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Cryptocurrency within the Paradigm of Behavioral Finance: A Comparative Analysis

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Abstract

This dissertation investigates the degree to which behavioral biases and social influence shape the pricing and trading of cryptocurrencies, framing cryptocurrencies as a new behavior-driven asset class. Cryptocurrencies are distinct from traditional assets in that they do not have an intrinsic source of value such as cash flows, and therefore, are subject to psychological forces such as investor sentiment, cognitive heuristics, and narrative-based value. Utilizing theories from behavioral finance, narrative economics, and social contagion, the dissertation explores several key events in the cryptocurrency market — including the 2017 Bitcoin bull run, the 2021 meme coin craze, and the collapses of Terra and FTX — and shows how psychology and social influence mediate the actions of the crypto market. The dissertation also finds that behavior in crypto markets is more pronounced and more structurally embedded compared to traditional asset classes. The dissertation concludes with a discussion of the findings and implications for financial theory, investor strategy, and regulation, as well as contemplating the potential of theoretical frameworks such as the Adaptive Markets Hypothesis in understanding this new financial reality.

Introduction

During the past fifteen years, cryptocurrencies have transitioned from a little-known computer science curiosity into one of the most volatile and widely debated asset classes in global finance. Their initial creation was meant as an alternative for centralized financial intermediaries within the scope of transactions, now having developed into a multitrillion-dollar ecosystem which serves diverse purposes across the investment, technology and commercial sectors. The 2008 whitepaper from the pseudonymous Satoshi Nakamoto introduced Bitcoin as a “peer-to-peer electronic cash system” (Nakamoto, 2008). Thus, Nakamoto heralded a financial revolution which established a decentralized fiduciary system that operates without requiring banks or centralized ledgers.

Cryptocurrencies, chief among which is Bitcoin, represent a new type of digital currency system that operates through cryptography and decentralized (peer-to-peer) network architecture. In the case of Bitcoin, a decentralized authentication system was created to prevent counterfeits and double-spending, unlike fiat monetary systems and fiat-dependent digital payment systems, which require central institutions to authenticate transactions and serve as repositories (Li and Wang, 2017).

Bitcoin’s emergence coincided with a period of deep institutional mistrust following the global financial crisis. The appeal of autonomy, scarcity and resistance to censorship—Bitcoin’s core promise—motivated developers to create thousands of alternative cryptocurrencies (altcoins) with various purposes, including Monero for maximum privacy, Ethereum for smart contract execution and TerraUSD for algorithmic stability. Yet, even though the intended use cases have been diverse, the primary function of the vast majority of cryptocurrencies has been speculative in nature.

As Baur, Hong, and Lee (2018) state that Bitcoins are mainly used as a speculative investment and not as an alternative currency or medium of exchange, which highlights the divergence between initial plans and practice. Crypto markets demonstrate inherent volatility which serves as a hindrance to transactional use but attracts traders who speculate on prices. Therefore, market sentiment, momentum trading and elements of behavioral bias affect cryptocurrencies in a unique and outsized way. In turn, their prices rely more on narrative, beliefs and behavioral feedback loops than financial fundamentals.

Moreover, the market behavior of cryptocurrencies gets disproportionately affected by behavioral biases thanks to several structural features: crypto markets are open 24/7, are dominated by retail traders, are lightly regulated and exhibit a strong social media influence. The crypto ecosystem is replete with new terminology and cultural identifiers (including “HODL,” “FOMO” and “diamond hands”), which represent deeply embedded psychological postures. The relevance of behavioral finance becomes most visible in this particular context. This paper posits that cryptocurrencies may be best understood to function as a special category of financial instrument: a behavior-driven asset class, the dynamics of which are largely dictated by cognitive biases, social contagion, and emotion-driven narratives.

The rise of decentralized finance (DeFi) platforms together with non-fungible tokens (NFTs) has expanded the application of the same technology that crypto relies upon, while further diversifying the array of cognitive weak points to be found in this asset class. These technologies let users morph from mere investors into direct participants of a new digital economy where identity, art and financial yield are all tokenized. The fusion between financial and artistic elements, and technological advancements produces stronger emotional attachment, further blurring the distinction between rational financial decisions and ones based on cognitive bias. This helps illustrate how widespread the adoption of this behavior has become in the market structure, underscoring the need for analysis from the behavioral finance view.

1. Theoretical Review

1.1 Behavioral Finance, Market Psychology, and the Crypto Context

Behavioral finance arose as an alternative to traditional economic theories which assumed rational agents and efficient markets. The Efficient Markets Hypothesis (EMH) developed by Fama (1970) assumes that market prices reflect all available information and investors act as rational profit-maximizing agents. Though decades of evidence have shown that systematic departures from rational behavior are the norm, spurring the rise of literature that studies the psychology of investing (Thaler, 2015).

“Behavioral finance has two building blocks: limits to arbitrage, which argues that it can be difficult for rational traders to undo the dislocations caused by less rational traders; and psychology, which catalogues the kinds of deviations from full rationality we might expect to see”. (Barberis and Thaler, 2003, p. 1052).

Prospect theory emerged from Kahneman and Tversky’s (1979) research, marking a fundamental shift. The researchers demonstrated that individuals base their evaluations on reference points and fear losses more

intensely than they value gains; i.e., they are loss-averse ("losses loom larger than gains" p. 279). This underpins the disposition effect, wherein investors persist with losing assets but sell off their winning investments too soon. The extreme volatility of cryptocurrencies increases these behavioral effects. Retail investors enter markets during price surges and refuse to exit during downturns, thus contributing to the crypto market's intense, cyclical boom-bust character

The decision-making behavior of investors gets influenced by the availability, representativeness and anchoring heuristics. The availability heuristic leads people to mistakenly believe that significant price increases will happen more often because of highly noticeable cases such as Bitcoin millionaire stories and viral meme coin successes. Anchoring leads traders to become fixated on past highs and arbitrary price targets. Ritter (2003) demonstrates that biases affect even experienced investors' decisions and in the absence of earnings data or fundamentals, crypto investors depend even more heavily on such mental shortcuts.

Behavioral finance literature prominently features overconfidence, a prevailing cognitive effect that the crypto space displays strongly. Encouraged by social validation combined with simplistic media reporting, retail traders often believe they have superior predictive abilities than what is true in reality. Ritter (2003) observes that investor overconfidence increases speculative bubbles. As a result, crypto markets exhibit frequent instances of excessive volume which exceeds traditional asset classes' comparable market movements.

Mental accounting also shapes crypto behavior. Investors divide their gains into mental "accounts" and treat profits as expendable "house money." According to Hirshleifer (2014, p. 28): "people care about the labeling of payoffs by account… as this affects attribution as a gain or a loss." This combined with narrow framing leads investors to become more risk-taking when they experience but become excessively risk-averse following losses. Framing effects also matter. Barberis and Thaler (2003, p. 1071) explain that framing has a strong influence on choice: "such effects are powerful," meaning that in crypto, platform design, token price denomination, along with influencer rhetoric play a crucial role in determining how risks and opportunities are perceived in crypto markets.

Importantly, the distribution of these biases remains uneven across time or context. Hirshleifer (2014, p. 10) identifies that "overconfidence tends to be stronger when correct judgments are hard to form, such as when uncertainty is high." Yadav (2024) confirms that during periods of heightened volatility, traders gravitate toward lottery-like cryptocurrencies, with skewed payoff expectations outweighing rational risk assessments.

What distinguishes crypto is not the presence of these biases, but the degree to which they influence—and in some cases dominate—price movement due to the market's structure. Cheah and Fry (2015, p. 35) argue that the "bubble component contained within Bitcoin prices is substantial," and therefore the extreme price movements are best explained through feedback-based speculation rather than valuation. Similarly, Huang and Tanaka (2022) find that sentiment-based indices show greater predictive power for cryptocurrency price movement than conventional macroeconomic indicators and technical variables, underlining the outsized impact of behavioral factors on crypto valuation.

1.2 Social Finance and the Dynamics of Belief

Traditional behavioral finance primarily studied individual mental processes, but more recent extensions and behavioral studies have shifted toward understanding the social dynamics of financial behavior. David Hirshleifer (2014) introduces the concept of social finance to study how beliefs, strategies and norms spread across interpersonal networks. In this view, markets are not just aggregations of private judgments but are shaped by social contagion, conformity, and information cascades. “Behavioral finance has primarily focused on individual level biases. Social finance promises to offer equally fundamental insight, and to be a worthy descendant of behavioral finance” (p. 45).

Social finance dynamics are particularly prevalent in cryptocurrency markets. Virtual communities serve as ecosystems which both create and reinforce beliefs. Investors use group sentiment, influencer endorsements/hype or collective narratives to determine their investment choices instead of conducting personal research. Rapid sentiment shifts within these communities can accelerate market cycles, often without reference to any development project fundamentals. Memes and slogans contribute to this process, exemplified in phrases such as “to the moon” and “buy the dip.”

Hirshleifer argues that social narratives and collective beliefs often persist because they contain simple cognitive elements and are emotionally resonant. Such beliefs might emerge to fill the void created by the lack of traditional earnings reports or price-to-earnings ratio information in crypto markets; narrative becomes valuation. A token’s perceived legitimacy may often depend more on its viral nature than its utility which leads to a form of consensus-based valuation that is highly susceptible to behavioral distortion.

1.3 Narrative Economics: Stories as Economic Drivers

Building on the concept of social finance, through his theory of narrative economics Robert Shiller (2019) demonstrates that popular stories determine how people behave as economic agents. Social narratives spread through populations just like epidemics, thus directing group perceptions and actions. On financial market, narratives create coherence, provide emotion and give direction, often sacrificing accuracy and nuance.

Cryptocurrencies are steeped in narrative. Bitcoin is described as “digital gold” which protects against both inflation and geopolitical turmoil. Ethereum is lauded as the backbone of decentralized finance operations. Even joke tokens like Dogecoin develop popularity not in spite of their unserious nature, but because of it; offering a narrative of rebellion against institutional gatekeepers

Shiller demonstrates that narratives do not need factual accuracy to gain influence. The power of these narratives stems from their emotional resonance combined with their repeatability; representing a kind of social heuristic. A sufficient number of individuals believing a story is enough to reinforce its validity, both through their actions and statements, even if the core logic is defective. This reflexivity creates feedback loops in which narrative and price amplify each other.

1.4 Gamification, Design, and the Reward Loop

The architecture of crypto trading platforms actively encourages users to act based on emotions and spontaneous decisions. Crypto markets function without interruption because they operate continuously whereas traditional markets close both during nights and weekends. Continuous 24/7 market operations create an environment that pushes users toward addictive behavior while taking away their chance to think before making decisions.

Trading applications use gamification elements which include progress tracking features, achievement badges as well as real-time ranking systems. The brain's reward circuitry responds to these features which activate dopamine release and lead to addictive behavior. Studies in neuroeconomics demonstrate that trading activates brain areas linked to gambling especially during situations with unpredictable outcomes and immediate feedback (Moore and Ljungkvist, 2022). In this context, investors are less likely to engage in deliberate portfolio management and more likely to chase volatility.

1.5 Toward a Behavior-Driven Asset Class

Given these factors—extreme volatility, lack of fundamental anchors, social amplification, and design that exploits cognitive biases—it is reasonable to argue that crypto assets represent a new kind of financial instrument. Their value emerges from the combination of sentiment, belief and behavioral momentum, instead of conventional cash flow discounting or productivity metrics. As such, they warrant their own category: a behavior-driven asset class.

This assessment does not imply that every case involves irrationality nor does it invalidate the technological potential of crypto. Rather, this approach reveals the practical mechanisms that shape value creation and price formation. The study of crypto markets needs behavioral analysis because traditional financial models fail to explain the observed patterns of valuation, contagion and collapse.

