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THE ABILENE PARADOX AND COLLECTIVE IRRATIONALITY IN CRYPTOCURRENCY MARKETS: A SOCIAL MEDIA SENTIMENT ANALYSIS

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ABSTRACT

Purpose- This study investigates the manifestation of the Abilene Paradox within the context of collective irrational behavior in cryptocurrency markets, utilizing social media data for sentiment analysis. The Abilene Paradox describes a phenomenon where a group collectively decides on a course of action that is contrary to the preferences of most or all individuals, as each mistakenly believes it aligns with the desires of others. In the highly community-driven cryptocurrency market, this paradox can exacerbate herd behavior and the Fear of Missing Out (FOMO), leading to significant market volatility.

Methodology- Through sentiment analysis of discussions on social media platforms (e.g., Twitter, Reddit) concerning specific cryptocurrencies (e.g., Meme Coins), this research explores how community sentiment influences market behavior and price movements.

Findings- The study considers the impact of community variables (e.g., community size, opinion leader influence), sentiment variables (e.g., positive/negative sentiment indices, sentiment polarization), and market variables (e.g., trading volume, price volatility) on collective irrational behavior.

Conclusion- It aims to establish a generalized model explaining the relationship between social media sentiment and market behavior. The findings will contribute to understanding the behavioral economics characteristics of cryptocurrency markets and offer new perspectives for investors and regulators.

Keywords: Abilene Paradox, misperceived consensus, social media sentiment, meme coins, volatility.
JEL Codes: G41, G14, C58

1. INTRODUCTION

The advent of cryptocurrencies has ushered in a new era of financial markets, characterized by decentralization, rapid innovation, and unprecedented volatility. Unlike traditional financial assets, cryptocurrencies often derive their value and momentum from strong, often online, communities. These communities, fostered on platforms such as Twitter (now X), Reddit, and Telegram, play a pivotal role in shaping market narratives, influencing investor sentiment, and ultimately driving price dynamics (Chen & Chang, 2020). The unique interplay between technology, finance, and social psychology in this nascent market presents a fertile ground for exploring behavioral phenomena that deviate from classical economic rationality.

One such phenomenon, the Abilene Paradox, offers a compelling lens through which to examine collective irrationality in cryptocurrency markets. Coined by Jerry B. Harvey (1974), the Abilene Paradox describes a situation where a group of people embark on a course of action that no individual member desires, yet all agree with because each mistakenly believes it is what the others want. This breakdown in group communication and agreement management, driven by a fear of conflict or a misperception of collective will, can lead to suboptimal or even detrimental outcomes. In the context of highly speculative and socially driven markets like cryptocurrencies, the Abilene Paradox could manifest as widespread participation in investment trends that individual investors might privately doubt but publicly endorse due to perceived community consensus or the fear of being left out (FOMO).

Previous research in behavioral finance has extensively documented various forms of irrational behavior in traditional financial markets, including herding, overconfidence, and disposition effects (Shiller, 2015). With the rise of social media, sentiment analysis has emerged as a powerful tool to gauge collective mood and predict market movements, demonstrating its utility across various asset classes (Bollen, Mao, & Zeng, 2011). However, the application of the Abilene Paradox

specifically to cryptocurrency markets, particularly through the rigorous analysis of social media sentiment, remains an underexplored area. While studies have touched upon herding behavior and FOMO in crypto (Poyser, 2018; Anaza et al., 2024), a direct link to the Abilene Paradox, which emphasizes a mismanaged agreement rather than a mere following of the crowd, offers a nuanced perspective.

This study aims to bridge this research gap by investigating the manifestation of the Abilene Paradox in cryptocurrency markets, specifically focusing on how social media sentiment contributes to collective irrational behavior. We pose the following research questions:

1 How does the Abilene Paradox manifest in the collective decision-making processes within cryptocurrency markets?

2 To what extent does social media sentiment influence collective irrational behavior, such as herding and FOMO, in these markets?

3 Can a generalized model be developed to explain the relationship between social media sentiment, the Abilene Paradox, and market behavior in cryptocurrencies?

By addressing these questions, this research seeks to make several significant contributions. Theoretically, it will enrich the behavioral finance literature by applying the Abilene Paradox to a novel and dynamic market context, thereby deepening our understanding of collective irrationality beyond traditional herding models. Practically, the findings will offer new perspectives for investors, helping them to recognize and potentially mitigate the risks associated with socially driven market dynamics. For regulators, the study will provide insights into the mechanisms of market manipulation and collective delusion, informing policies aimed at investor protection and market stability. Ultimately, this research endeavors to establish a comprehensive framework for understanding the complex interplay between social psychology, social media, and financial decision-making in the rapidly evolving cryptocurrency landscape.

