



**Crypto Market Cycles –
What goes up
must come down**

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Crypto Market Cycles - What goes up must come down

The crypto asset market is highly emotional, noisy, and consequently extremely difficult to navigate. This has resulted in enormous information asymmetry among participants, which can be advantageous to investors who can remain calm and receive appropriate signals.

The crypto asset market has been dominated mostly by retail investors, with specialized hedge funds and family offices also participating. Surprisingly, this once-in-a-lifetime market has revealed that not only has the ordinary Joe or Jane failed to capitalize on buying and selling opportunities, but even some of the most notable hedge funds in the field failed to implement effective risk management. The crypto market cycles, both up and down, exhibit the characteristics of financial bubbles due to their extreme volatility. Financial bubbles are not a new phenomenon. Asset prices, according to Nobel Laureate economist Richard H Thaler, do not adequately reflect fundamentals. In summary, the markets are occupied by homo sapiens rather than homo oeconomicus (Broihanne & Capelle-Blancard, 2018). A brilliant intellect is not a prerequisite for being a brilliant investor. The story of Newton's losses in the South Sea Bubble has become one of the most famous in popular finance literature (Odlyzko, 2020).

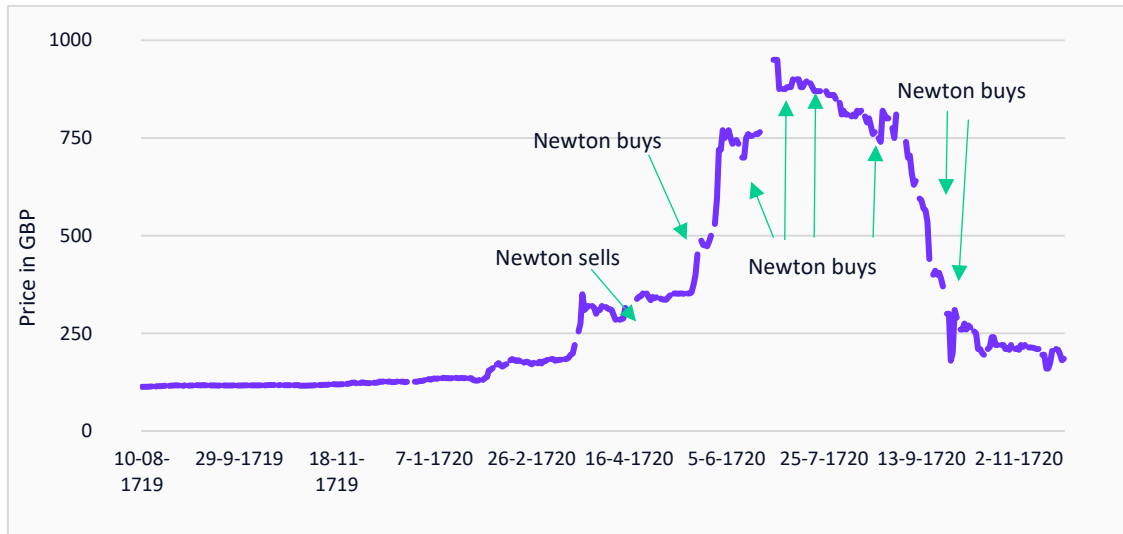
I can calculate the motion of heavenly bodies, but not the madness of people.

Isaac Newton

Isaac Newton's financially disastrous decisions during the South Sea Bubble of 1720 are a particularly notable example of a brilliant scientist's folly. When the South Sea Company was created in 1711, its primary purpose was to manage British government debt. Newton was an early investor who earned handsomely during the 1710s when the price of South Sea stock soared. In 1720, however, the company's stock suffered one of the most dramatic climbs and falls in the history of finance (**Exhibit 1**).

Newton determined early on that the mania would end badly and sold his position for a substantial profit. However, the bubble continued to expand, and Newton went back in around the top. He did lose a substantial amount of money. Estimates vary but Newton reportedly lost as much as £40 million of today's money in the scheme (Stewart). His story serves as an instructive illustration of how smart minds can err in an environment conducive to collective illusion due to the abundance of misinformation and disinformation. Sounds familiar?

Exhibit 1: South Sea stock prices and investments by Isaac Newton during the bubble of 1720



Source: MarketVector Indexes™ ("MarketVector"), Yale School of Management, South Sea Bubble 1720 Project¹.

The vertical lines mark documented dates of actual transactions or instructions for transactions. The gap in prices at the end of June was caused by a change from transactions for immediate cash settlement to what are today called “futures.”

Realizing the importance of risk is essential for any investment, not just crypto. If you understand how to interpret crypto market cycles, you may use them in your asset allocation process. Because of how volatile crypto assets are, you should make an effort to avoid getting caught up in down cycles.

Many investors are still surprised by the magnitude of market corrections, despite being aware of the probability. Understanding how market cycles function can help you retain perspective during times of uncertainty, allowing you to concentrate on your investment strategy based on your own objectives.

¹ Data is based on the following working paper: New Evidence on the First Financial Bubble
Journal of Financial Economics, Volume 108, Issue 3, June 2013, Pages 585-607.

What Is the Crypto Market Cycle?