Nevertheless, it is important to acknowledge the presence of other significant price determinants in cryptocurrency markets. Asset values in cryptocurrency markets get shaped by mining difficulty, tokenomics, transaction throughput, network effects, regulatory developments, macroeconomic trends and investor sentiment regarding technological innovation. These structural and economic elements interact with behavioral drivers, but in many cases, they are themselves interpreted and acted upon through psychological filters, such as confirmation bias or herd behavior. A positive regulatory announcement can lead to market price increases because it gets framed by crypto communities as a story of official acceptance, even when the coin in question lacks technical merit.

In this light, the Adaptive Markets Hypothesis (Lo, 2004) may offer a complementary framework. According to Lo, markets function in an ongoing process of transformation because participants adjust their strategies to shifting environments, they are not always efficient or inefficient. What appears irrational under classical models may be adaptive in volatile and information-saturated settings. From this viewpoint, the prevalence of heuristics and emotional decision-making in crypto markets signifies an adaptive response to extreme market complexity and instability rather than cognitive failure. As Lo (2004) expounds, the key

to understanding market behavior is recognizing that it is driven by competition, adaptation, and natural selection.

1.6 Methods and Sources

This dissertation employs a qualitative, interpretive methodology grounded in theoretical analysis and case-based examination. A critical literature synthesis is offered, drawing primarily from behavioral finance, narrative economics, and social finance, it integrates academic literature with empirical event analysis to explore the dominant psychological and social forces in cryptocurrency markets.

An embedded theoretical conceptualization and literature review are found in sections 1.1-1.6; exploring the history and technical basis of cryptocurrencies as an asset class, as well as sketching an intellectual framework within which to understand behavioral finance and its relation to crypto. This exercise is carried on with continuous citations all throughout the dissertation used to support specific arguments and logical conclusions in relation to the main research questions, while also providing further elucidations on the theoretical background of the general topic as a whole. In this manner, the insights and findings of the scholarly work around this rapidly developing field can best be integrated into the work of the present study.

Furthermore, four pivotal and theoretically significant events in crypto history shall be traced and analyzed in order to provide a testing ground for the ideas and concepts discussed prior. They were all chosen owing to their practical significance and potential explanatory power within the theoretical domain of this investigation.

The 2017 Bitcoin Rally – chosen for its historical significance as the first major mainstream speculative surge in the crypto market, allowing for analysis of early investor psychology, overconfidence, and media-driven narratives.

The 2021 Meme Coin Surge – selected to highlight the role of social media, retail investor coordination, and the gamification of markets through meme-based tokens like Dogecoin and Shiba Inu.

The Terra-LUNA Collapse (2022) – included to demonstrate how investor belief in algorithmic stability mechanisms and strong narratives can override fundamental red flags, leading to catastrophic failure.

The FTX Implosion (2022) – chosen as a systemic event that showcases institutional failure, trust erosion, and image manipulation, while also marking a turning point in regulatory and public sentiment toward the industry.

These examples were chosen instead of other examples (like the Mt. Gox hack or Ethereum DAO fork) because they collectively feature a range of behavioral phenomena — including mania, herding, anchoring, narrative contagion, and trust asymmetry — and are reasonably recent to reflect the current are or state of the crypto market. Individually and together, they offer an integrated analysis of both retail and institutional behavior under various forms of hype, collapses, and innovation.

Concepts relating to behavioral finance, including the various cognitive biases, effects and irrational dispositions will thus be applied to historical crypto experience through this post-hoc study. Secondary data from peer-reviewed academic articles, meta-analyses, and industry reports were used to ground these cases

in theoretical context. Primary academic sources include works by Kahneman and Tversky, Shiller, Thaler, Hirshleifer, and more recent crypto-specific studies such as Verousis, Yadav, and Cheah & Fry.

Comparative analysis will be used to analyze differences in behavior in crypto compared to traditional assets. It will look at the relevance of fundamental price anchors, as well as social media effects and the structural peculiarities of the market like: 24/7 trading, and gamification. Other considerations will include alternative price drivers (i.e. mining costs, macroeconomic signals) and whether non-behavioral aspects played a larger role than the behavioral price influences.

The methodology will be more concerned with interpretive depth than operational generalizability. The goal will be to explicate how and why crypto-markets operate differently under conditions of uncertainty, opacity and speculation.

1.7 Research Question and Chapter Outline

This dissertation asks whether cryptocurrencies should be understood as a behavior-driven asset class—defined not by their intrinsic features but by the dominance of behavioral drivers in their pricing. If so, what does this imply for asset pricing, risk modeling, and investor behavior?

The following chapters address this question:

- Chapter 2 presents a series of case studies that trace the behavioral dynamics of key market events.
- Chapter 3 compares crypto with traditional asset classes and evaluates alternative pricing determinants.
- Chapter 4 concludes with theoretical and practical implications.

By focusing on crypto's behavioral dimensions while acknowledging countervailing structural factors, this dissertation seeks to contribute to the broader understanding of market psychology under uncertainty and the evolution of financial assets in an environment lacking fundamentals.

2. Empirical Review: Case Studies of Behavioral Dynamics in Cryptocurrency Markets

2.1 Introduction

This chapter investigates important events in cryptocurrency market history to understand how behavioral biases together with social narratives moved prices in the context of weak fundamental valuation. The research draws from Chapter 1's theoretical framework to demonstrate how behavioral finance patterns found in behavioral finance literature appear and connect with actual crypto market events. These biases occur in other markets as well but their frequency and intensity, alongside feedback-driven amplification distinguish them in cryptocurrency markets.

The case study method is appropriate here because cryptocurrencies are highly event-driven, and discrete moments in their history—bubbles, crashes, viral surges—offer unique windows into the psychology of the market. The natural experiments contained within these case studies allow researchers to study how retail investors along with influencers, institutional actors and media ecosystems drive price cycles of both exuberance and collapse. As Shiller (2019) explains, markets are not only shaped by rational expectations but also by socially transmitted misperceptions and cognitive shortcuts, which thrive particularly in fast-moving, opaque environments. Cryptocurrency markets are an ideal testing ground for these ideas because they combine continuous 24/7 trading with retail investor control and minimal regulatory interference.

The case studies demonstrate the fundamental behavioral patterns of herding behavior, overconfidence, narrative anchoring, loss aversion and confirmation bias. The selected cases—Bitcoin's 2017 price explosion, the meme coin mania led by Dogecoin, the collapse of the Terra/LUNA algorithmic stablecoin, and the downfall of FTX—were chosen not only for their scale and media impact but because they showcase different layers of investor psychology. Some reveal classic irrational exuberance; others expose collective delusion, reputational bias, or the persistence of belief in the face of contrary evidence.

According to Shiller (2019) narrative economics demonstrates that "popular stories" serve as the primary drivers of economic choices instead of analytical frameworks. These stories spread throughout the market because they are simple, emotionally resonant and receive social backing. The case studies that follow highlight how, in the world of crypto, stories not only influence value—they are value. Understanding the structure and evolution of these narratives is therefore key to understanding price behavior in this asset class.

The cumulative evidence from these four case studies demonstrates that behavioral influence shapes cryptocurrencies to an extent where they operate fundamentally through behavioral mechanisms. The empirical evidence demonstrates that these assets could fit within the definition of a behavior-driven asset class.

2.2 Structural Amplifiers of Behavioral Volatility in Crypto Markets

The specific design of cryptocurrency markets serves to enhance behavioral biases that affect investor decisions. The crypto market structure lacks traditional financial system elements that create friction or delays and institutional checks, thus permitting market outcomes to be shaped by emotional and cognitive factors without hindrance. This section examines market features which enhance investor sentiment and feedback mechanisms, to understand how decentralization, continuous trading, retail dominance, platform design and informational opacity create systemic behavioral volatility.

The cryptocurrency market operates continuously throughout 24 hours which stands as its defining characteristic. The permanent access to markets removes traditional market resting periods which results in higher risks for impulsive trading decisions. Traditional equity trading includes market closure periods that create cognitive boundaries which help traders establish temporal distance. Shiller (2019) alludes that interruptions in trading often allow emotions to settle, letting rational narratives take shape. The absence of protective buffers in crypto leads retail investors who react impulsively to exhibit compulsive trading patterns.

The predominance of retail investors within the crypto market sector intensifies behavioral bias tendencies. Crypto markets operate without institutional stabilizing factors since they lack the big institutional players that counteract retail-driven participation that traditional markets experience. Subramaniam and Chakraborty (2019) find that this retail concentration contributes to strong and persistent sentiment-driven mispricing, exacerbated by the absence of valuation anchors and robust governance frameworks.

Social media together with gamification features accelerate the process. Trading platforms like Binance, Coinbase and Robinhood utilize push notifications, price alerts, leaderboards and visually engaging interfaces which imitate video game features. These platforms incentivize frequent trading through psychological reward loops, a dynamic examined in depth by Moore and Ljungkvist (2022), who note that platform architecture is deliberately designed to stimulate dopamine-fueled interactions that replicate gambling patterns. The system architecture of trading platforms intensifies both the availability heuristic and framing bias because investors tend to focus more on recent news and visually striking trends.

The linguistic and cultural elements of the crypto domain act as behavioral accelerants. Crypto terminology including “HODL,” “diamond hands,” “ape in” and “rekt,” demonstrate how social norms promote dangerous investment practices alongside emotional attachment to digital assets. Shiller (2019) observes that “Social media platforms make it possible for like-minded people with extremist views to find each other and further reinforce their unusual beliefs.” (p. 273). In crypto, this cultural echo chamber creates an identity-based investing framework, where loyalty to a token becomes a proxy for community belonging.

Decentralization together with anonymity makes it harder for investors to hold individuals responsible while also reducing their ability to perform thorough research. Traditional assets derive their value from audited financial statements of companies with transparent leadership but cryptocurrencies often use pseudonymous addresses for users while being community-run projects without fundamental disclosure information. Cheah and Fry (2015) argue that a large portion of the volatility in cryptocurrencies can be attributed to the absence of verifiable intrinsic value, leading to an investment environment where narratives substitute for fundamentals.

In this context, narrative contagion functions as the main driver that influences market prices. Shiller (2019) likens economic narratives to viral epidemics, spreading not due to accuracy but to emotional resonance

and repetition. He explains that people do not act on facts alone, but stories too; noting how easily financial decisions can be influenced by simplified, memorable accounts rather than rigorous analysis. Crypto narratives start the price movement process which then legitimates the initial price changes to create a self-fulfilling cycle between price and belief.

The three elements of sentiment, price action and social reinforcement exist in continuous feedback loops. As noted by Yadav (2024), the Prospect Theory Value (PTV) framework helps capture this dynamic, showing that "CCs with highly skewed returns tend to have higher PTV, indicating the influence of [probability weighting]. … These observations align closely with the principles of PT, providing empirical support for its postulations" (p. 649), thereby generating self-reinforcing rallies by attracting more and more investors.

The liquidity structure of decentralized exchanges (DEXs) and centralized exchanges (CEXs) creates additional market challenges. Several tokens exhibit thin liquidity which makes their prices react strongly to both market orders and emotional trading activities. Huang and Tanaka (2022) find that irregular trading behavior—more common in decentralized contexts—is more driven by human actors rather than bots, underscoring how investor bias shapes microstructure outcomes.

Another important amplifier is regulatory ambiguity. Security markets operate with heavy regulations that keep them clearly defined in their behavior–crypto markets exist in a hazy grey area. This ambiguity fosters narrative making, as every participant is personally forming ideas of legitimacy, risk, and value. The absence of legal structure means that behaviors take the place of these analyses of risk (Corbet et al., 2019).

Even price discovering instruments are behaviorally biasing. Token launch formats like Initial Coin Offerings (ICOs), Initial DEX Offerings (IDOs), and airdrops often encourage participation based on the lure of FOMO. These mechanisms turn investing into a gamified experience, and induce temporal biases, such as hyperbolic discounting, where the incentive of immediate gains obscures longer run rational risk considerations.