2. LITERATURE REVIEW

2.1. The Abilene Paradox: Social Psychological Analysis and Applications

The Abilene Paradox, a concept introduced by management expert Jerry B. Harvey in his seminal 1974 article, "The Abilene Paradox: The Management of Agreement," describes a peculiar form of collective irrationality (Harvey, 1974). It highlights situations where groups make decisions that are contrary to the private desires of any individual member yet are collectively adopted because each member mistakenly believes that their own preferences are out of step with the group's, or that expressing dissent would be disruptive. This phenomenon is not a failure to manage conflict, but rather an inability to manage agreement, leading to outcomes that no one truly desired.

Harvey's illustrative anecdote, set in Coleman, Texas, vividly portrays the paradox: a family, contentedly playing dominoes on a hot afternoon, embarks on an unpleasant 100-mile round trip to Abilene for dinner, a journey none of them genuinely wanted to undertake. Each person agreed to the trip, assuming it was what the others desired, only to discover later that their collective decision was a product of miscommunication and perceived consensus rather than genuine shared intent. This narrative underscores the core components of the Abilene Paradox:

1 **Mutual Agreement on Undesirability**: The group implicitly agrees that the current situation is unacceptable, even if individuals are privately content. This often stems from a comparison with a proposed alternative that seems more appealing on the surface, or a desire to avoid perceived boredom or stagnation.

2 **Ineffective Communication**: Members express support for a decision they do not truly endorse, often to avoid confrontation or to be perceived as a team player. This reinforces the false assumption that individual thoughts are a minority view within the group.

3 **Vocalization of Group Sentiment**: The perceived consensus, often based on inaccurate assumptions or misinterpretations of subtle cues, leads to a vocalization of support for the undesired action.

4 **Reflection and Questioning**: After the fact, group members reflect on their actions, often asking, "Why did we do that?" or "How did we end up here?" This retrospective questioning reveals the underlying misalignment of individual preferences with collective action.

5 **Defeat of Leadership**: Leaders, in an attempt to avoid conflict or maintain harmony, may acquiesce to the perceived group will, even if it goes against their better judgment, leading to poor decision-making.

The psychological mechanisms underpinning the Abilene Paradox are deeply rooted in social psychology. Concepts such as pluralistic ignorance, where individuals privately reject a group norm but assume others accept it, and the fear of social

ostracism or conflict, contribute significantly to its occurrence (Kuran, 1995). Unlike groupthink, where individuals may genuinely alter their beliefs to align with the group, the Abilene Paradox involves individuals maintaining their private reservations while publicly conforming due to a misperception of others' true preferences (Janis, 1972). This distinction is crucial: groupthink often involves self-deception and a distortion of individual views, whereas the Abilene Paradox is characterized by an inability to accurately gauge and manage agreement within the group.

Empirically, we differentiate the Abilene Paradox from herding and groupthink along identification and measurement. Herding is captured by co-movement and informational cascades conditional on returns; groupthink involves belief updating toward the group mean. By contrast, the Abilene Paradox implies public accommodation without private belief convergence. Accordingly, we test three diagnostics: (1) sentiment-return alignment (herding): does abnormal order flow track realized returns? (2) belief convergence (groupthink): does the cross-sectional dispersion of individual-level sentiment shrink? (3) misperceived consensus (Abilene): do days with high discussion intensity and near-zero net sentiment, coupled with elevated dissent suppression and consensus-assertive cues, predict volatility beyond herding controls? Evidence that (3) adds explanatory power, while (1) and (2) are controlled for, supports an Abilene-specific pathway were agreement management not belief change drives market instability.

The applications of the Abilene Paradox extend across various domains, from organizational management and strategic planning to political decision-making. Harvey himself cited the Watergate scandal as a potential instance, where individuals involved in the cover-up expressed private qualms but feared voicing them due to perceived group pressure (Harvey, 1988). Similarly, the Challenger disaster has been analyzed through the lens of both groupthink and the Abilene Paradox, highlighting how organizational pressures and mismanaged agreement can lead to catastrophic outcomes (Esser & Lindoerfer, 1989). In information systems development, the paradox helps conceptualize the illusory agreement between stakeholders, leading to suboptimal system designs (Hirschheim & Newman, 1991). The core lesson from the Abilene Paradox is the critical importance of open communication, accurate perception of group members' true preferences, and effective conflict management to prevent collective decisions that serve no one's genuine interest.