Simply said, a market cycle for crypto is the timeframe between a market's top and low. All financial markets experience market cycles. It is a succession of cycles that will unavoidably develop and then repeat as time goes on. But because of the quick price changes, cycles in crypto assets can often be much shorter than on the stock market.

An investment aspect that we frequently overlook is that market fluctuations, generally known as "volatility," can occur at any stage of the market cycle. We just notice it more when markets fall, because losing money elicits considerably more emotion than seeing incremental gains, which is what we anticipate an investment to accomplish over time.

A market cycle has four stages (Hall, 2021):

- Accumulation occurs when investors begin buying again, believing that the worst is over, that markets have "bottomed out," and that the economy's prospects are bright. In essence, prices are cheap and value is great.
- When the market is more stable, markup is the second wave of buying. This stage is easy to detect, with media and news outlets emphasizing the rising trend and investors reinvesting in the markets.
- The distribution phase is when prices are at their highest. The "bull market" that was pushing prices higher slowly begins to level out, and the markets see a relatively equal quantity of buying and selling.
- The third step is the downtrend, often known as the "markdown," which is sparked by widespread selling as investors strive to lock in profits and avert large financial losses. A lengthy decline phase is referred to as a "Bear market."

It's crucial to remember that you can never predict when a bull or bear market will end. However, an ex post perspective aids in determining the degree and duration of the present cycle's severity.

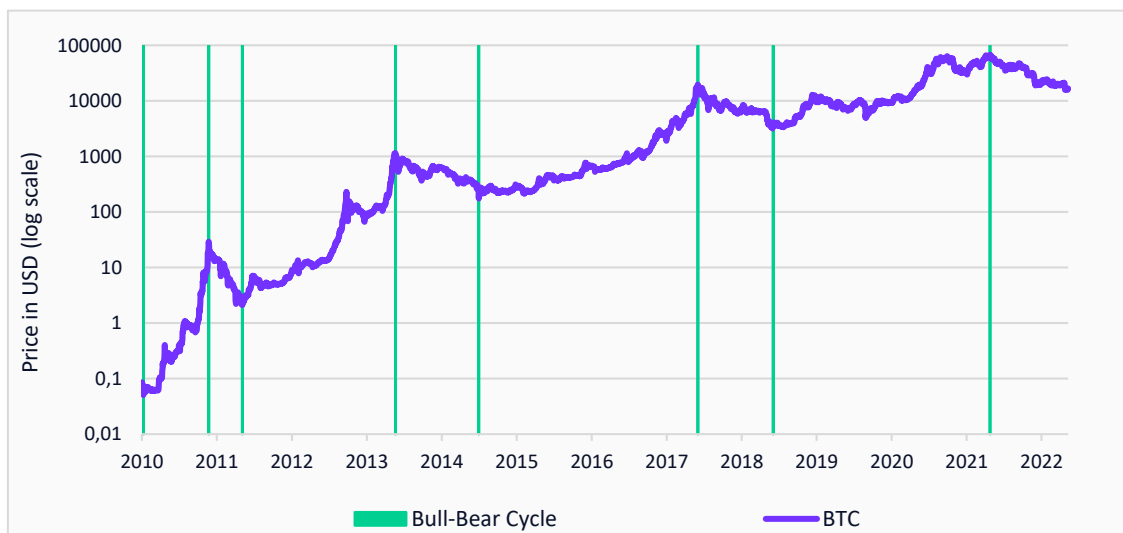
Using Bitcoin to Identify the Crypto Market Cycle

To begin an analysis, we must question ourselves if we can identify a common driver, given there are over 20,000 tokens available². According to a Chicago FED investigation, the crypto economy is extremely intertwined. This suggests that the majority of price fluctuations in the crypto space are the consequence of market spillovers, with just a small portion attributable to the distinctive properties of specific digital currencies. They do recognize, however, that Bitcoin is the currency that creates the most directional spillover; specifically, around 10% of price variations in other currencies are caused by fluctuations in the price of Bitcoin (Ferroni, 2022).

According to market insiders, most investors use Bitcoin as a benchmark to determine the general trend of the market. Some visualize a risk curve, with Bitcoin being the lowest risk token and smaller altcoins having a larger risk but potentially higher reward. Others use Bitcoin, because it has the longest track record, to identify price cycles. It's worth mentioning that the Bitcoin price, despite being very volatile and frequently plunging dramatically, has the ability to quickly rebound from drawdowns, allowing the price to rise to even higher highs throughout the years.

We identify bull and bear market cycles in Bitcoin's long-term log chart (**Exhibit 2**). We separated those cycles by their distinct price lows and highs. We chose a pragmatic, investment-oriented approach. For example, one could argue that there were two cycles in 2013, but we considered them as one because general investor sentiment was remained strong. The same might be said for the 2021 cycle, since we had an initial high in April, followed by a strong correction, and a second all-time high in November. However, when it comes to general adoption and VC fund investments, the market was still in a bull cycle. Keep in mind that we are not looking to construct a trading strategy here, but rather to discover broad market activity in crypto assets.

Exhibit 2: Bitcoin log-chart and price cycles



Source: MarketVector, Coinmetrics, data as of November 24, 2022.

² According to <https://coinmarketcap.com/>, there are over 21,939 tokens available.