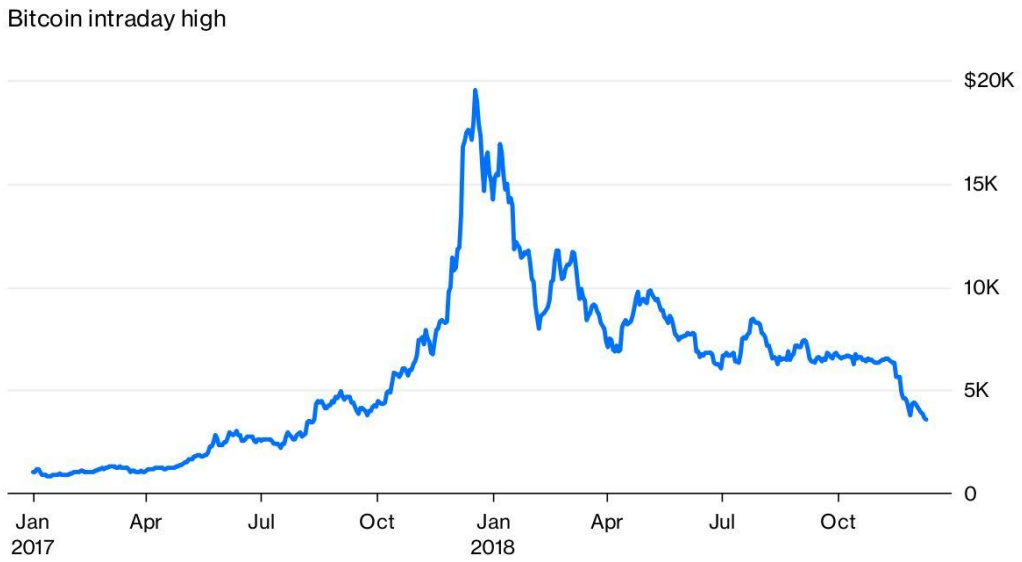
Overall, the characteristics of crypto markets do not merely allow for behavioral biases but structurally incentivize them. Design choices, such as always-on trading, retail-based liquidity, gamified tools, and sentiment-driven narratives, create a market environment where behavioral processes are not outliers, but the operating logic. In highly uncertain markets with minimal constraints, investor psychology does not distort value—it may in fact become value: "CCs lack fundamental economic value… therefore, investor behavior is a defining component of the CC market" (Yadav, 2024, p. 644).

In summary, every level of the structure (user-interface, social norms, price formation and volatility mechanics) in the market architecture of crypto is behaviorally loaded. Where traditional markets have a basis in fundamental logic, and institutional logic, crypto markets supplant this with narrative, emotion, and the role of digitally networked belief. This structured amplification of behavioral biases thereby enables the categorization of cryptocurrencies as a behavior-driven asset-class and demonstrates the insufficiency of traditional financial models to explain the dynamics of cryptocurrencies.

2.3 The Bitcoin 2017 Bubble

Bitcoin's 2017 bull run, in which the price climbed from around $1,000 in January to nearly $20,000 by mid-December, is one of the most dramatic and culturally significant bubbles in modern financial history. It was the first time that cryptocurrency was in the spotlight of sustained mainstream attention and was the subject of speculative frenzy amongst retail investors worldwide. This price movement was characterized by extreme volatility and momentum-based price surges. This stage is a classic example of how behavioral finance concepts, and specifically herding, fear of missing out (FOMO), overconfidence, and anchoring, can align in an asset class lacking traditional valuation anchors.

Figure 1: Bitcoin intraday high in USD from January 2017 to December 2018



Source: Bloomberg, 2018

Bitcoin's rise in 2017 was not the result of a fundamental technology upgrade nor an increase in usage as a transactional medium. Rather, its rise was primarily driven by the expectations of investors, cognitive bias from the stories surrounding it, and the emotional contagion that is accompanying much of the price movement. The fundamental value of Bitcoin was nebulous: like many cryptocurrencies, Bitcoin was not backed by earnings, had no dividends, and did not have a clear way of achieving an intrinsic valuation. As Baur, Hong and Lee (2018) noted, Bitcoins are mainly used as a speculative investment and not as an alternative currency, highlighting the speculative nature of its value along with the behavioral bias that support it.

One of the major psychological governing mechanisms in the 2017 rally was herding behavior. So many people entered the market as the price of Bitcoin was ramping up, not from an independent consideration of the signals, but instead because they saw others doing so. This relates to the notion that socially transmitted misperceptions are persistent, amplified, and highly influential (Hirshleifer, 2014), especially in contexts where the signals related to more traditional financial products are either sparse or unclear. Furthermore, platforms such as Reddit, Twitter, Telegram, and YouTube emerged as sites for the viral spread of bullish sentiment, forming a digital echo chamber that rewarded positive narratives and suppressed negative narratives to a large extent.

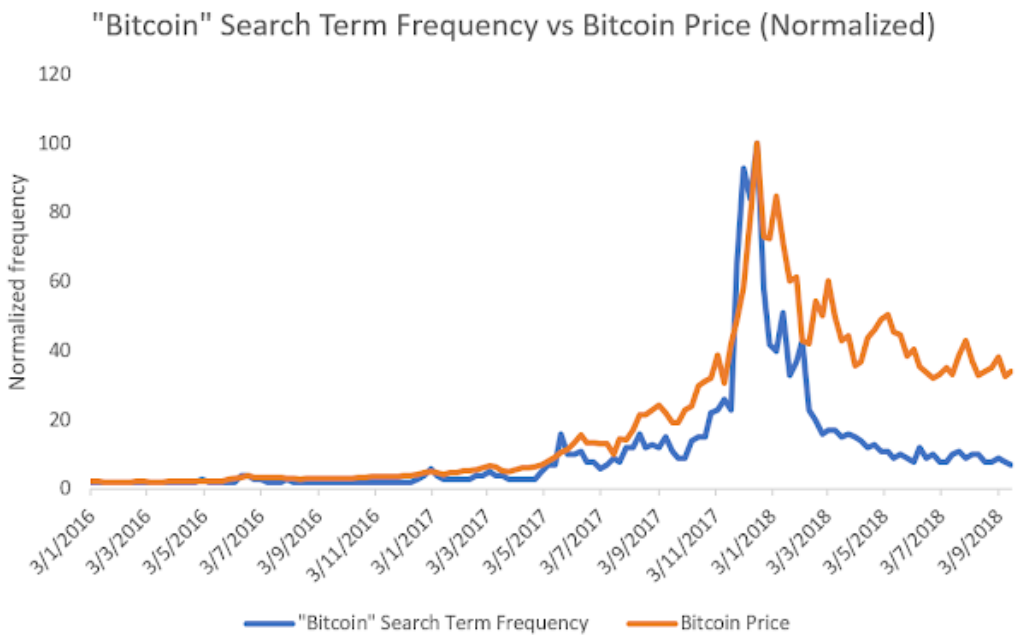
The fear of missing out (FOMO) acted as a major amplifier to the herd effect. As the price of Bitcoin ascended to $5,000, $10,000 and eventually $19,000, retail investors flooded into buy positions, allowing themselves to be scared of missing out on what was increasingly framed as a once-in-a-generation opportunity. Kahneman and Tversky's (1979) findings in prospect theory provide some answers: humans appear to overweight gains compared to other opportunities in the context of a high-risk, high-profitable opportunity. In this case though, the innovative retail investors displayed loss aversion, not in the form of fearing the financial loss of a dying asset, but rather they feared the missed opportunity cost of not being part of an ongoing rally.

This availability bias played a major role in creating over-lucrative expectations. The market was saturated with stories of adventure seekers becoming millionaires—these powerful narratives provided highly salient evidence for new investors considering risk and returns. These vivid stories had outsized influence on investment decisions, as they were more cognitively accessible than any sober analysis of Bitcoin's technological roadmap or limitations. Shiller (2019) calls these types of stories "economic narratives" that go viral and have subconscious but powerful effects on group economic behavior.

Anchoring also played an important role. In the run up of Bitcoin as it cleared these successive psychological price points, it became another point of effective valuation. So, those who bought in at $5,000 anchored on $10,000, those at $10,000 on $15,000, and so forth. When price dipped, many investors would not sell and thought it had to return back to its prior high. That is consistent with the disposition effect (Kahneman and Tversky, 1979), which is that investors hold on to losses and are very quick in locking in gains.

In addition, there was also a collective overconfidence in their ability to understand the market and extract profit beyond what would normally be reasonable to expect. According to Ritter (2003), overconfident traders trade more, take greater risks, and believe that they have better insight than others or have better timing than other investors. In 2017, many retail investors hardly did any due diligence and developed their investment perspectives primarily based on simplified stories, risk-on reports and analysis tools for technical analysis with little reliable validity. Together with the illusory perception of control which was reinforced by the gamified platforms of exchanges and mobile apps this led to behavior that viewed speculation as rational from their behavioral standpoint.

Figure 2: “Bitcoin” search term frequency on Google and Bitcoin price (normalized)



Source: MYMPCA, 2018

The self-reinforcing feedback loop between price and narrative became ultimately self-fulfilling. A narrative’s economic impact is not limited to its factual content but is driven by how it spreads and gains credibility (Shiller, 2019). As Bitcoin's prices ascended, the narrative of legitimacy, inevitability, and disruption thrived. The mainstream media narrative was widely amplified (e.g. sympathetic or uncritical coverage) but in turn lacked offsetting counter-narrative coverage. Certainly, with each price milestone, more visibility, more participation, and more momentum were created.

A critical point is that this behavior persisted, and even strengthened with, the signal of overvaluation amidst mounting instability. By year-end 2017, exchanges were going offline, transaction fees skyrocketed, and governments and regulatory agencies were increasingly vocal about the risks. Yet belief in the inevitability of future prices became steadfast. This behavior aligns with the tenacity of confirmation bias and social proof in which evidence to the contrary is either ignored or reframed through beneficial lenses (Hirshleifer, 2014).

The collapse—Bitcoin's price fell by more than 80% through 2018—was a behavioral phenomenon as well, marked by selling panic, regret avoidance and fastening to now-lost highs. Investors who bought at peaks frequently refused to exit, hoping to see prices return to anchor points. Others rapidly exited, awash in the emotional torrent that had first pulled them to act. The social media, sentiment contagion and narrative reinforcement feedback loops were no less potent in reverse.

The bubble also institutionalized some behavioral cycles into the crypto market. Exchanges began making their interfaces more transactionally emotional (i.e. humor, twitter exchanges, gameplay incentives, trading gamification), media outlets adapted content to cater to hype-driven audiences, and investors began to anticipate crowd psychology now, rather than fundamentals. As crowd psychology grew into a common anticipation, the role of behavioral feedback in price formation solidified.

Plus, the 2017 bubble offered a template for the next round of market cycles. The subsequent cyclical bull runs in 2020-21, including the meme coin craze and the NFT explosion, included so many of the same psychological aspects that it is reasonable to consider them not as one-off instances within the crypto market ecosystem, but as recurrent patterns. In this sense, the 2017 bubble not only served as a singular incident, but was also a foundational case of collective sentiment operating unopposed as the dominant force across an entire asset class, without conventional valuation indices.

In closing, the 2017 Bitcoin bubble represents an opportunity to illustrate the ways that cryptocurrency markets are not only affected by behavioral forces, but how they are functionally constructed to encourage them. Lacking foundations, price represents both input and output in a self-reinforcing belief system. The case illustrates how narratives can overwhelm analysis, how emotion can exceed valuation, and how psychological biases can exist as integral, and are not coincidental features of crypto price activity.

This case provides a backdrop for the rest of the study; each of the studies described here add rich detail and color to the behavioral phenomenon. Whether in terms of meme coins, failed stable coins, or fraudulent exchanges, the behavioral patterns laid out in 2017 (herding, narrative contagion, anchoring) can be observed with striking regularity across the crypto landscape.