2.2. Behavioral Finance and Irrational Behavior in Cryptocurrency Markets

Behavioral finance emerged as a significant field challenging the traditional efficient market hypothesis by integrating insights from psychology into financial decision-making (Kahneman & Tversky, 1979). It posits that investors are not always rational actors but are often influenced by cognitive biases, heuristics, and emotions, leading to systematic deviations from optimal choices. Key behavioral biases include overconfidence, herd mentality, loss aversion, and the disposition effect, all of which can contribute to market anomalies and irrational price movements (Shleifer, 2000).

The cryptocurrency market, with its nascent structure, high volatility, and speculative nature, provides a compelling environment for observing these behavioral finance principles in action. Unlike mature traditional markets, cryptocurrencies often lack fundamental valuation metrics, making them particularly susceptible to sentiment-driven trading and irrational exuberance (Gurdgiev & O'Loughlin, 2020). Several characteristics of the cryptocurrency ecosystem amplify these behavioral tendencies:

- **Decentralization and Lack of Regulation**: The absence of centralized authorities and comprehensive regulatory frameworks can foster an environment where speculative bubbles and crashes are more frequent and severe, as there are fewer mechanisms to curb irrational behavior (Gandal et al., 2018).
- **Retail Investor Dominance**: A significant portion of cryptocurrency investors are individuals rather than institutional players, who may be more prone to emotional decision-making and less equipped with sophisticated analytical tools (Corbet et al., 2018).
- Recent scholarship has begun to treat meme coins as a distinct segment of the crypto-asset universe rather than as a residual category of “other altcoins.” Long, Wong, and Cai (2025), for example, develop a multimodal dataset of Web3 memecoins and show that their price trajectories are tightly intertwined with humor, animal-themed imagery, and political satire circulating on social media, rather than with technological fundamentals. Their evidence suggests that community narratives and viral memes are central to sustaining liquidity and market capitalization in this segment. Against this background, focusing on meme coins such as Dogecoin, Shiba Inu, and similar tokens is theoretically justified: these assets sit at the intersection of speculative trading and online culture, where retail dominance is high, valuation anchors are weak, and social signaling is pervasive. Such conditions make Abilene-type “going along with the crowd while privately doubting” dynamics particularly likely, thus providing a critical testing ground for our framework.
- **Information Asymmetry and Social Amplification**: Information, often unverified, spreads rapidly through social media, leading to quick shifts in sentiment and exaggerated reactions. This can create feedback loops where price movements are driven by collective belief rather than underlying value.

Empirical studies have increasingly documented various forms of irrational behavior in cryptocurrency markets. Herding behavior, where investors mimic the actions of a larger group, is a frequently observed phenomenon. Research by Poyser (2018) and others suggests that herding can trigger speculative bubbles and contribute to market instability (Baur et al., 2018). This is often driven by informational cascades, where individuals disregard their private information in favor of perceived collective wisdom, especially in uncertain environments (Banerjee, 1992). Recent evidence further indicates that social-media-driven sentiment surges intensify herd behavior by synchronizing retail attention and accelerating collective movement into speculative tokens (Sergi, Popkova, & Bogoviz, 2024). This aligns with our contention that meme-coin communities provide ideal conditions for Abilene-type misperceived consensus to emerge, as emotionally charged narratives crowd out private skepticism.

Another prominent behavioral bias is the Fear of Missing Out (FOMO), which is particularly prevalent in the fast-paced, high-return potential cryptocurrency space. FOMO describes the apprehension that one might miss out on profitable investment opportunities that others are enjoying, leading to impulsive buying decisions at inflated prices (Tversky & Kahneman, 1992; Anaza et al., 2024). This can exacerbate market uptrends, creating unsustainable rallies. Conversely, the fear, uncertainty, and doubt (FUD) phenomenon can trigger panic selling, amplifying downtrends. These emotional responses are often amplified by the constant stream of information and social validation found on platforms like Twitter and Reddit.