The purpose of this study is to put things in perspective and provide orientation in terms of scale as well as duration for bull and bear markets. **Table 1** summarizes Bitcoin bull and bear Markets. From the summary, we can draw key conclusions concerning the Bitcoin cycle after taking key considerations into account. Furthermore, we can use Bitcoin cycle phases to compare Ethereum to a top 10 and a small-cap basket, represented by our MVIS® CryptoCompare Digital Assets 10 Index and the MVIS® CryptoCompare Digital Assets 100 Small-Cap Index, respectively³.

Table 1: Bitcoin Bull & Bear Market Cycles

Bull Markets					
Low Date	Low Price	High Date	High Price	Number of Days	Price Increase
2010-07-25	0.05	2011-06-08	29.03	318	574x
2011-11-18	2.11	2013-12-04	1134.93	747	539x
2015-01-14	175.64	2017-12-16	19640.51	1067	112x
2018-12-15	3185.07	2021-11-08	67541.76	1059	21x
Median				903	325x

Bear Markets					
High Date	High Price	Low Date	Low Price	Number of Days	Price Decrease
2011-06-08	29.03	2011-11-18	2.11	163	-93%
2013-12-04	1134.93	2015-01-14	175.64	406	-85%
2017-12-16	19640.51	2018-12-15	3185.07	364	-84%
2021-11-08	67541.76	2022-11-24 ⁴	16583.52	381	-75%
Median				373	-84%

Source: MarketVector, Coinmetrics, data as of November 24, 2022.

The subsequent section will examine the various market cycles, both bull and bear, in order to help you prepare for each phase. The value of crypto assets is mostly based on narratives. Investors often seem to believe that this time would be different before finally admitting that their high hopes were never warranted.

³ For more details see <https://marketvector.com/indices/digital-assets>. The index details can be found here: <https://marketvector.com/indices/digital-assets/mvis-cryptocompare-digital-assets-10>, <https://marketvector.com/indices/digital-assets/mvis-cryptocompare-digital-assets-100-small-cap>.

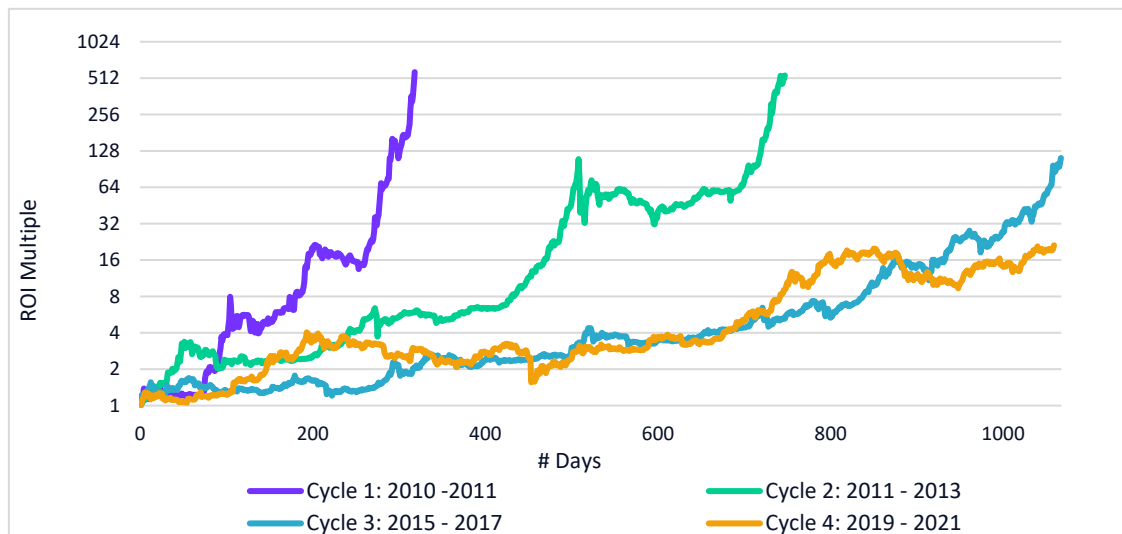
⁴ This date represents the conclusion of the author's study, not the end of the bear market. The author assumes that the bear market is still in effect.

Crypto Bull Markets

Bitcoin Bull Market Cycles

Bitcoin is the most watched and followed coin. Understanding the largest coin in the crypto ecosystem is a good starting point for thinking about other altcoins in the asset allocation process. If we only look at the bull market phases (**Exhibit 3**), there are four cycles to consider.

Exhibit 3: Bitcoin Bull Market Cycles



Source: MarketVector, Coinmetrics, data as of November 24, 2022.

In **Exhibit 3**, we track Bitcoin's return on investment (ROI) versus time (number of days) since the respective low over the 4 market cycles. The rewards have been decreasing and taking longer to materialize with each passing cycle. Since Bitcoin's market cap was relatively small, there were only a handful of exchanges where it could be traded, and nearly no institutional investors were involved in the market during the first two cycles. Hence, their usefulness as a source of information is limited. After that, new tokens and coins were introduced to compete with Bitcoin and dilute its market share. Additionally, new investment vehicles and exchange traded products (ETPs) were introduced to provide easier access to tokens. Both these events make cycles 3 and 4, especially cycle 4, more representative of Bitcoin price movements as the crypto market matures.