2.4 The 2021 Meme Coin Surge: Sentiment, Social Identity and Speculation

The meteoric rise of meme coins in 2021 (notable examples include Dogecoin and Shiba Inu) provides a telling example of how behavioral biases, online social identity and speculative narratives can create powerful market outcomes that are imperfectly constrained by any intrinsic value. Dogecoin started as a joke coin based on the “Doge” meme in 2013, yet crashed the world coin markets in early 2021, primarily through viral campaigns, celebrity endorsements, and a generalized risk-on mindset in the retail investor space. It rose to a peak of an over $80 billion dollar market cap, without meaningful technological utility or transactional adoption.

Figure 3: Dogecoin market cap in USD between 2017 and 2023

Source: Heimdall Research, 2023

This event illustrates the behavioral and social aspects highlighted in Chapter 1: overconfidence, herding, mental accounting, and especially social contagion. As Subramaniam and Chakraborty (2019) argue, retail cryptocurrency investors frequently exhibit herd behavior, particularly under conditions of market stress, uncertainty, or ambiguity, with sentiment serving as a more potent price signal than fundamentals. Similarly, Yadav (2024) observes that in low-information environments typical of crypto markets, investors disproportionately favor tokens with lottery-like payoff structures and emotionally engaging narratives. In her findings, Yadav notes these investors exhibit both overweighting of low probabilities and salience bias in line with prospect theory, indicating broad susceptibility to meme-based assets.

The meteoric rise of Dogecoin was closely tied to several tweets initiated by Elon Musk, who publicly described Dogecoin as "the people's crypto" and joked about "sending it to the moon." The tweets blurred the lines of satire and endorsement. On February 4, 2021, Musk tweeted "Dogecoin is the people's crypto," which by itself established a 50% surge in the token price in less than 24 hours. This is indicative of the behavioral process of authority bias, where statements made by perceived experts or celebrities take precedence over rational risk assessments. Shiller's (2019) notion of narrative economics offers an even further context since narratives that are contagious can affect economic behavior in ways that may not always be predictable from fundamentals alone. The rise of Dogecoin was more about the ability to spread it as a story—emotionally resonant and anti-establishment in tone—than it was its utility.

Figure 4: Shiba Inu market capitalization and Heimdall's Social Score which measures online hype

Source: Heimdall Research, 2023

The growth of meme coins is also an example of social finance, a term Hirshleifer (2014) uses to describe how group norms, allocation of attention, and information cascades shape behavior in financial markets. "Analysis of social interactions promises to provide greater insight into where heuristics come from… and to offer a foundation for understanding shifts in investor sentiment" (p. 45). The Dogecoin subreddit, along with Twitter hashtags, acted as echo chambers, providing regular reinforcement of buy decisions based upon confirmation bias and the allure of collective success. These self-affirming belief systems created a version of speculative reflexivity whereby climbing prices indicated that prices would continue to go up—a behavioral feedback loop unhinged from technical indicators or adoption rate metrics.

Shiba Inu (SHIB), a self-describing “Dogecoin killer,” followed a similar trajectory. In 2021, meme coins made headlines when Dogecoin briefly entered the top 10 cryptocurrencies by market capitalization. But its value proposition was even thinner than for Dogecoin, with a whitepaper (“woofpaper”) that leaned heavily into self-satirical parody and associated meme culture. Investors were less making financial decisions, and more simply embracing a digital identity badge or symbol of participation in culture, especially as we noted about the gamification and tribalism of retail crypto-investing. As Huang and Tanaka (2022), observed in their on-chain analysis, human traders exhibited more erratic and risky behavior than trading bots, particularly for tokens without strong underlying fundamentals.

Meme coins represented a trading environment where entry and exit could be very quick, often on mobile platforms designed to enhance psychological compulsions to trade. Many platforms also allowed fractional trading, automated push notifications, and comparative leaderboards that applications drove habitual and impulsive checking. Moore and Ljungkvist (2022) illustrate how crypto trading platforms and experiences capitalized on feedback-looping and dopamine reward cycles to have traders develop risk-taking habits that mimic the uncertainty and behaviors of gambling, suggesting the behavioral structure of the platforms created narrative adherence, volatility and strong emotional opinions; everything but disciplined portfolio construction.

The meme coin phenomena also demonstrated the disposition effect, or unwillingness to exit winning positions based on hopes for larger financial return or even big “yolo” trades. With such explosive gains being realized over short periods—Dogecoin appreciated more than 5000% in the first half of 2021—traders became anchored to recent highs and emotionally invested in the idea of “HODLing” through volatility. Anchoring bias and the illusion of control further reinforced participation in an increasingly unstable speculative bubble.

Cheah and Fry (2015) assert: “Bitcoin seems to behave more like an asset than a currency. Bitcoin’s main attraction seems to lie in being an object of speculation instead of functioning as money” (p. 34). While meme coins are the most vivid expression of this speculative investment logic, they are not uniquely affected; simply rendering explicit the implicit behavioral dynamics driving many other tokens.

It should be observed that these speculative surges also revealed deeper desires among retail investors – something we explored in the prior chapter—desires for community, agency, rebellion and meaning within their financial lives. Narrative economics is powerful not only because it spreads, but because it meets the psychological desires of meaning. Meme coins and digital cultural groups allow for participation in a fantasy of wealth that is not built on diligence or fundamental analysis, but rather humor and timing.

Altogether, the 2021 boom of meme coins includes the full range of behavioral finance and social finance phenomena: narrative contagion; identity investing; attention-driven speculation; and crowd dynamics. Accordingly, cryptocurrency markets are especially fertile ground for sentiment-driven anomalies due to their open-access structure and lack of anchoring variables (Verousis and Ballis, 2021). These examples have clarified that in crypto, price is more often a psychological projection of collective narrative and not fundamental utility. It is naive to consider these dynamics incidental to financial analysis—they are integral.

2.5 The Terra/LUNA Collapse – A Cautionary Tale in Behavioral Overreach

In May 2022, the breathtaking collapse of TerraUSD (UST), along with its sister token LUNA, represented one of the most horrific implosions in cryptocurrency history, erasing over $60 billion of market capitalization in a matter of days. But Terra also serves as one of the most powerful exemplars of how behavioral dynamics—specifically confirmation bias, herding, and narrative fallacy—can trump even the simplest risk controls practiced in digital finance. Terra's failure was not only technical; it was psychological.

Figure 5: Terra (LUNA) price in USD from January 2021 to May 2022

Source: The Independent, 2022

Although UST branded itself as an algorithmic stablecoin—meaning, unlike fiat-backed, collateralized stablecoins like USDC and Tether, which are backed by reserves of real-world assets, UST was not backed by officers from the Federal Reserve; but rather it was pegged to $1 using an arbitrage process that involved LUNA, Terra's governance token—its economic engineering offered interesting alternatives for scalability through automation, decentralization, and innovation. For a time, it seemed to deliver—offering up to 20% yields on deposits through its Anchor protocol, attracting billions in capital. Yet beneath this optimism lay behavioral distortions that blinded investors to the fundamental vulnerabilities of the model.

The most conspicuous version of these distortions was confirmation bias: the tendency to search for, interpret, favor, and recall information that confirms one's beliefs or hypotheses. Given the high yields available and the fact that community sentiment was mostly high, investors often disregarded analysts' warnings of the questionable sustainability of the peg mechanism. Liu, Makarov and Schoar (2023), outlined these hazards in the summary "Anatomy of a Run: The Terra Luna Crash" and explained that in order for the peg to operate properly the conditions of adequate arbitrage rewards and stability in price oracles had to be in place, whose loss they observed would create a self-reinforcing downward spiral.

Present bias also affected the crypto investor community, since a large number of individuals were simply chasing the high (over 20%) yields available for depositing UST in Anchor. The Anchor lending protocol was central to the whole operation and in order to attract deposits Terra offered above market yields. Investors thus piled into UST without regard for the future stability of the coin or protocol, which would endanger their own capital investments in the coin; since analysts widely warned that such yields were entirely unsustainable and came at a loss to Terra whose strategy was to attract capital investment in this manner and later lower the yields without hopefully losing the investors who bought in.

A central pillar of psychological support underpinning the valuation of Terra was social proof, existing in the aggressive marketing and promotion conducted by its founder Do Kwon, who fashioned a cult of personality that blended into the protocol itself. The contagion of a narrative can go viral and gain legitimacy not because of analytical rigor but because of repeated exposure and emotional resonance (Shiller, 2019). Terra's viral rise was heavily reliant on this kind of affective appeal.

Adding to this contagion was the herding, where stakeholders—especially retail market participants—did not act independently of others but simply followed what others did. Herding is particularly strong during periods of volatility and euphoria, driven by overexcitement and social mimicry (Verousis and Ballis, 2021). In the case of Terra, the combination of promises of near risk-free returns in an unregulated environment created the kind of feedback loop that would reward those who entered the system early, thus, many others entered the system. Even institutional investors were complicit, as their entrance provided legitimacy to a system that most would not fully understand.

As the UST peg began to fail in early May 2022, the behavioral dynamics changed very quickly. A sense of cognitive dissonance began to mingle with the previous optimism. Numerous participants found it difficult to reconcile the failing peg with their previous beliefs about the robustness of the project. This resonates with Hirshleifer (2014) for whom individuals are motivated to defend emotionally charged beliefs against contrary evidence. That participants delayed recognizing failure—as the data, clear and unambiguous, turned undeniably grim—underscores how emotion can make participants fail to rationally interpret information in real-time situations of financial crisis.

Notably, although LUNA had entered its death spiral—triggered when more tokens were minted to stabilize UST, thus leading to hyperinflation and price collapse—users on Twitter and Reddit still called for loyalty and patience. Even after pillars of the narrative were collapsing, its persistence in the face of collapsing fundamentals illustrates that individuals are not passive recorders of data, in fact they act on emotionally charged interpretations of stories, which then reshape market realities (Shiller, 2019).

This very same interpretative optimism was also available to the participants in the form of the illusion of control; a cognitive bias where a stakeholder tends to overestimate their ability to control outcomes in complex systems. The Terra community comprised of largely retail investors and social media influencers tended to argue that the coordinated action of community members (i.e., holding and staking LUNA) would stabilize the peg. This idea—probably also founded upon the illusion of control—ignored the mechanics of algorithmic arbitrage and unsustainable yield structure of Anchor. In speculative environments investors often conflate participation with control, mistaking personal engagement for influence over outcomes, a widely known consequence of the illusion of control (Yarritu et al., 2014).

While the collapse was ultimately precipitated by classic bank run dynamics, which were initiated by ongoing malaise, and widespread selling—not one defining event; fear spread rapidly amongst the investors affected by status quo bias—a reluctance to exit a losing position—and they rapidly converted their position to panic selling. Huang and Tanaka (2022) found that in the context of Ethereum wallets, users exhibit sharp

transitions in behavior once risk perception crosses a tipping point, reflecting a latent but explosive volatility in investor sentiment.

The case of Terra also accentuates the limitations of rational arbitrage as a means of restoring balance when it comes to a systemic crash of crypto. In describing the Adaptive Markets Hypothesis, Lo (2004) outlined how, under highly volatile and immature market conditions, even rational investors may choose to behave irrationally when doing so may provide them with survival benefit.

Following the collapse, post-mortem analyses revealed widespread shortcomings not just in design, but in the behavioral assumptions underpinning Terra's success. Cheah and Fry (2015), reflecting on similar dynamics, take the position that, the presence of bubble-like behavior in crypto is often buttressed by enthusiasm divorced from price and hence, valuation logic. For Terra, enthusiasm was amplified via institutional and social networks, converting warnings signals that had been ignored, into background noise.

The regulatory implications of the Terra collapse have subsequently focused on risk disclosures, leverage constraints, and algorithmic stability mechanisms. However, the recent developments in the space highlight the importance of the collective psychology of market actors. It can be inferred that psychological biases are not merely residual noise in crypto pricing—they can be interpreted as its primary drivers (Hidajat, 2019).