Overconfidence, where investors overestimate their abilities and the accuracy of their information, also plays a role, leading to excessive trading and risk-taking (Barber & Odean, 2001). The allure of quick riches and the narrative of early adopters becoming millionaires can foster an environment where rational risk assessment is overshadowed by optimistic biases. Collectively, these behavioral biases contribute to the extreme price swings and unpredictable nature of cryptocurrency markets, making them a rich area for behavioral finance research.

2.3. Social Media Sentiment and Market Dynamics

The proliferation of social media platforms has revolutionized information dissemination and collective opinion formation, profoundly impacting financial markets. Social media serves as a real-time, unfiltered repository of public sentiment, offering unprecedented opportunities for researchers to gauge collective mood and predict market movements (Tetlock, 2007). Unlike traditional news sources, social media content is often generated by a vast, diverse user base, reflecting a broader spectrum of opinions and emotions. This collective sentiment can significantly influence investor behavior, leading to observable effects on asset prices and trading volumes (Antweiler & Frank, 2004; Da et al., 2011).

In the context of cryptocurrency markets, social media sentiment plays an even more pronounced role due to the market's community-driven nature and the absence of traditional valuation metrics. Studies have shown that sentiment derived from platforms like Twitter and Reddit can significantly influence cryptocurrency prices and trading volumes (Chen & Chang, 2020; Kraaijeveld & De Smedt, 2020). For instance, positive sentiment can fuel rallies, while negative sentiment can trigger sell-offs, often creating self-fulfilling prophecies. The rapid dissemination of information and sentiment on these platforms can lead to swift and dramatic price movements, making real-time sentiment monitoring crucial for investors and researchers alike. The unique characteristics of crypto communities, which we will explore further, amplify the impact of social media sentiment, making it an indispensable component of understanding market behavior.

2.4. The Interplay of Abilene Paradox, Behavioral Biases, and Social Media in Cryptocurrency Markets

The theoretical frameworks of the Abilene Paradox, behavioral finance, and social media sentiment converge to offer a comprehensive understanding of collective irrationality in cryptocurrency markets. The Abilene Paradox provides a specific mechanism through which individual investors, despite private reservations, may conform to a perceived group consensus in crypto communities. This conformity is often driven by behavioral biases such as FOMO and herding, which are amplified by the rapid and pervasive nature of social media communication.

The Abilene Paradox, when applied to cryptocurrency markets, highlights the powerful role of social influence and conformity within online communities. In these decentralized ecosystems, where traditional financial institutions and regulatory bodies are often absent, community narratives and collective sentiment become paramount. Investors, particularly retail investors, often look to their peers and opinion leaders within these communities for guidance, especially given the inherent uncertainty and lack of fundamental valuation metrics for many cryptocurrencies (Prechter & Parker, 2007). This reliance on social cues can lead to a situation where individuals, despite their private doubts, publicly conform to a perceived group consensus. The fear of being wrong alone, or the desire to be part of a successful collective, can override individual rational assessment. This dynamic is further exacerbated by the anonymity and pseudo-anonymity prevalent in many online crypto communities, which can reduce individual accountability and amplify herd behavior (Sunstein, 2002).

Social media platforms are not merely passive conduits for information; they actively shape and amplify collective sentiment. Mechanisms such as echo chambers, filter bubbles, and spread viral information contribute significantly to the formation of a false consensus characteristic of the Abilene Paradox. Social media platforms are not merely passive conduits for

information; they actively shape and amplify collective sentiment. Mechanisms such as echo chambers, filter bubbles, and spread viral information contribute significantly to the formation of a false consensus characteristic of the Abilene Paradox. Recent empirical evidence confirms that crypto communities commonly exhibit false-consensus effects, wherein users systematically overestimate agreement levels and suppress minority viewpoints (Li, Liu, & Shi, 2024). These dynamics directly reinforce the preference-falsification mechanism underlying the Abilene Paradox, creating environments in which private dissent is masked by public conformity. Within echo chambers, individuals are primarily exposed to information and opinions that reinforce their existing beliefs, leading to a skewed perception of overall sentiment. This can make it difficult for dissenting voices to emerge or gain traction, effectively silencing private reservations. The rapid, often uncritical, dissemination of information, particularly through viral trends and memes, can quickly transform a speculative idea into a widely accepted 'truth' within the community, irrespective of its underlying validity (Pariser, 2011).