What can we learn from this examination? To begin with, it should come as no surprise that a larger asset has lower return potential than a smaller one. The same may be said for blue chip stocks versus micro-cap stocks⁵. While this makes sense on paper, the current mood of crypto investors suggests it is not the case. There was a lot of coverage in the media claiming that now that the institutions have joined the party, Bitcoin will soon surpass the \$100,000 USD threshold (Kahraman, 2021). While there was an increase in the number of institutional investors, we were

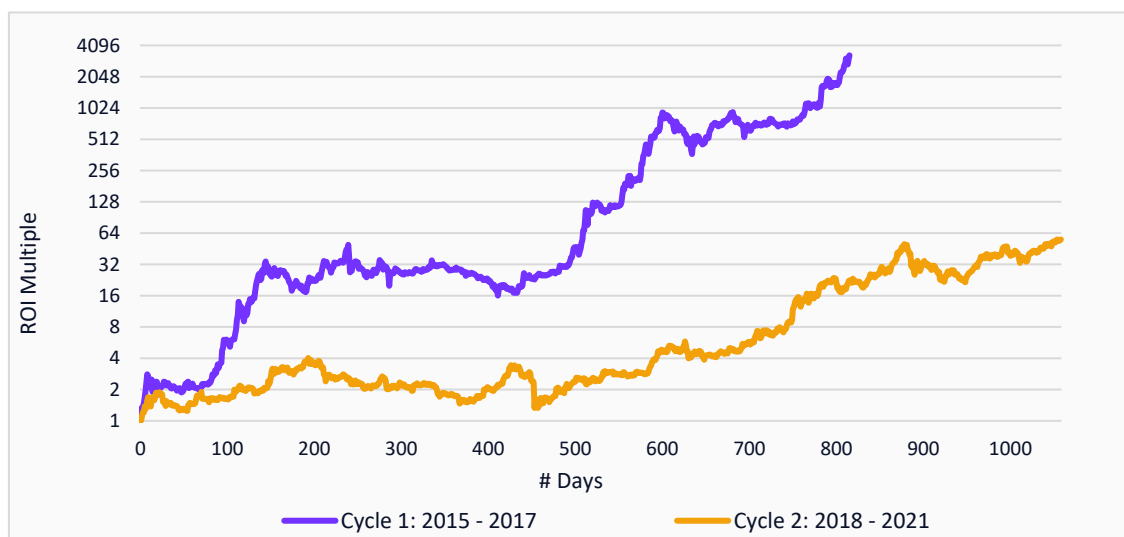
⁵ According to Oxford Languages, the law of diminishing returns is “a principle stating that profits or benefits gained from something will represent a proportionally smaller gain as more money or energy is invested in it.” Typically, it refers to the sweet spot in a business directive. There’s a certain point when making more widgets or hiring more people becomes inefficient or even counterproductive. The concept also applies to the broader cryptocurrency sector.

never able to reach this milestone. We also have many innovative models, such as the stock-to-flow model, which made the achievement of this goal virtually guaranteed (Santos-Alborna, 2020).

Ethereum Bull Market Cycles

Ethereum is the second largest coin by market cap. Because this coin has a shorter history, we only have two cycles instead of four. To stay consistent with Bitcoin cycles, we omitted Ethereum's tiny bull cycle since the ICO and analyzed the entire 2015 to 2017-time frame. In the appendix, we provide a table with all the details. Exhibit 4 puts the two cycles in context.

Exhibit 4: Ethereum Bull Market Cycles



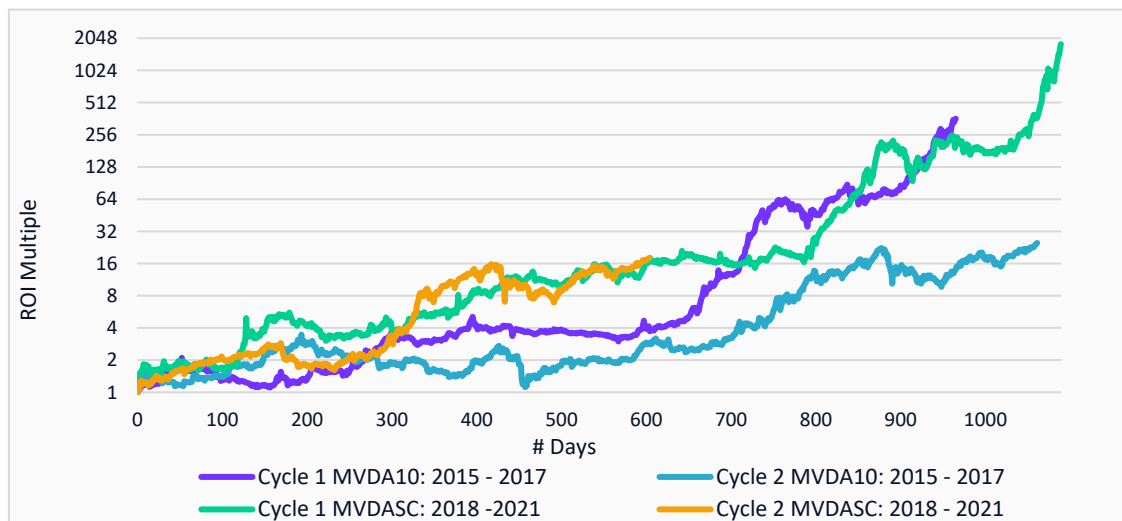
Source: MarketVector, Coinmetrics, data as of November 24, 2022.