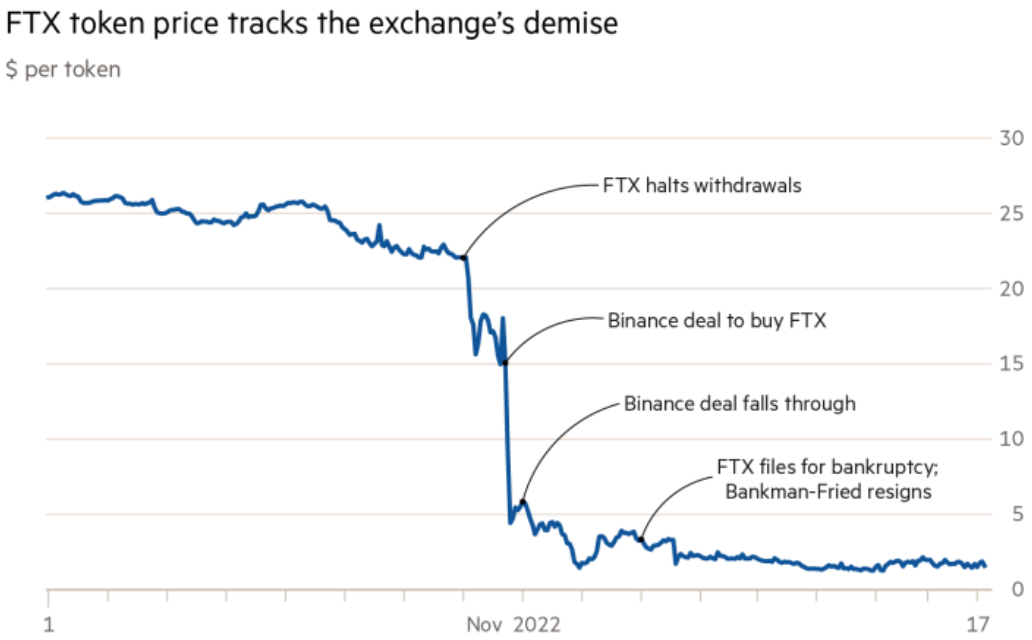
In conclusion, the Terra/LUNA collapse was not a simple failure of code or of economics; rather, it was a behavioral failure on a mass scale. It was a demonstration of how belief can supersede analysis, how emotion can serve to sustain failing systems, or how markets can simply become ecosystems of narrative reflexivity, stripped of the effects of fundamentals. As such, the post-mortem will need to be as much a psychological analysis, as a technical one, in discerning that the next wave of risk in digital asset markets, will arise from the collective cognition of the market, as much as it will similarly arise from design of the protocol or staking derivative.

2.6 The Collapse of FTX: Trust, Overconfidence, and the Social Illusion of Competence

FTX was a centralized cryptocurrency exchange founded in 2019 by Sam Bankman-Fried. It was established to enable trading in crypto derivatives, spot markets, and tokenized assets, and gained rapid notoriety for its advanced platform, high liquidity, and institutional ties. The company's stated direction was to provide a safe and efficient environment for digital asset trading, and was distinguished by its risk management platforms and user-driven developments.

FTX's spectacular collapse in November 2022 was one of the most significant events in the history of cryptocurrency. Once perceived as the image of institutional respectability in an unruly industry, FTX and its well-respected founder Sam Bankman-Fried managed to attract billions of dollars of venture capital and garnered praise from global financial witnesses and elites. But hidden beneath this audacious persona of innovation and legitimacy was one stark example of overconfidence, moral hazard, and social trust bias in recent financial history.

Figure 6: FTX token price in USD from 1/11/2022 – 17/11/2022



Source: Financial Times, 2022

The collapse of FTX is illustrative not only because of the magnitude of capital loss (estimated to be over $8 billion), but because it exemplified the ease with which behavioral biases, including overconfidence (in particular), framing, and social contagion could undermine traditional due diligence and risk evaluation. The constructed persona of Bankman-Fried as a selfless genius, enriched by this background in MIT, altruistic rhetoric, and political donations, produced what Shiller (2019) would refer to as a socially resonant belief, that continued to spread through conformity and signaling incentives. FTX, was additionally allowed opportunity by a carefully constructed public persona that camouflaged serious internal deficiencies. According to a governance analysis done by McCullough Robertson Lawyers (2023), "FTX was a company with no CFO, a board composed entirely of close associates, and significant conflicts of interest with Alameda Research." Even in the face of significant red flags such as these it had raised close to $2 billion from institutional investors. The authors note that these red flags were ignored, creating what they call a "governance illusion", to essentially support its narrative of legitimacy.

The institutional investors (including large venture capital firms) ignored red flags such as its lack of having an independent board of directors and no financial audits. These can be described in terms of authority bias and framing. As Kahneman and Tversky (1979) observe, people seem to accept propositions made by ostensibly credible or charismatic figures without question. As they point out, this is especially true when there are information asymmetries. Barberis and Thaler (2003) argue that framing has a strong influence on choice; FTX's framing as safe, regulated, efficient exchange skewed investors' perceptions of risk and competence.

Social finance was also an important component. As Shiller (2019) notes, narratives can persist not on the basis of their empirical truth but through their psychological and social appeal. Each of Bankman-Fried's narratives were driven by an idealistic vision that he supported through media engagements and sponsorships. FTX's claim to stability was not built on evidence, but rather through a feedback loop of perceived legitimacy.

On-chain behavioral evidence from other studies indicates overconfident risk-taking and increased trading behavior during this timeframe. Huang and Tanaka (2022) found evidence that wallets engaging in high turnover and lower performance were consistent with overconfident trading behavior, a behavior analogous to FTX's retail investor users whom overestimated the security and legitimacy of FTX as an exchange.

In addition, Verousis and Ballis (2021), and Yadav (2024) advance empirical evidence that behavioral biases of optimism bias, anchoring and herding were systematically present during crypto bull markets and these behaviors were often correlated with risk-taking and a lack of scrutiny. It has been found that readability and format of news sources can increase trading volume despite poor content quality, showing how surface credibility, like that manufactured by FTX, affects behavior. Yadav noted that anchoring with respect to peak perceived price performance influenced judgment about risk taking, as was evident specifically with FTX's native token, FTT, which was severely overvalued relative to any credible fundamentals.

Regulatory blind spots were reinforced as well via behavioral means. As discussed by Corbet et al. (2019), weak jurisdictional scrutiny and legal ambiguity with respect to crypto activities allowed FTX to remain opaque. The paper provides a warning that this regulatory avoidance and jurisdictional arbitrage fosters a feeling of lawless activity in which moral hazard flourishes: “the speed of cryptocurrency evolution... has not been matched by regulatory scrutiny,” leaving an opportunity for mispricing and vulnerability.

One powerful observation comes from Hirshleifer’s (2014) work on overconfidence and escalation of commitment. Investors shift attitudes to reconcile past choices with the perception they are good decision-makers, even when faced with disconfirming evidence. This helps explain why after repeat allegations over financial impropriety, some still based their trust in FTX and its founders. Once an investor voluntarily committed social capital, endorsements and significant money, why would they want to admit they made a mistake after the fact?

The collapse exemplifies the “illusion of transparency”, where confidence and fluency in speech are mistaken as truth. Such illusions help in the spread of economic narratives, often hiding more critical aspects of financial instability.

In summary, the collapse of FTX shows the intersection of a variety of behavioral phenomena—overconfidence, social trust bias, authority bias, narrative contagion, and regulatory framing; confirming that in cryptocurrency markets, perception often eclipses due diligence, and that even sophisticated institutions are not immune to the psychological forces more commonly associated with retail speculation. As this case study demonstrates, the case for classifying cryptocurrencies as a behavior-driven asset class is not only compelling but urgently necessary to understand systemic vulnerabilities in emerging financial systems.

3. Comparative Analysis: Traditional Markets and Alternative Price Determinants

3.1 Introduction

The previous chapters laid down a theoretical and empirical basis for viewing cryptocurrencies as a behavior-driven asset class—an asset class where psychological biases, social-contagion, and narratives are prominent in the price formation process. A case for cryptocurrencies as a uniquely susceptible asset to behavioral biases was made through a review of fundamental behavioral finance concepts and reference case studies, such as the Bitcoin surge in 2017, the meme coin hysteria in 2021, and the collapses of Terra/LUNA and FTX. Notably, these behavioral biases are not accidental, but emergent from the underlying structure of cryptocurrency and its surrounding culture.

This chapter attempts to continue and enrich that analysis by situating cryptocurrency markets comparatively. Specifically, it asks (1) are behavioral biases more pronounced and structured in crypto markets than those in equities, bonds or commodities? and (2) are there credible explanations of price behavior in crypto prices through alternative or equivalent empirical relationships, such as mining costs, token supply mechanisms, macroeconomic conditions or regulatory developments, or is pricing behavior dominated by behavioral dynamics?

In order to do so, this chapter is organized as follows. First, Section 3.2 provides a comparative discussion of how common biases, such as overconfidence, herding, disposition effect, and narrative contagion, manifest and how they are structured in traditional markets versus crypto markets. It concludes with the argument that crypto markets appear to amplify behavioral biases. Section 3.3 covers credible alternative determinants of pricing, including technical and macroeconomic, and suggests the relative explanatory power for each. Finally, Section 3.4 introduces Andrew Lo's Adaptive Markets Hypothesis as a potential theoretical bridge; suggesting that, in certain volatile and evolving environments, behavior viewed as irrational under classical finance, may instead be adaptive.

To be clear, this goal is not to suggest that such fundamentals are not relevant to the pricing of cryptocurrencies, but to claim they are always subordinated to psychological and social forces and/or are too weak/inconsistent to be effective. By framing cryptocurrencies as part of a broader asset class framework, this chapter seeks to reinforce the central thesis of the previous chapters: behavioral finance is not only applicable to cryptocurrencies, but in fact, necessary for its proper understanding.

3.2 Comparative Analysis of Behavioral Biases in Cryptocurrency and Traditional Asset Classes

The behavioral foundations of cryptocurrency markets are vastly different from that of traditional asset classes, and not because the biases are different; rather, they are more pervasive, unfiltered, and structurally supported. As argued throughout this dissertation, behavioral finance is not an additional lens in the case of crypto: behavioral finance is often the leading explanatory mechanism. This section, compares the manner in which the most common human biases operate in traditional markets versus crypto, and why the crypto environment serves to enhance, accelerate and amplify those same biases.

It is helpful to first understand how structural features of markets interact with human thinking. In traditional asset markets, structural features are often characterized by institutional investors, regulatory guardrails, anchors or benchmarks (which anchor value), and temporal restrictions (e.g. market hours, quarterly reporting, etc.). These features collectively act as friction—limiting impulsive decision-making and moderating herd behavior. In contrast, cryptocurrency markets are decentralized, largely unregulated, open 24/7, and accessible to a broader demographic, including many retail investors with little financial education or experience. Cryptocurrency investors are typically more prone to biases like disposition effect, overreaction, and loss aversion due to the lack of valuation fundamentals and market safeguards (Yadav, 2024).

One of the most studied biases in traditional capital markets is the disposition effect—investors' tendency towards selling winning assets too quickly, and holding losers for too long (Shefrin & Statman, 1985). While this phenomenon has been consistently prevalent in stock markets, it is amplified in crypto where there are no reliable metrics to estimate value. Schatzmann and Haslhofer (2023) demonstrate a strong disposition effect in Ethereum investors by examining actual on-chain wallet transaction data. They argue that investors tend to cling to loss-making assets with the hope of a rebound, suggesting that this behavior persists even when transaction data is completely transparent.

Another bias common to both is overconfidence bias. In traditional markets, Barber and Odean (2000) demonstrate how overconfident traders earn lower returns than expected because of excessive trading. In crypto, this tendency is not only observable, it is glorified. The participatory culture on platforms like Reddit, X (Twitter), and Telegram encourages self-attribution of success and public declarations of market timing prowess. The social validation cycle perpetuates overconfidence and turns it from an individual level characteristic to an entire network or community-based phenomenon.