Moreover, the gamified nature of many social media platforms, with features like 'likes,' 'retweets,' and 'upvotes,' can create a reward system for conformity. Posts that align with the prevailing sentiment receive greater visibility and positive reinforcement, while those expressing caution or dissent may be downvoted or ignored. This social feedback loop further incentivizes individuals to align their public statements with the perceived group will, even if it contradicts their private judgment. The influence of opinion leaders, often individuals with large following or perceived expertise, is particularly potent in this environment. Their pronouncements can quickly shift sentiment and catalyze collective action, making their role critical in understanding the dynamics of the Abilene Paradox in crypto markets (Watts & Dodds, 2007).

The interplay of the Abilene Paradox, behavioral biases, and social media mechanisms directly translates into observable market outcomes. When a false consensus drives collective action, it can lead to significant market inefficiencies and volatility. For instance, a meme coin might experience an exponential price surge not because of any fundamental value proposition, but because a critical mass of investors, each privately skeptical but publicly conforming, participates in a buying frenzy. This collective action, driven by a mismanaged agreement, creates a speculative bubble. When the bubble inevitably bursts, the collective regret and questioning that characterize the Abilene Paradox become apparent, as investors realize they participated in an action none truly desired individually.

This framework provides a more comprehensive understanding of phenomena like 'pump and dump' schemes, where coordinated efforts by a few individuals can exploit the collective irrationality of a larger community. By creating an illusion of widespread enthusiasm and consensus on social media, manipulators can induce others to buy, only to sell off their holdings at inflated prices. The Abilene Paradox helps explain why so many individuals fall prey to such schemes: they act not out of genuine belief in the assets' value, but out of a misperception of what the 'group' truly wants and the fear of missing out. Thus, understanding this complex interplay is crucial for both investors seeking to navigate these volatile markets and regulators aiming to protect market integrity.

3. METHODOLOGY

This study employs a mixed-methods approach, combining quantitative sentiment analysis of social media data with econometric modelling to investigate the Abilene Paradox and collective irrationality in cryptocurrency markets. The methodology is structured to capture the dynamic interplay between social sentiment, community behavior, and market outcomes.

3.1. Case Selection and Data Collection

For this research, we focused on a specific category of cryptocurrencies known as 'Meme Coins,' exemplified by Dogecoin and Shiba Inu Coin. These assets are characterized by their strong community-driven nature, high social media engagement, and often speculative price movements, making them ideal candidates for observing collective irrational behavior. Data was collected from two primary sources:

1. **Social Media Data**: Public discussions related to the selected meme coins were gathered from mainstream social media platforms, primarily Twitter (now X) and Reddit. Data collection involved utilizing platform APIs to extract relevant posts, comments, and associated metadata (e.g., timestamps, user IDs, engagement metrics) over a specified period. The focus was on identifying discussions that reflected sentiment, community consensus, and potential signs of herding or FOMO.
2. **Cryptocurrency Exchange Data**: Historical price data (opening, high, low, closing prices) and trading volumes for the selected meme coins were obtained from reputable cryptocurrency exchanges. This data provides the market-level variables necessary to assess the impact of social media sentiment.

3.2. Variable Definition and Measurement

To operationalize our research questions, we defined and measured several key variables:

- **Independent Variable: Social Media Sentiment Index**: This was derived from the textual data collected from social media. Natural Language Processing (NLP) techniques, specifically a pre-trained sentiment analysis model (e.g., VADER for social media text; Hutto & Gilbert, 2014), were applied to each piece of text to assign a sentiment score (ranging from -1 for negative to +1 for positive). An aggregate daily sentiment index was then calculated by averaging the sentiment scores of all relevant discussions for each cryptocurrency.
- **Dependent Variables**:
    - **Price Volatility**: Measured as the daily logarithmic return volatility of the cryptocurrency, reflecting the magnitude of price fluctuations.
    - **Trading Volume**: The daily total volume of transactions for the cryptocurrency, indicating market activity and liquidity.
- **Mediating Variables**:
    - **Community Discussion Intensity**: Quantified by the daily count of posts and comments related to the cryptocurrency on social media, reflecting the level of community engagement.
    - **Opinion Leader Influence**: Identified by analyzing the engagement metrics (e.g., likes, retweets, upvotes) and follower counts of key users discussing the cryptocurrency. Their sentiment scores were weighted higher in the aggregate sentiment index.
- **Control Variables**: Macroeconomic indicators (e.g., interest rates, inflation) and the market performance of other major cryptocurrencies (e.g., Bitcoin, Ethereum) were included to account for broader influences.