For each cycle, you'll notice a greater duration and a decreased return. You'll also see that Ethereum outpaced Bitcoin, however this isn't necessarily a fair comparison because Ethereum is the younger and smaller asset. However, given the number of market participants who believe that anything other than Bitcoin would go to zero, it's a useful comparison.

Crypto Bull Market Cycles

Does this pattern persist over the entire crypto market? To answer this question, we will examine two of our indexes, a top 10 basket and a small-cap basket, both of which are mentioned in the third paragraph⁶. Even if the price patterns are the same, it's worth noting that in cycle 2, small caps followed a similar route to the first cycle, although one that petered out early and resulted in a smaller return despite exhibiting almost the same price return as the top 10 basket (Exhibit 5). In addition, the bull market for small cap tokens does not take off until much later, highlighting the fact that timing is especially tricky with small tokens⁷.

Exhibit 5: MVDA10 and MVDASC Bull Cycles



Source: MarketVector, data as of November 24, 2022.

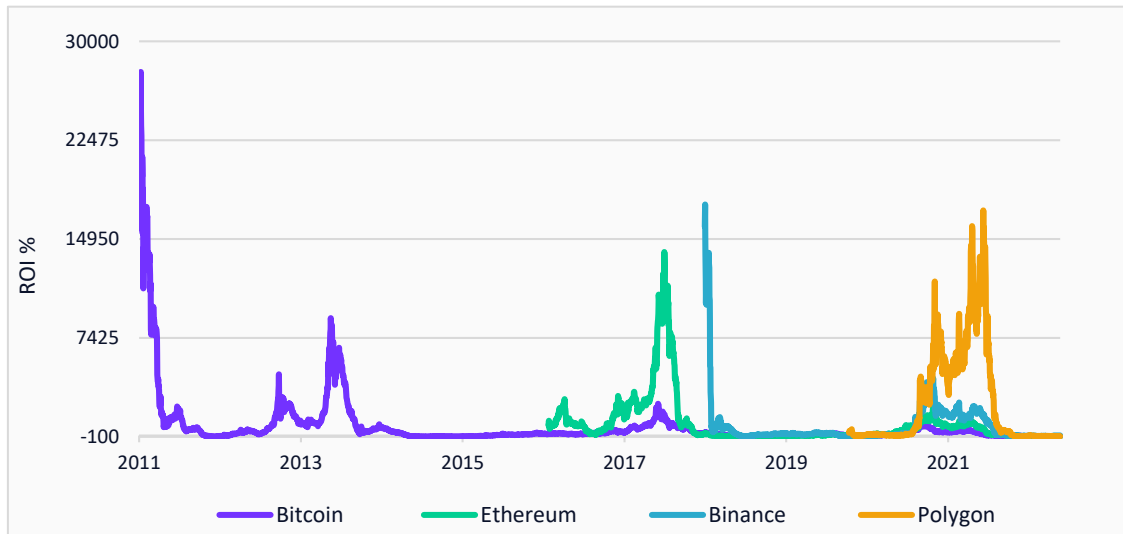
This makes sense considering the lower liquidity and higher retail focus of the smaller tokens. Most of the attention of large institutional investors is focused on the top 10 or 20 tokens. It appears that the law of prolonged but diminishing returns is a reasonable assumption to make.

⁶ The MVDA10 is a modified market cap-weighted index which tracks the performance of the 10 largest and most liquid digital assets. The MVDASC is a market cap-weighted index which tracks the performance of the 50 smallest digital assets in the MVIS® CryptoCompare Digital Assets 100 Index.

⁷ The small-cap bull market began in March 2020, not in 2018, as we printed the lows at the onset of the pandemic.

Exhibit 6 indicates that the ROI of tokens is decreasing over time and that the likelihood of outsized returns is very likely in the first phase of the lifecycle of a token. Typically, the highest return in a cycle is earned by a newly generated protocol rather than an existing token. This is why so many traders are focusing on token releases in order to obtain the 1000x token. What is unknown is whether these tokens will survive. Bitcoin and Ethereum have the largest network effects, indicating that they have a better chance of surviving than a new token⁸. As a result, the reduced future return comes with a smaller perceived risk of total loss.

Exhibit 6: 1-year ROI cycles for Bitcoin, Ethereum, Binance and Polygon



Source: MarketVector, Coinmetrics, data as of December 6, 2022.

When does a bear market end?

While we have four completed bull market cycles, we cannot draw the same conclusion for the bear market cycles. When we present the current bear market cycle, we want to underline that the current cycle is still in progress. When we reach our findings, we must bear this in mind.

