum Ether Strategy ETF *(EX)*	Kelly ETFs	8/4/2023	Futures/Derivs-based	1940 Act	Awaiting Approval	10/18/2023
Valkyrie Bitcoin & Ether Strategy ETF *(BTF)* *Conversion*	Valkyrie Investments	8/4/2023	Futures/Derivs-based	1940 Act	Awaiting Approval	10/3/2023
Bitwise Bitcoin & Ether Equal Wght ETF *(BITC)* *Conversion*	Bitwise	8/10/2023	Futures/Derivs-based	1940 Act	Awaiting Approval	10/9/2023
Valkyrie Ethereum Strategy ETF	Valkyrie Investments	8/16/2023	Futures/Derivs-based	1940 Act	Awaiting Approval	10/30/2023

Source: Bloomberg Intelligence, SEC.gov

Bloomberg

Figure 26. Ether ETF Deadlines

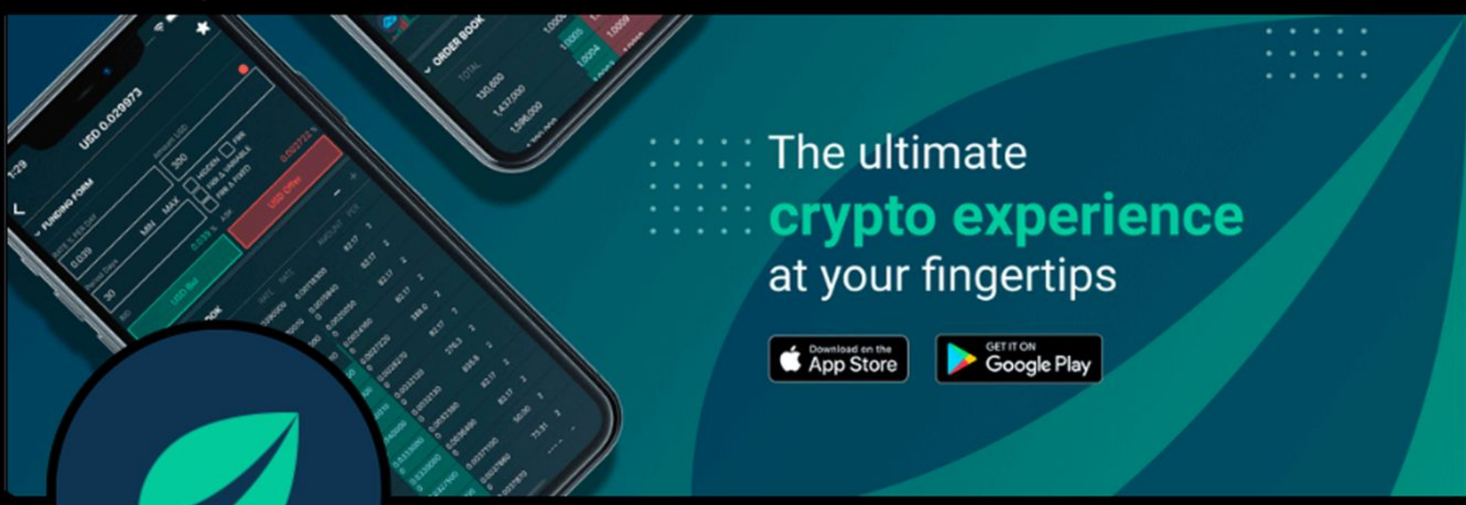
Simultaneously, there's growing interest in Ethereum ETFs, following the trend of Bitcoin ETF filings. These Ethereum ETF applications undergo a similar process until their approval. However, the process and timeline for approving Ethereum spot ETFs are not as transparent or widely discussed as those for Bitcoin. Nonetheless, specific discussions and filings about prominent Ethereum spot ETFs have been mentioned on social media.

The crypto sector is highly anticipating the approval of a Bitcoin spot ETF, with expectations of it catalyzing significant investment inflows from various sources. Additionally, Bitcoin enthusiasts are looking forward to the Bitcoin halving event scheduled for the second quarter of the following year.

2024 Outlook:

As we look ahead to 2024, the crypto market is poised at a pivotal juncture with the anticipated introduction of Bitcoin and Ethereum spot exchange-traded funds (ETFs). These ETFs, mainly focusing on Bitcoin and Ethereum, are expected to profoundly influence the broader crypto landscape with various positive impacts like enhanced market accessibility, additional liquidity, diversification opportunities and enhancing credibility of crypto ETFs.

The crypto landscape is on the brink of a significant transformation with the expected approval of a Bitcoin spot ETF. This development brings a wave of excitement due to the potential influx of investments from diverse sources.



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