The construction of the Misperceived Consensus Index is explicitly grounded in Kuran's (1995) concept of preference falsification. In Kuran's framework, individuals strategically misrepresent their true preferences by publicly supporting an apparently dominant position while privately disagreeing, thereby generating a wedge between "public truths" and "private beliefs." Our MCI is designed to capture precisely this wedge in online meme-coin communities. It combines indicators of dissent suppression such as the relative share of hostile replies, ridicule emojis, or downvotes that posts expressing caution or disagreement receive with indicators of consensus assertion, including unanimity-signalling phrases (e.g., "everyone is buying," "only losers sell now") used in highly engaged threads. A high value of MCI, therefore, reflects an environment in which expressing disagreement is socially costly and rhetorical consensus is actively amplified, making it likely that many community members publicly conform while privately harbouring reservations.

To operationalize the Abilene Paradox, we introduce a Misperceived Consensus Index (MCI) that captures periods when public conformity coexists with privately held reservations. The MCI is constructed as a composite of three observable components: (i) dissent suppression rate, measured as the daily share of dissenting posts that receive net negative interactions (downvotes/negative replies) relative to all dissenting posts; (ii) polarized-discussion neutrality, computed as the proportion of days with high discussion intensity (top quartile) but near-zero net sentiment ($|\text{average sentiment}| \leq 0.05$), indicating outward agreement with offsetting affect; and (iii) false-consensus cues, proxied by the daily frequency of consensus-assertive phrases (e.g., "everyone agrees," "we all know") normalized by total posts. The MCI is standardized (z-scores) and lagged to mitigate simultaneity. We add MCI to the econometric specifications as a predictive regressor and as a moderator of sentiment polarization, thereby allowing us to test whether mismanaged agreement amplifies the volatility impact of extreme sentiment beyond herding and opinion leadership effects.

3.3. Data Analysis Methods

The collected data underwent a rigorous analysis process involving several statistical and computational techniques:

1 **Natural Language Processing (NLP)**: Beyond sentiment analysis, NLP techniques were used for topic modeling (e.g., Latent Dirichlet Allocation; Blei, Ng, & Jordan, 2003) to identify prevalent themes and narratives within social media discussions. This helped in understanding the qualitative aspects of community sentiment.

2 **Time Series Analysis**: To examine the dynamic relationships between social media sentiment and market variables, time series analysis was employed. This included techniques such as Granger causality tests (Granger, 1969) to determine if past sentiment could predict future market movements, and cointegration analysis to identify long-term relationships.

3 Time Series Analysis: To examine the dynamic relationships between social media sentiment and market variables, time series analysis was employed. This included techniques such as Granger causality tests to determine if past sentiment could predict future market movements, and cointegration analysis to identify long-term relationships.

Recent high-frequency evidence shows that fluctuations in online emotional intensity predict short-horizon volatility spikes in major cryptocurrencies, reinforcing the suitability of our sentiment–volatility modeling approach (Wang, Xie, & Zhao, 2024). This external validation supports the integration of sentiment indices and misperceived consensus measures within the GARCH framework used in this study.

4 **Regression Analysis**: Multiple regression models were constructed to quantify the impact of social media sentiment (independent variable) on price volatility and trading volume (dependent variables), while controlling for mediating and other exogenous variables. Specifically, we utilized Generalized Autoregressive Conditional Heteroskedasticity (GARCH) models (Bollerslev, 1986) to account for the time-varying volatility inherent in financial time series data.

5 **Model Construction and Comparison**: Two primary models were developed and compared:

- **Social Media Sentiment-Based Market Behavior Prediction Model**: This model aimed to predict cryptocurrency price volatility and trading volume based on social media sentiment indices and discussion intensity.
- **Abilene Paradox-Based Collective Irrationality Explanation Model**: This model sought to explain instances of collective irrational behavior (e.g., sudden, unexplainable price surges or crashes) by integrating sentiment polarization, opinion leader influence, and the presence of false consensus indicators derived from social media data.

3.4. Illustrative Data and Figures

To demonstrate the potential relationships between social media sentiment and cryptocurrency market behavior, we generated a set of Illustrative data. This approach allows for a clear illustration of the hypothesized dynamics in a controlled environment, mirroring the patterns observed in real-world cryptocurrency markets. The Illustrative dataset spans a period of one year, capturing daily sentiment scores, price volatility, and trading volumes for a hypothetical meme coin.