Verousis and Ballis (2021) provide an interesting synthesis of how investor sentiment, momentum, and herding in the context of crypto go beyond the patterns seen in equity or bond markets. He notes that herding behavior and sentiment-based mispricing are more discernible, more durably entrenched, and stable across cryptocurrency assets compared to factors seen in traditional markets that are not easily arbitraged away. This is meaningful because instead of ultimately dissipating as rational arbitrageurs enter the market, like in traditional markets, persistent mispricing in the context of behavioral effects can be prolonged in crypto markets.

This persistence may partly be explained by Lo’s (2004) Adaptive Markets Hypothesis (AMH), which posits that market rationality is context-dependent and evolves based on environmental pressures. In traditional markets, the evolutionary nature of adaptation has yielded aggregate mechanisms, such as algorithmic trading, institutional research, and regulatory oversight to mitigate inherently irrational behavior collectively. In cryptocurrencies, adaptation appears to have manifested in a different form: as

narratives, memes, and other social cues, taking the place of fundamentals. The AMH provides a useful theoretical construct: investor irrationality in crypto may be the most adaptive response to a highly volatile, unregulated, and information-poor environment; it is all the more rational to be irrational. As Lo argues, markets are not always efficient, but they are competitive and adaptive and that individuals will behave rationally, but only within the context of their experience and environment.

A further relevant comparison occurs in the domain of anchoring and representativeness. In equity markets, for example, we have analyst research estimates, P/E multiples, and historical earnings to effectuate our anchors on valuation levels. Crypto markets lack these elements. Instead, irrational anchor points are often represented by previous all-time-highs (ATH) in price or successful celebrity endorsements. Verousis and Ballis (2021) draw attention to the fact that many investors anchor based on prior peaks and ATHs, regardless of any material change in project fundamentals or even macroeconomic factors. This makes boom-bust cycles possible as price increases lead to ever-increasing price highs that investors extrapolated way beyond rational values, as well as when price drops in which downturns can be historically large, as a result of panic selling related to project narrative collapses.

The influence of social contagion also impacts both domains differently. Conventional asset classes are affected by mainstream media coverage and institutional consensus, whereas crypto market are goaded by the decentralized and instantaneous propagation of sentiment. Beliefs transmitted through social networks can persist and amplify errors, creating collective misperceptions that become self-reinforcing. The aforementioned dynamics are most visible during speculative surges— such as the meme coin surge of 2021 or the NFT explosion—where investor behavior considerably mirrors epidemiological models of contagion.

Crucially, the heterogeneity of investor types also contributes to differences in behavioral intensity. Stock markets are dominated by institutions whose incentives, risk frameworks, and access to information provide natural stabilizers. However, crypto markets are filled with market participants that are predominantly retail. In a study involving 1,086 retail wallets, Huang and Tanaka (2022) find that retail behavior reflects stronger manifestations of all of the salient behavioral biases—overconfidence, disposition, mental accounting—than algorithmic trading bot behavior which reflect relatively stable patterns.

This flows through to sentiment-based trading too, as the dissimilarity is more heightened. In traditional equity markets, there are some price responses to sentiment indices (Baker & Wurgler, 2007), but cryptocurrencies are noticeably more sensitive to sentiment. Yadav (2024) finds that crypto returns are congruent with her novel Prospect Theory Value (PTV) model, which incorporates cognitive distortions into asset pricing. In a market where fundamentals are sparse, sentiment doesn't just influence pricing—it defines it.

One could argue that it is the greater volatility of crypto that explains its behavioral characteristics. However, the directionality is more complex. It is not just that crypto is volatile—its volatility is driven by behavioral mechanisms and amplified by structural opacity (Corbet et al., 2019). These authors suggest that crypto's design as a decentralized, narrative-driven, attention economy creates a feedback loop wherein behavioral signals act as both cause and consequence of volatility.

To be clear, this is not to say that behavioral abnormalities do not exist in traditional markets or environments. There is certainly herding, overconfidence, and sentiment-driven price distortions observable in the 2008 housing bubble and 2021 GameStop short squeeze. However, these exceptional events exist in systems governed by valuation frameworks. In other words, although there are behavioral anomalies in traditional markets, these are the exception rather than the rule. In crypto, behavioral anomalies are the rule, as opposed to traditional markets (Hidajat, 2019).

Finally, the relationship between time horizon and behavior is worth noting. For example, in equities, if one owns an equity for the long-term, the price may eventually align with the fundamentals on the basis of dividend flows or changes in earnings expectations. There simply is no dividend or earnings mechanism in crypto; the investor may be more subject to the noise over short-term periods, especially as there may be no disconfirming information. To support this position, Gemmill and Thomas (2002) argued that noise trading could dominate price behavior when arbitrage is limited and/or there were no fundamental rational signals. Crypto markets, by this definition, are ideal environments for noise to thrive.

In short, behavioral biases exist in both traditional and crypto markets, but the extent, persistence, and systematic integration of those biases in crypto is considerably greater. This chapter has demonstrated how crypto does not just amplify investor biases; it operationalizes them into its market architecture. It is this behavioral embeddedness that supports the central argument of this thesis; cryptocurrency is not just a speculative asset class, but a behavior-driven asset class.

3.3 Beyond Behavior: Structural and Fundamental Price Determinants of Crypto Assets

While behavioral explanations dominate the discourse about price formation, it is important to examine structural or non-behavioral factors that have a substantial effect on crypto price formation. These include tokenomic architectures, technology fundamentals, state regulation, macroeconomic linkages and liquidity structures. To ignore these factors would run the risk of overstating the explanatory power investor psychology. While this dissertation concludes that behavioral dynamics represent the preeminent forces within the constellation of crypto-asset value, these countervailing forces represent the necessary context to assess the thresholds and limits of the behavior-driven asset class thesis.

One of the most direct influences on cryptocurrency prices that are not behaviorally based involves tokenomics, or the economic structures that are encoded into a coin's protocol (the supply and distribution restrictions and inflationary or deflationary mechanisms). The fixed supply of 21 million coins in Bitcoin is often the most referenced feature of its tokenomics. The scheduled halving of new Bitcoin issuance every four years limits new supply, creates a predictable scarcity model that is conceptually analogous to deflationary commodities (gold, silver, etc). As Li and Wang (2017) point out, Bitcoin’s built-in scarcity mechanism encourages hoarding and reduces velocity, which can lead to upward price pressure when demand spikes. Therefore, scarcity is not only a psychological narrative, but a structural feature of the coin. In addition, tokens that have built-in burning mechanisms, or proof-of-stake protocols (as is the case for Ethereum post-Merge) introduce other supply decrease mechanisms, affecting long-term price trajectories in more algorithmic than emotional ways.

These supply-side fundamentals interact with utility-driven demand. A token’s value often reflects the scope of its use cases within its native blockchain ecosystem. Ethereum benefits from its role as a smart contract facilitator and as a staking asset used in DeFi platforms. Measures, especially activity indicators like daily active users, transaction fees, and decentralized application (dApp) deployments, have been increasingly integrated into valuation models, even if their predictive power remains limited when compared to sentiment-based factors.

Network effects are often justified by Metcalfe's Law, claiming the value of a network is the square of its users. As a heuristic, Metcalfe's Law is appealing though often it makes reality out to be much simpler than it is. Verousis and Ballis (2021) argue that the marginal value of each new user diminishes over time and cannot be divorced from the context of investor expectations and media amplification. In summary, while growth in users is important, it does not assure increasing prices unless the behavioral dynamics of the ecosystem and media story translate into enthusiasm.

Along with usage measures, protocol progress and technical advancement affects price. Projects that demonstrate a credible protocol roadmap with an active developer community and active upgrades often generate interest in both users and investors. Ethereum's shift to proof-of-stake and upcoming scaling through sharding are attempts to resolve historical problems of high transaction fees and limited throughput. As Nguyen et al. (2023) emphasize, protocol improvements create anticipatory demand, even before technical gains materialize, underscoring the hybrid nature of crypto valuation, where narrative often prefigures realized value.

Another, often understated, but also significant consideration is macroeconomic sensitivity. Although crypto currencies are often considered as hedges against inflation or fiat devaluation, they have exhibited varying levels of correlation with macro variables. Kyriazis et al. (2023) demonstrate that Bitcoin and Ethereum show modest but statistically significant reactions to U.S. Federal Reserve announcements, especially during periods of heightened monetary policy uncertainty. These findings challenge the belief that crypto is insulated from fiat monetary policy. Instead, they reveal that investor behavior is at least partly responsive to broader economic signals, especially when framed through the lens of risk-on/risk-off dynamics in global markets.

In situations of inflationary environments, particularly the developing world, utility-driven demand to buy into the crypto currencies is born. In these cases, crypto currency does not look like a speculative asset, but a mechanism of capital preservation. Users in countries with currency controls and high inflation are more likely to adopt Bitcoin for remittance and savings purposes, highlighting the complex role that geography and fiscal policy play in price formation (Alnasaa et al., 2022). Therefore, political and regional economic factors, play a significant role, and will always have an impact in their own contingent way.

For example, a heavily structural, yet often omitted dimension in behavioral accounts is regulation; another example of complexity in the crypto narrative. Regulatory announcements—from total bans on mining in China to legal approval of ETFs in the U.S.—often have immediate and outsized impacts on prices. Kyriazis et al. (2023) emphasize that policy shocks induce asymmetric price responses, revealing the latent fragility of speculative expectations. The fear of hostile regulation and hope for institutional legitimacy have been emergent themes in price formation. Jurisdictional risk issues complicate valuation even further with periods of regulatory variance.

Market sophistication, operational integrity, and liquidity depth also impact prices. The cryptocurrency exchange ecosystem is distributed between centralized and decentralized exchanges, some with vastly different levels of liquidity, transparency, and operational integrity. Thin order books (and slippage, often observed in decentralized exchanges) generate price volatility and degrade pricing efficiency. Li and Wang (2017) make clear that price discrepancies between exchanges persist longer than traditional finance as additional frictions (withdrawal fees, network latency, and capital controls) impact arbitrage efficiency and optimal market stabilization during rapid price changes.

In addition, leverage—often compounded through futures and perpetual contracts—exacerbates the price movements. Liquidation cascades (the forced closure of leveraged positions while prices move quickly) can generate wholly independent feedback loops regardless of investor psychology. While these

mechanisms may be actioned behaviorally, their structural characteristics are algorithmic and rule-based building blocks that materially contribute to volatility.

Finally, as Li and Wang (2017) highlight, all of the determinants above are multi-dimensional, and include supply-demand mechanics, technological capacity, degree of institutional engagement, and exogenous shocks. Their analysis does not indicate a single variable dominates across different time horizons; they take a composite view incorporating both rational and non-rational behavior. This is aligned with the broad thesis of this dissertation, that rational/technical factors are necessary but insufficient conditions for making sense of crypto price changes.

In sum, while this project argues that behavioral biases and social narratives are the dominant pricing forces in cryptocurrencies, they operate alongside and in interaction with a suite of structural determinants. These factors—tokenomics, protocol innovation, regulatory shifts, macroeconomic trends, and liquidity dynamics—form a complex substrate that both enables and constrains behavioral expressions. Understanding the weight and interplay of these variables helps establish a clearer boundary between when price is driven by emotion and when it reflects substantive changes in crypto's evolving technological and financial ecosystem.

3.4 Adaptive Markets and the Rationality of Seeming Irrationality

While behavioral finance has offered a potent critique of the assumptions of rationality in classical models, it has also laid the groundwork for more integrative frameworks that do not bifurcate rationality and irrationality and occupy the more nebulous ground towards the middle. One such framework is Andrew Lo's Adaptive Markets Hypothesis (AMH), which posits that rather than behaving in a manner that is either perfectly rational or irrational, market participants are adaptive, responding to the environment and evolutionary pressures, and acting in accordance.

Lo (2004) posited AMH as a way of reconciling efficient market theory and behavioral finance. Rather than assume static, utility-maximizing agents, AMH conceives of investors as boundedly rational actors who learn, heuristically apply judgement, and respond to a dynamically changing market environment. Markets are not always efficient but they are competitive and adaptive, and over time this can result in behaviors that mimic rationality.