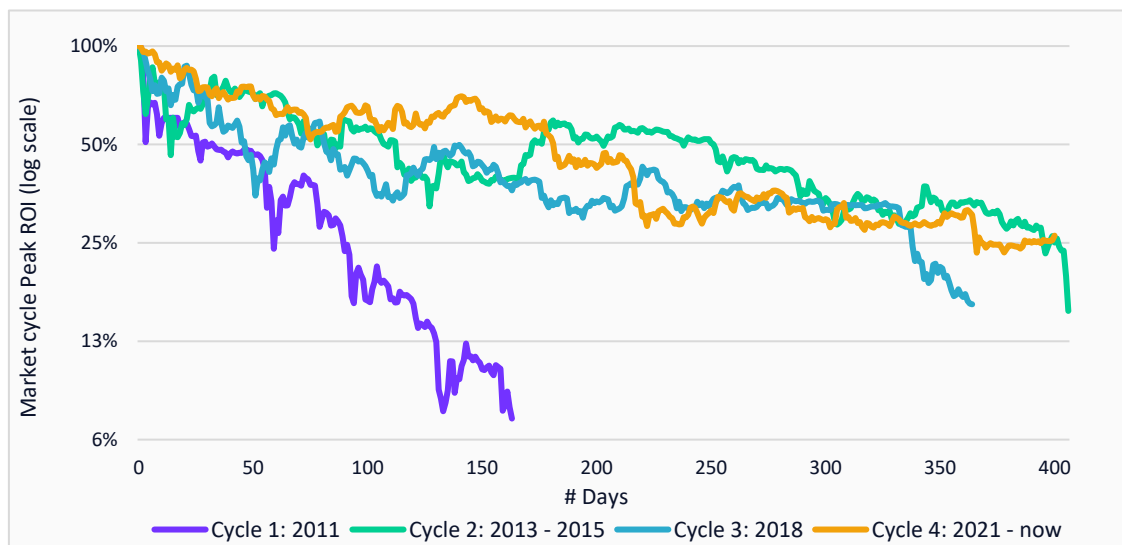
⁸ A network effect is the phenomenon by which the value or utility a user derives from a good or service depends on the number of users of compatible products. Network effects are typically positive, resulting in a given user deriving more value from a product as more users join the same network.

Bitcoin Bear Market Cycles

The size of the drawdown is a common point of interest for investors. If a market declines by 70% or more, conventional wisdom believes that this level likely represents a bottom. Many investors fail to see that time-based depletion is also necessary for a bear market to finish.

Therefore, it is instructive to chart previous Bitcoin downtrends and make comparisons to the current one (**Exhibit 7**).

Exhibit 7: Bitcoin Bear Market Cycles



Source: MarketVector, Coinmetrics, data as of December 13, 2022.

It's very clear that the present downfall is unrelated to the bear market cycle of 2011. The 2021–2022 course is more protracted, drawing comparisons to the bear markets of 2014 and 2018. By comparison, you can see that we are very close in duration to cycle 2. We've crossed the 400 day mark. However, it remains only the second longest so far. Bitcoin is currently down 75%, which is slightly less than the 85% we saw in the previous two cycles. However, the severity of the last two bear markets suggests that the low was preceded by a rapid liquidation event. It's an educated guess whether we've seen that already.

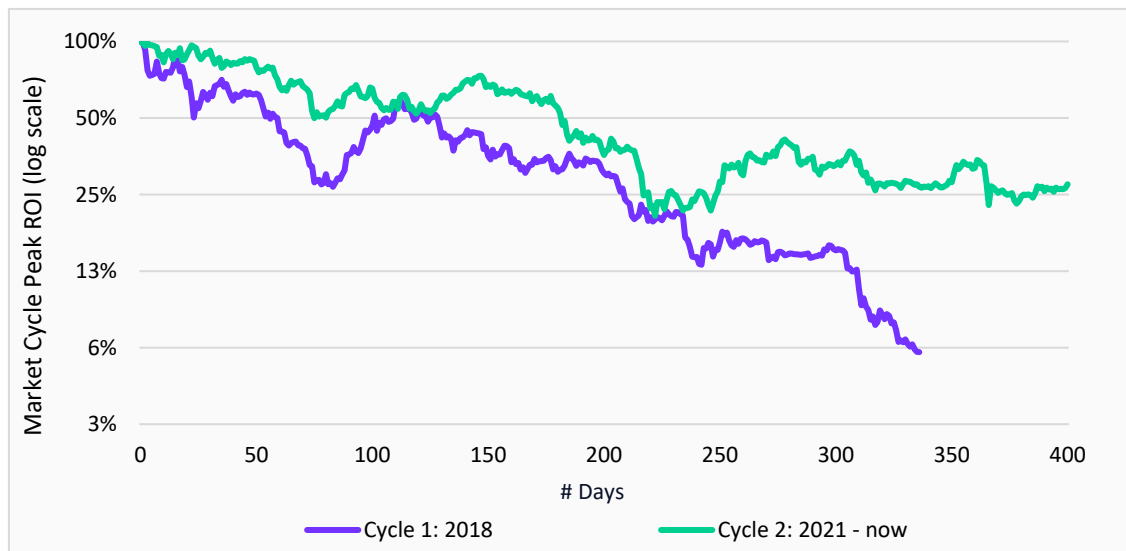
Similar to the bull market narrative, many market participants believed that huge declines in the past were no longer probable. Institutional investors would rebalance their portfolios, and more people would have diamond hands. The “Hodl” narrative is also still prevalent today⁹. However, this analysis shows that Bitcoin is still a high beta risk asset that should be treated with caution when it comes to asset allocation, implying that you should size your risk accordingly (Leinweber & Willig, 2021).

⁹ The term "HODL," which refers to buying and holding crypto assets like Bitcoin and other token, is a misspelling of the word "hold." Among crypto investors, it has also come to mean "hold on for dear life." The term first appeared in a 2013 typographical error in an online post to the Bitcointalk forum.