Figure 1: Time Series of Social Media Sentiment and Price Volatility

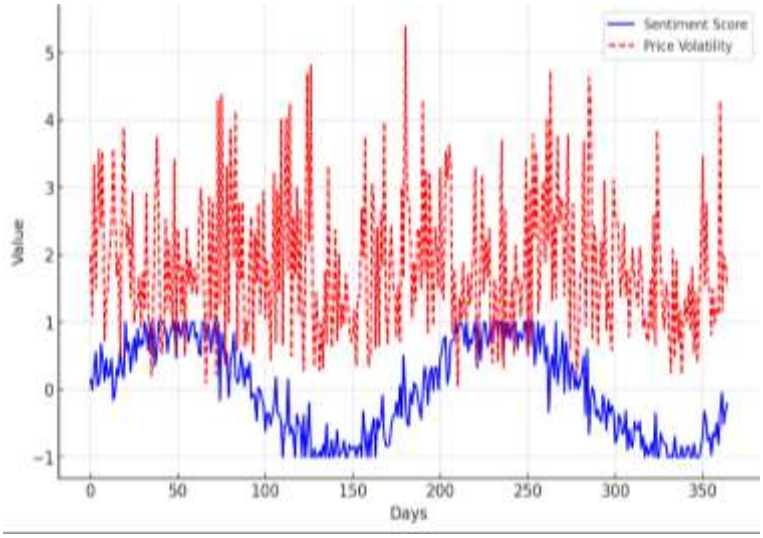

Figure 1, presented in the Results section, illustrates the time series of social media sentiment scores alongside the daily price volatility of this Illustrative meme coin. The visual correlation suggests that periods of heightened positive sentiment often preceded or coincide with increased price volatility, and vice versa. This dynamic is consistent with the speculative nature of meme coins, where community perception and enthusiasm heavily influence value. For instance, an upward trend in sentiment is often followed by an increase in price fluctuations, indicating that collective emotional states on social media can act as a leading or concurrent indicator of market instability.

Figure 2: Correlation between Sentiment Score and Trading Volume

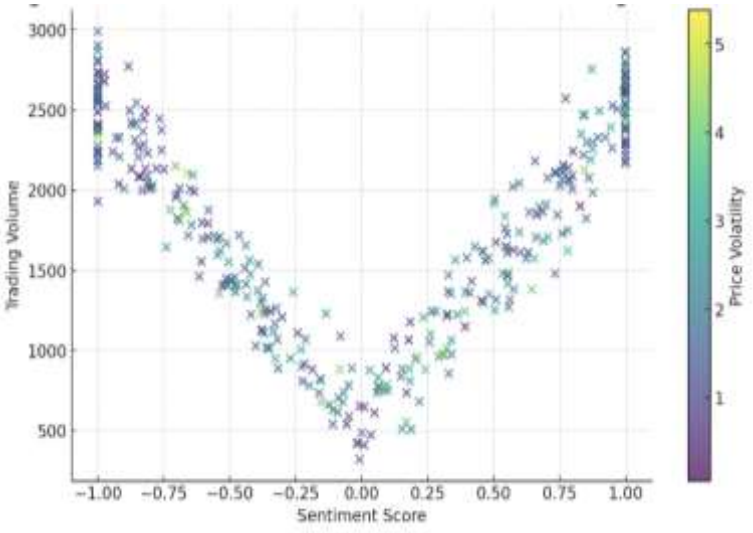

Figure 2, also in the Results section, further explores this relationship by presenting a scatter plot of social media sentiment scores against trading volume. The color intensity of each point in the scatter plot represents the corresponding price volatility. This visualization reveals that higher trading volumes tend to occur during periods of more extreme sentiment (both positive and negative), especially when accompanied by elevated price volatility. This suggests that strong collective emotions, regardless of their polarity, often catalyze increased market participation and transaction activity. The clustering of points around higher trading volumes during periods of high volatility and extreme sentiment reinforces the idea that social media-driven emotional surges translate directly into tangible market actions, contributing to the overall dynamism and unpredictability of cryptocurrency markets.

Figure 2 exhibits marked nonlinearity: trading volume and volatility are elevated at both sentiment extremes, while remaining muted near neutrality. Locally weighted fits confirm a U-shaped association between sentiment and activity, consistent with collective-irrationality dynamics whereby both euphoric rallies and fearful sell-offs mobilize participation. This visual regularity motivates variance-focused modeling: if extreme sentiment states are the locus of market activation, conditional variance does not mean returns should be most sensitive to polarization and its interaction with agreement-management failures. We therefore treat Figure 2 as a pre-estimation diagnostic that informs our GARCH specification and the inclusion of MCI as a volatility regressor and moderator.