Lo's framing of the Adaptive Market Hypothesis is particularly salient when examining cryptocurrency markets characterized by extreme volatility, nascent infrastructure, opaque fundamentals, and social media-induced sentiment in an environment of perpetual adaptation. In an environment such as this, much of the "biases" that are invoked in the behavioral finance context may well constitute rational behavior under conditions of uncertainty and risk. As Lo (2004) argues seemingly irrational behaviors may actually be optimal strategies in an evolving market ecosystem.

One of the core insights from AMH is that investor behavior changes in response to risk and reward environments. In situations of high uncertainty and lacking institutional anchors, as is generally the case in cryptocurrency contexts, investors tend to default to heuristics, and even mimicry and social proof. Bouri et al. (2019) support this through their research, revealing that herding and overconfidence are behavioral

tendencies that surge during crypto bubbles, especially when structural anchors are absent, and recede back to lower levels after crashes, which forces traders to recalibrate their assumptions.

This suggests that what appears as irrational may simply be a form of bounded rationality appropriate to the conditions of the crypto environment. The assumption of the behavior-driven asset class remains valid, but must be nuanced: it is not that irrationality uniquely defines crypto, but that adaptive cognitive shortcuts dominate when structural uncertainties overwhelm formal analysis.

AMH can also explain the cyclical nature of crypto sentiment and behavior. During a prolonged bull run, participants make linear assumptions on returns, and exhorted by the euphoria of the market, they exhibit overconfidence and herding. When crashes occur, strategies are discarded, and investors engage in loss aversion and cautious recalibration. This cyclical engagement and disengagement reflects adaptive learning rather than purely irrational trading, especially among retail participants who adjust their exposure based on recent outcomes.

Importantly, AMH provides an important theoretical link between behavioral biases and traditional market dynamics. Instead of discarding the EMH, it places it into context: in well-developed, stable markets where information is clear and well-known, and institutions are trusted, behavior will likely lead to outcomes that approximate EMH predictions. But in emerging, speculative spaces like cryptocurrency, behavioral tendencies dominate because they offer a viable—if imperfect—means of navigating complexity.

This evolutionary perspective also has implications for regulatory and investor education efforts. Instead of simply identifying biases and encouraging their correction, institutions should consider how the underlying means of the market structure, such as gamified platforms, influencer culture, and a lack of transparency, shape the adaptive responses of participants. Moore and Ljungkvist (2022) acknowledge how considerably platform design is capable of shifting risk preferences, leading to investments being treated as a behaviorally reinforcing game. In such a context, AMH would argue for interventions that modify the environment, not just the behavior, in order to foster more stable and informed trading ecosystems.

The AMH also provides a rationale for why sophisticated institutional investors enter the crypto-space (with caution as well as high-risk hedging strategies). According to Ritter (2003), inn markets where traditional valuation metrics are inapplicable, the role of adaptive heuristics becomes more pronounced, even among professionals. Thus, even as institutions demand greater transparency and governance, they too must adapt to a world of decentralized networks and rapid innovation.

To conclude, the Adaptive Markets Hypothesis is useful in order to interpret the interplay of behavioral tendencies and structural uncertainty within emergent crypto markets. It does not refute the notion that cryptocurrencies are predominantly behavioral; rather, it deepens it by indicating that such behavior could still be regarded as an adaptive approach, a context-appropriate strategy. This integrative framework allows us to reconcile episodes of seeming irrationality with broader patterns of investor learning and evolution, and to refine our understanding of what rationality means in modern financial contexts.

3.5 Summary of Findings

Comparing traditional assets with cryptocurrencies has highlighted an important difference. Traditional financial assets are largely based on concrete fundamentals—such as earnings, dividends, and cash flows. Cryptocurrencies are more profoundly shaped by sentiment, social amplification, and psychological biases. As illustrated in Chapter 3.3, established valuation models of finance (such as the Capital Asset Pricing Model (CAPM) and discounted cash flow (DCF) analysis are premised on a rational pricing environment based on measurable inputs. Yet, it is worth noting that these valuation models are fundamentally limited in the context of crypto since prices do not remain tethered to measurable fundamentals; rather, prices are driven by a multitude of feedback loops, investor narratives, and crowd behaviors.

In exploring Section 3.4, while technical factors such as mining costs, hash rates, and transaction volumes play a role in pricing crypto assets (Li and Wang, 2017), they are often overwhelmed by behavioral signals, which are not inconsistent enablers, but more the prevailing influencing factors. Notably, as Cheah and Fry (2015) have indicated, Bitcoin shows significant deviation from a rational valuation model, so traditional valuation models have either to be adapted or fully replaced in the crypto space.

This divergence has important implications for regulatory design. Unlike mature financial markets where price integrity is maintained through structured disclosures and institutional actors, crypto markets remain retail-dominated and highly susceptible to manipulation via sentiment, misinformation, or platform design. Similar to the findings of Moore and Ljungkvist (2022), the gamified structure of crypto exchange platforms might have the potential to foster compulsive risk taking and thereby necessitating regulatory responses tailored to behavioral risks rather than just financial misconduct.

Also considering that the crypto market unfolds in an almost evolutionary fashion—covered within Section 3.5—regulators and theorists of valuation could take cues from Lo's Adaptive Markets Hypothesis (2004). If behavioral biases are not irrationalities in a traditional context, but rather contextual heuristics, then regulation and valuation should remain grounded in a state of successive adaptation and data-based reflection.

Ultimately, treating crypto as a behaviorally driven and structurally distinct asset class challenges us to rethink valuation and governance in light of how markets behave—not how theory expects them to.

4. Conclusion

4.1 Theoretical and Practical Implications

Reframing cryptocurrencies as behavior-driven assets reshapes base assumptions relating to pricing, risk, and behaviors of investors. Traditional financial assets rely on models that base asset valuation primarily on cash flows, rate of return, interest rates, or risk-adjusted returns. For cryptocurrencies, much of the value is instead driven through belief-based processes, narrative contagion, and emotional value. The implications of this distinction ripple across financial theory and investment practice, challenging the sufficiency of classical and even behavioral finance frameworks in isolation.

Traditional models like the Capital Asset Pricing Model (CAPM) and Efficient Market Hypothesis (EMH) are predicated on investor rationality and informational symmetry. However, as demonstrated throughout this dissertation, the crypto markets operate in conditions of extreme information asymmetries, decentralized hype cycles, and unanchored for valuation. Consequently, the empirical behavior of these assets defies the predictive power of fundamental analysis, since price formation in cryptocurrency markets shows limited responsiveness to macroeconomic variables, suggesting a dominant role for non-fundamental factors.

This decoupling from fundamentals necessitates a shift in theoretical lens. The Adaptive Markets Hypothesis (Lo, 2004), which blends principles from behavioral finance and evolutionary theory, offers a promising alternative. The hypothesis does not claim that markets will always be efficient, however, that the markets adapt to emerging conditions and participant learning. In the context of crypto, that adaption may take the form of market participants rationally relying on heuristics, sentiment cues, etc., because of the market's speed, opacity, and volatility. Hence, irrational behavior in classical terms may in fact be optimal in crypto's high-entropy environment.

The theoretical insights discussed here have significant practical implications. First, they caution against uncritically applying the valuation approaches that are popular among equity, fixed income, and commodity assets. For example, as Li and Wang (2017) demonstrated in their analysis of Bitcoin price drivers, not even technical indicators, such as mining difficulty or block size adjustments can explain more than a small portion of medium-term price changes. Rather, price is most readily understood as a function of factors including media attention, investor sentiment, and trading volume—all of which are socially and behaviorally influenced variables.

Second, the categorization of crypto as a behavior-driven asset has implications for how portfolio managers might strategize when investing. For instance, diversification principles, risk management heuristics and rebalancing models will need to consider non-normal distributions of return and frequently diverging from economic events. This presents challenges for various institutions attempting to integrate cryptocurrencies into their portfolios, particularly institutions that attempt to rely on Modern Portfolio Theory assumptions that returns have some degree of risk-reward symmetry and price discovery is mostly efficient and reliable.

Third, cryptocurrencies have regulatory and policy implications. Traditional financial regulatory mechanisms rely on existing funding structures, including disclosures, fundamentals, and/or liquidity

constraints to allow markets to stabilize—none of which apply substantially to the crypto space. Yadav (2024) pointed out that the clustering of behavioral biases in high volatility phases in crypto prompts self-reinforcing bubbles and coordinated drawdowns. This calls for regulatory frameworks that not only protect investors from fraud, but also recognize the structural predisposition of the market toward sentiment-driven overreactions.

Finally, these findings have implications for investor education and market expectations. If we understand cryptocurrencies as behavior-driven instruments, then stakeholders in the market—affecting specifically retail traders—need to be educated on the ways that narrative contagion, anchoring, herding, and other biases influence their engagement with cryptocurrencies. More so than risk management, that means actively reconstructing ways investors think and the expectations they have. Investors are mostly expected to refer to valuation multiples or lean on balance sheet analysis; performance in the crypto phase instituting new behaviors and following community sentiment, platform credibility, and memetic stickiness.

In conclusion, the theoretical and practical implications would be far-reaching. Cryptocurrencies represent not just a new asset class but a new valuation paradigm—one in which belief precedes fundamentals, social energy precedes rationality, and behavior forms the basis of price. Acknowledging this not only reframes academic inquiry but reshapes how markets, investors, and institutions approach this volatile and rapidly evolving financial frontier.

4.2 Limitations and Caveats of the Behavioral Finance Approach

Although behavioral finance provides important insights into the functioning of the crypto market, potential obstacles remain for using it effectively. Behavioral finance can explain many anomalies and patterns of behavior we see in the market, however, behavioral finance, as we shall see, has methodological limitations, data limitations, and theoretical shortcomings that should be scrutinized. Moreover, these limitations are exacerbated when attempting to decipher whether we are observing rational adaptations to market environments or actual behavioral biases.

Certainly, one of the major limitations is the difficulty of empirical verification of behavioral theories. A huge number of behavioral biases (e.g. overconfidence, anchoring, herd behavior) are only inferred post hoc from a price movement but are rarely measured in any systematic or controlled way. As Ritter (2003) acknowledges, although the patterns look as if they reflect irrationality, the connection to a specific psychological phenomenon is usually not direct and mostly speculative and retrospective. Each of these issues increases the potential for confirmation bias in scholarly work where the scholar may pick and choose behaviors on the market which best fit the cognitive explanation they began with.

Additionally, in contexts like the crypto markets which are new, incredibly volatile, and structurally different from traditional capital markets, there has to be considerations as to the external validity of the findings. For example, illiquidity, thin order books, algorithmic trading, and 24/7 market operations could all account for the extreme price movements often attributed to behavioral biases.

Moreover, problems may arise within the conception (or generalization) from small and/or highly contextual cases provided in case studies. The 2017 Bitcoin mania and 2022 Terra collapse provide illustrative episodes, but it is unclear if they represent long-term structural processes. Verousis and Ballis

(2021) point out this problem, indicating that many behavioral studies on crypto markets are limited by time and data, concentrating solely on episodes of extreme volatility. This narrow empirical foundation weakens claims that cryptocurrencies inherently represent a behavior-driven asset class.

Another considerable problem is the underdeveloped integration of behavioral theories with economic fundamentals or with technological drivers. While heuristics and sentiment explain price movements at a moment in time, it is nevertheless reasonable to expect that longer-term valuation will also depend on user adoption, evolving technologies, and regulatory developments. Cheah and Fry (2015), although primarily concerned with speculative bubbles, caution against overemphasizing irrationality, noting that rational speculation in the presence of noise may still account for persistent price distortions.