Ethereum Bear market Cycles

Ethereum has seen only two cycles (**Exhibit 8**), if we overlay the Bitcoin bear market periods. Like Bitcoin, the present cycle is still in progress. The fundamental premise is that we have not seen the lows yet, while the lows in June 2022 are still holding as the bottom.

Exhibit 8: Ethereum Bear Market Cycles



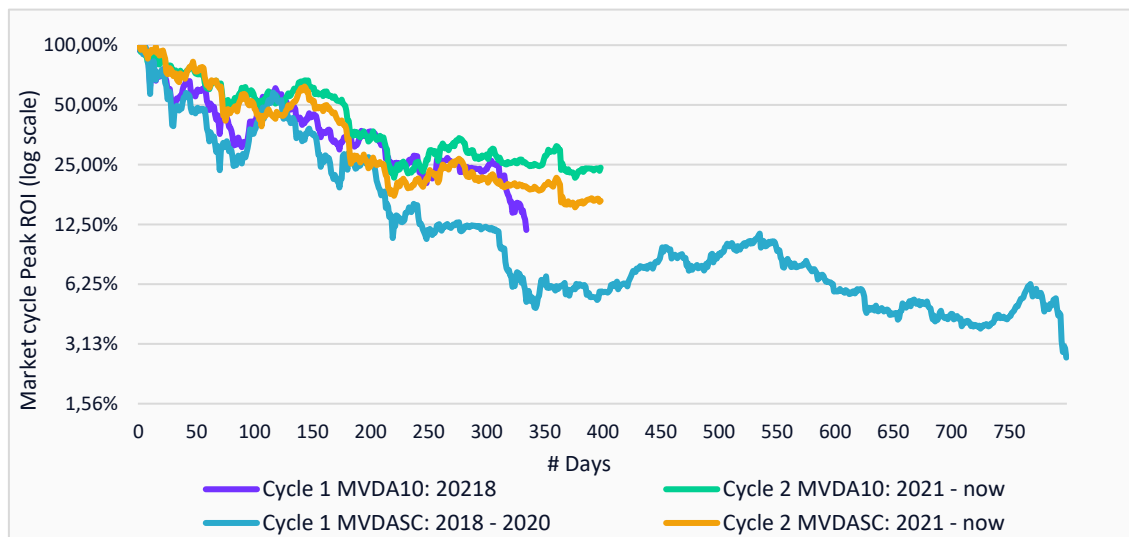
Source: MarketVector, Coinmetrics, data as of December 13, 2022.

The latest drawdown (-75%) is striking in comparison to the initial one (-94%). When it comes to timeframe, we're right there with Bitcoin, shooting for 400 days. In terms of duration, we've surpassed the previous cycle, which lasted only 340 days. Surprisingly, while being viewed as riskier than Bitcoin, Ethereum is currently experiencing the same decline. This is something to keep an eye on, as the market is persuaded that Bitcoin is the risk-free asset in the crypto world.

Crypto Bear Market Cycles

The crypto indexes follow a similar pattern to Bitcoin and Ethereum, albeit there is a significant difference between large and small cap tokens. It should come as no surprise that the top ten baskets fared far better in the current bear cycle, with a lower drawdown than a small cap index. This is influenced in part by the weight of Bitcoin and Ethereum. The small cap index, on the other hand, had a very protracted drop period during the first cycle, with a devastating 98% drawdown. While the top ten indexes achieved its cycle one low in December 2018, small caps reached their last bottom in March 2020, when the pandemic began (Exhibit 9).

Exhibit 9: Crypto Bear Market Cycles



Source: MarketVector, Coinmetrics, data as of December 13, 2022.

Small caps are currently trading at a 10% discount to the top ten tokens (-85% vs. -75%). It remains to be seen whether the final bottom for the small caps will be near a total loss once more.

Conclusion

Investors need to exercise caution because many so-called experts and influencers constantly call for new all-time highs or bottoms, depending on where you are in the cycle. It's crucial to avoid getting sidetracked by the daily noise, particularly in the age of social media and the abundance of research. To be clear, we don't have enough data to draw statistically meaningful conclusions. This is more of a didactic approach to setting rational expectations and assisting investors in making rational investing decisions.

Long-term cycles can help generate sensible expectations for the magnitude and duration of bull and bear markets. The stories pitched to investors may appear attractive, but they are frequently incorrect. The same is true for the stock market; why should digital assets be any different? For this analysis, the following lessons can be drawn:

- **Successive cycles produce diminishing returns and last longer.** Since the cryptocurrency market is expanding, bull runs are taking more time to complete. It's not out of the ordinary for the peak to be reached after more than three years. Conversely, we observe diminishing returns. While it's true that this asset class has the potential to generate record-breaking returns, a 100x increase isn't sustainable in the long term. The token's multiple expansion will be less effective as its size increases. When media outlets establish price goals, this is crucial information to have.
- **Crypto bear markets are still terrible.** The assumption that drawdowns will be mild because institutional investors are constantly purchasing is false. While we haven't seen the 90% drawdowns for the coins and indexes examined in this article thus far, we are still seeing volatility, which places crypto in the high beta risk asset category. Speculation and leverage remain important contributors to increased volatility. It's also usual for a crypto bear market to last more than a year. Investors must keep this in mind as the decline is accompanied by continuous bottom calling by analysts and influencers.
- **Time to recover can take years.** Aside from the fluctuation ranges, there is additional risk associated with the duration of drawdowns, which is not only relevant for private investors. In the worst-case scenario, recouping your losses may take more than three years. When people think of this fast-moving industry, this is hardly a time period that comes to mind. Crypto assets only have a limited history. In other words, investors shouldn't treat the risks they've seen during this remarkably low time period as the absolute lowest values they could see. The stock market demonstrates how long it can take for the effects of more severe downturns to be offset, even in an asset class with positive drift and extremely excellent returns over the long term, such as stocks. The Japanese stock market crash of 1987 is still going on today. After barely three years, the cryptocurrency market will not always hit new highs in the future.
- **Small cap tokens still have a larger drawdown and not necessarily a higher return than large cap token such as Bitcoin and Ethereum.** It is indeed surprising. Small cap is a size factor in the conventional financial sector, which means small caps typically outperform large caps over a longer time horizon. Small caps are riskier and so demand

larger reward to hold, according to the Fama-French Factor Model¹⁰. Comparing the Sharpe ratios of the indexes from their inception reveals that the small cap index has a lower ratio (MVDA10 0.66 vs. MVDASC 0.54), indicating that there must be extra risk variables that are not compensated for¹¹. What's also eye catching are the drawdowns of small token. When you look at a lot of DeFi or Metaverse tokens, you'll notice that a lot of them are down 90%. It's fair to say that the performance is more related to the life cycle and nascency; this is more related to startup risk than size risk. Startups frequently fail during the initial stages; thus, they demand bigger returns. So perhaps it comes as no surprise when we consider IPOs in the equity market. With over 20,000 tokens in circulation, it is highly likely that the majority of these tokens will never come back. When it comes to crypto investing, risk management is therefore essential.

Newton's South Sea misadventures demonstrates that you can be a recognized genius and still succumb to prevailing groupthink of an investment mania. No one should be complacent about risk management and understanding market cycles because what goes up can come down – that is the law of gravity.

¹⁰ See http://mba.tuck.dartmouth.edu/pages/faculty/ken.french/Data_Library/f-f_developed.html

¹¹ Both time series start at December 31, 2014.

Appendix

Table 2: Ethereum Bull & Bear Market Cycles

Bull Markets					
Low Date	Low Price	High Date	High Price	Number of Days	Price Increase
2015-10-21	0.42	2018-01-13	1380.1445	815	3286x
2018-12-15	82.83019	2021-11-08	4811.1565	1059	58x
Median				937	1672x

Bear Markets					
High Date	High Price	Low Date	Low Price	Number of Days	Price Decrease
2018-01-13	1380.1445	2018-12-15	82.83019	336	-94%
2021-11-08	4811.1565	2022-11-24	1202.6865	381	-75%
Median				359	-85%

Table 3: MVDA10 Bull & Bear Market Cycles

Bull Markets					
Low Date	Low Price	High Date	High Price	Number of Days	Price Increase
2015-05-18	39	2018-01-07	14033.24	965	362x
2018-12-15	1572.46	2021-11-10	39164.82	1061	25x
Median				937	193x

Bear Markets					
High Date	High Price	Low Date	Low Price	Number of Days	Price Decrease
2018-01-07	14033.24	2018-12-15	1572.46	342	-89%
2021-11-10	39164.82	2022-11-24	9075.67	379	-77%
Median				361	-83%

Table 3: MVDASC Bull & Bear Market Cycles

Bull Markets					
Low Date	Low Price	High Date	High Price	Number of Days	Price Increase
2015-01-14	55.64	2018-01-07	103077.91	1089	1853x
2018-12-15	2672.46	2021-11-10	48440.01	1061	18x
Median				937	935x

Bear Markets					
High Date	High Price	Low Date	Low Price	Number of Days	Price Decrease
2018-01-09	103077.91	2020-03-16	2672.46	799	-97%
2021-11-10	48440.01	2022-11-24	7830.69	379	-84%
Median				589	-91%

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Martin Leinweber is an expert in fundamental and quantitative trading strategies. He sees crypto assets as a fundamental building block for investors to achieve their return targets in a low interest rate environment. He works as a Digital Asset Product Strategist at MarketVector Indexes™ providing thought leadership in an emerging asset class. His role encompasses product development, research and the communication with the client base of MarketVector Indexes™. Prior to joining MarketVector Indexes™, he worked as a portfolio manager for equities, fixed income and alternative investments for almost two decades. He was responsible for the management of active funds for institutional investors such as insurance companies, pension funds and sovereign wealth funds at the leading German quantitative asset manager Quoniam. Previously, he held various positions at one of Germany's largest asset managers, MEAG, the asset manager of Munich Re and ERGO. Among other things, he contributed his expertise and international experience to the establishment of a joint venture with the largest Chinese insurance company PICC in Shanghai and Beijing. Martin Leinweber is co-author of "Asset-Allokation mit Kryptoassets. Das Handbuch" (Wiley Finance, 2021). It's the first handbook about integrating digital assets into traditional portfolios. He has a Master in Economics from the University of Hohenheim and is a CFA Charter holder.

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