Also, there are some epistemological problems regarding normative assumptions in behavioral finance. The assumption that divergence from classical rationality is a flaw/deficiency is prevalent in much of the literature. An alternative perspective is offered in Lo's Adaptive Markets Hypothesis (2004). It is asserted that behaviors which appear to be irrational in stable environments can in fact be adaptive behavior in uncertain fast-moving markets. The behaviors manifested in crypto markets, such as frequent trading, momentum-trading, and over-reacting may be interpreted to be adaptive behavior within uncertain problematic informational environments than psychological distortions.

Data scarcity and reliability also creates obstacles to adequately analyzing behavior. Crypto markets do not have fully regulated and government approved disclosure, reporting and accounting frameworks like traditional markets. Remoteness, obscurity, anonymity and lack of oversight support a predominately opaque reporting environment. In crypto markets we cannot expect to access the reliable and high frequency data that underpin traditional markets. In these circumstances it is not possible to disentangle behavioral drivers from fundamental developments. In Li and Wang's (2017) paper the lack of fundamental indicators like earnings, cash flows or dividends in crypto markets makes causal inference difficult and invites behavioral interpretation by default.

Furthermore, regulatory changes and market manipulation make potential significant confounds. Sharp price movements are sometimes less about sentiment or bias and more about structural shocks—such as exchange hacks, regulatory crackdowns, or insider activity. As Verousis and Ballis (2021) observes that analyses often conflate behavioral signals with manipulation-induced volatility, thereby overestimating the explanatory power of psychology.

Finally, behavioral finance often lacks clarity with regard to predictive behavior. It can describe market outcomes, but cannot forecast robustly. Many biases are contingent upon the context and will fluctuate their impact in time and across market regimes. Shiller (2019) writes that the "narrative" model explains past boom and busts; however, this "narrative" does not assist in determining how the current story will prompt a tipping point towards unsustainable euphoria, or panic and reversal.

In conclusion, while the behavioral lens has proven immensely valuable in demystifying the speculative nature of cryptocurrencies, it should not be treated as a comprehensive or exclusive explanation. Future research would benefit from integrating behavioral insights with adaptive frameworks, robust empirical methods, and interdisciplinary approaches that account for structural and technological complexities. Only through such a synthesis can we move beyond anecdotal interpretations toward a fuller understanding of crypto's valuation dynamics.

4.3 Future Research Directions and Recommendations

As this dissertation has shown, the cryptocurrency market is a distinctive structure and psychological environment that defies much of classical finance theory. Behavioral biases such as overconfidence, loss aversion, anchoring and herding seem not just common, but a base in pricing dynamics. Social finance, narrative economics, and gamified trading environments further compound the role of sentiment over fundamentals. However, despite this growing understanding, substantial gaps remain in the literature and methodologies applied. The final chapter provides the higher priority future research directions and methods that would increase our understanding of cryptocurrencies as behaviorally driven financial assets.

1. Cross-Asset Comparative Behavioral Analysis

There is a continuing need for research that systematically compares the prevalence and expression of behavioral biases in cryptocurrency markets versus traditional asset classes. While this dissertation touched upon key differences, future studies could empirically test the magnitude of biases like disposition effect or mental accounting across asset types. For instance, experimental simulation using retail and institutional investors will be able to produce quantifiable measures of the relative cognitive burden and reliance on heuristics associated with trading of stocks, bonds, and cryptocurrencies under a variety of volatility and information asymmetry conditions. This would allow a clearer determination of the normal level of behavioral influence in a market; allowing us to determine if cryptocurrencies are indeed anomalous in their behavior relative to traditional asset classes, or the level of those differences are more modest.

2. The Adaptive Markets Hypothesis (AMH) and Crypto Volatility

A further promising area is investigating Lo's Adaptive Markets Hypothesis in respect to cryptocurrency trading. The AMH proposes that markets are not just rational or irrational in a rigid dichotomy, but that market rationality evolves in markets based on the context they are operating in, competitive pressures, and the degree to which they are able to adapt in resolution to given conditions. Future research could examine the extent to which what are colloquially called "irrational" behaviors in crypto—momentum chasing, speculative bandwagoning, etc.—are actually adaptive behaviors to a new and rapidly changing environment. Longitudinal studies which follow how investor behaviors change during bull and bear cycles, the introduction of new tokens, or the aftermath of regulatory interventions would provide empirical basis for the AMH's relevance in decentralized digital markets.

3. Underexplored Behavioral Dynamics in Emerging Crypto Segments

While Bitcoin and Ethereum have received a lot of attention, newer segments of the crypto ecosystem—such as DeFi platforms, DAOs (Decentralized Autonomous Organizations), and NFTs—are still under-theorized in terms of behavioral finance concepts. These new instruments present new forms of user engagement, governance incentives, and social identity creation possibilities with likely new biases or new iterations of old biases. For instance, studies could explore how "community staking rewards" drive investor inertia, or if DAO voting mechanisms amplify or minimize groupthink.

4. Incorporating Cultural and Geographic Dimensions

Behavioral expression in crypto markets is potentially dependent on cultural or national context. For example, crypto may be viewed as a substitute for money in countries undergoing hyperinflation, or under capital controls, or without access to global financial markets; all of which may modulate speculative behavior. Future studies could provide comparisons of behavioral patterns across regions where motivations

for adoption diverge, such as: East Asia, Sub-Saharan Africa, and Latin America. Ethnographic fieldwork, survey research, and data analytics of regional trading platforms may reveal the manner in which local financial histories establish heuristics, trust formation, and narrative market structure.

5. Enhancing Methodological Rigor

There is also an opportunity to improve upon methodology and tools for capturing sentiment, bias, and contagion as part of the efforts to assess the behavior of cryptocurrency market participants. The majority of behavior-driven studies in cryptocurrency rely on make-shift proxies, including data scraped from Google Trends, Twitter sentiment or trading volume. While these resources are useful proxies their quality is quite crude, context sensitive, and inferior to more sophisticated techniques such as Natural Language Processing (NLP) to analyze text and discourse online conducted by participants, and biometric data to measure stress levels or responses while trading and investing. By combining blockchain analytics with behavioral economics, for instance, researchers could assess how individual wallet addresses behaved under different market stimuli, which would provide insights into concrete patterns of cognitive behavior.

6. Refining the Role of Alternative Price Determinants

As noted throughout the dissertation, the behavioral drivers of market participants are important dimensions to understand, however, they exist alongside technical and economic drivers including mining difficulties, token supply specifics, and macroeconomic correlates. Future work should examine not only how the relative weight of these factors may be quantified, but how they may interact with one another. What is the effect of increasing mining difficulty on investor sentiment? How do macro shocks (such as increases in interest rates) moderate or accentuate the behavioral volatility exhibited within crypto markets?

7. Policy and Regulatory Implications

Behavioral studies should also inform policy debates. If market manipulation, herd dynamics, and reflexive contagion are likely more pronounced within cryptocurrency (as it pertains to behavioral finance), then this means that we need to rethink investor protection mechanisms. Furthermore, regulatory agencies could benefit from employing behavioral research insights into disclosure requirements, trade restrictions, or financial literacy campaigns such as including warning labels on high-volatility tokens and limiting leverage for retail traders could mimic public health approaches focused on reducing harmful behaviors and outcomes from addiction.

8. Longitudinal Tracking of Behavioral Change

Finally, future research should also be concerned with how behaviors may change over time, and how cryptocurrency markets mature. As crypto becomes more institutionalized, do investors become more rational? Or do some new forms of irrationality emerge in the wake of each new innovation (such as meme coins, or AI tokens)? These important questions can only be effectively explored through long-term and repeated research. This can also help determine whether perceived behavioral anomalies are disappearing qualities of an immature industry, or persistent qualities of a new approach to finance.

4.4 Final Reflections

The goal of this dissertation has been to establish that cryptocurrencies represent a behavior-driven asset class based on their structural, psychological and narrative characteristics. Unlike traditional financial securities that are anchored by intrinsic value indicators like cash flows, dividends or macroeconomic signals, it can be argued that most cryptocurrencies' valuation arises from feedback loops based on sentiment, collective belief and psychological bias. This presents distinct implications for current academic finance and also for practical investment strategies.

From a theoretical perspective, the rise of crypto markets challenges the continued dominance of the Efficient Markets Hypothesis (EMH) and underscores the need for expanded behavioral models. The literature reviewed has consistently shown that biases such as overconfidence, loss aversion, anchoring, and herd behavior not only exist in crypto markets but operate at magnified intensities due to their structure—24/7 trading, retail investor dominance, and social media-driven discourse. The findings of Hidajat (2019), for instance, emphasize that Bitcoin returns exhibit clear behavioral dependencies across time, with past price extremes and online attention acting as strong explanatory variables. This pattern of psychological pricing is not merely a deviation from rationality but may, as Andrew Lo's Adaptive Markets Hypothesis suggests, represent an evolved response to environments characterized by uncertainty, novelty, and volatility.

The prior comparative analysis has also demonstrated that traditional financial assets such as equities or bonds are also affected by behavioral biases, but they are inherently linked to objective fundamentals. Even through moments of irrational exuberance or panic, the conventional underlying pricing frameworks of traditional asset valuations (such as earnings reports and interest rate pricing) act as gravitational anchors that pull prices back to equilibrium levels. Conversely, because crypto prices are based largely in unanchored space, they are much more vulnerable to behavioral distortions and narrative economics. As Shiller (2019) reminds us, financial tales and collective excitement are critical when the demand for an asset cannot successfully utilize measurable frameworks, and this is especially true in crypto, where virally disseminated slogans about investment compel investor behaviors far more than any technical or fundamental indicator.

The case studies throughout this dissertation—from the Bitcoin bull run of 2017 to the collapses of Terra and FTX—show the brittle nature of market structures that are largely constructed from sentiment and trust, but at the same time also demonstrate the persistent nature of crypto belief systems and ability to recreate narratives rapidly after major failures. The implosion of TerraUSD's peg, despite the known risks in algorithmic stability mechanisms, was preceded by investor behavior more consistent with social validation than risk assessment (Li and Wang, 2017). Similarly, the aura of credibility constructed around Sam Bankman-Fried and the FTX platform, despite increasingly opaque internal operations, reflects the extent to which image and trust can serve as temporary substitutes for transparency and solvency.

Regarding the public policy and investor protection aspects, there are implications. The new regulatory paradigm cannot be beholden to traditional regulatory assumptions about markets. The assumption of self-correcting markets and rational actors, as argued by Huang and Tanaka (2022) and others, clearly do not apply to crypto assets. Here we suggest there is an urgent need for a regulatory paradigm that recognizes the behavioral foundations of crypto markets in regulating these assets, and considers insights from psychology, sociology, and media studies (not just from conventional law and economics).

Moreover, the contemporary analysis of alternative determinants of prices (hash rate, network activity, scarcity, supply/demand, macro-economic information) indicate that while these factors contribute to valuation, they are often overridden or distorted by psychological factors. As shown by Cheah and Fry (2015), Bitcoin prices are prone to exhibiting explosive dynamics disconnected from fundamental utility or technological improvement. Even when technical innovations occur, their influence on price is often delayed or mediated through speculative channels rather than direct utility-based valuation.

In conclusion, cryptocurrencies provide a paradigm shift in the way value is assigned in financial markets. They suggest that conjecturally, depending on the context, behavioral forces could develop from a distraction/peripheral anomaly into a core pricing force in the market, where the participants have no fundamental information, experience intense volatility, and are socially interconnected. This insight necessitates a broader conception of asset classes and a re-evaluation of financial theory's core assumptions.

The behavioral lens also provides strategic insights for investors. It implies that success in crypto markets may depend less on analytical skill and more on narrative positioning, timing social sentiment, and managing one's own cognitive biases. As such, the investor's psychological discipline and media literacy may become as important as financial literacy in this evolving domain.

As crypto continues to mature and potentially integrate more with institutional finance, it remains to be seen whether the dominance of behavioral forces will recede or simply evolve in form. Regardless, the need for continued research into the behavioral aspects of the functioning of emerging financial technologies remains vital—not only to understand their present but to anticipate their future.

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