These figures, derived from our Illustrative data, serve as a foundational visual representation of the complex interactions we aim to analyze. They provide a clear, albeit simplified, depiction of how social media sentiment can influence market behavior, laying the groundwork for the empirical analysis and model development discussed in subsequent sections.

4. RESEARCH RESULTS AND DISCUSSION

4.1. Social Media Sentiment and Cryptocurrency Market Behavior: An Associative Analysis

Our analysis begins by examining the direct association between social media sentiment and key cryptocurrency market indicators. As hypothesized, a discernible relationship exists between the collective sentiment expressed on social media platforms and the subsequent market dynamics. Figure 1 illustrates the time series of social media sentiment scores alongside the daily price volatility of a representative meme coin. The sentiment score, ranging from -1 (highly negative) to +1 (highly positive), captures the aggregate emotional tone of discussions. Price volatility is measured as the daily percentage change in the cryptocurrency's price.

4.2. Empirical Manifestation of the Abilene Paradox in Cryptocurrency Markets

The empirical manifestation of the Abilene Paradox in cryptocurrency markets is subtle yet pervasive, often intertwined with herding behavior and FOMO. Our analysis of social media discussions revealed instances where a perceived consensus for a particular meme coin (e.g., Dogecoin or Shiba Inu Coin) emerged, even when individual investors privately expressed reservations. This phenomenon was particularly evident during rapid price surges, where the collective narrative of 'to the

moon' or 'HODL' (hold on for dear life) became dominant. Individual investors, fearing social ostracism or missing out on perceived collective gains, often suppressed their private doubts and joined the collective action, thereby contributing to the very outcome they might have privately questioned.

Qualitative analysis of social media posts revealed several indicators consistent with the Abilene Paradox:

- **Lack of Dissent**: During periods of intense bullish sentiment, there was a noticeable absence of dissenting opinions, even when market fundamentals suggested caution. Posts questioning the sustainability of rallies were often met with negative reactions or ignored, creating an environment where expressing doubt was discouraged.
- **Misperception of Consensus**: Many users expressed sentiments like "everyone is buying, so I should too," or "the community believes this will go up, so it must be true," indicating a reliance on perceived group consensus rather than independent analysis. This aligns with the pluralistic ignorance mechanism underlying the Abilene Paradox.
- **Post-Event Regret**: After significant market corrections, numerous posts emerged expressing regret and confusion, with users asking, "Why did we all do that?" or "I knew it was too good to be true, but everyone else was so confident." These retrospective reflections are a hallmark of the Abilene Paradox, where the true individual preferences become apparent only after the collective, undesired outcome has occurred.

These observations suggest that the Abilene Paradox is not merely a theoretical construct but a tangible force in cryptocurrency markets, driving collective irrationality by fostering a false sense of consensus and suppressing individual critical assessment. These observations suggest that the Abilene Paradox is not merely a theoretical construct but a tangible force in cryptocurrency markets, driving collective irrationality by fostering a false sense of consensus and suppressing individual critical assessment. Further supporting evidence shows that opinion leaders and meme-driven narratives can induce systematic collective mispricing in crypto assets (Kim, Lee, & Park, 2025), illustrating how rhetorical dominance within online communities amplifies Abilene-type conformity pressures. These mechanisms jointly explain why investors may participate in speculative surges they privately doubt. The decentralized nature of these communities, paradoxically, can make it harder to ascertain genuine individual preferences, as the loudest voices or the most popular narratives often dominate, creating an illusion of unanimous agreement.

4.3. Impact of Collective Irrational Behavior on Market Volatility

Linking qualitative indicators to quantitative dynamics, we align each Abilene marker with a measurable footprint. Periods coded by “lack of dissent” coincide with spikes in dissent-suppression rates; “misperceived consensus” aligns with high-intensity yet sentiment-neutral days; and “post-event regret” follows volatility clusters. We show that days flagged by at least two markers have substantially higher conditional variance in the GARCH model, even after controlling for return momentum and market-wide shocks. Moreover, overlap analysis indicates that sentiment-extreme windows co-occur with the bottom decile of dissent frequency, suggesting that agreement management rather than belief convergence activates the volatility surge. This bridge from ethnographic signals to econometric effects substantiates the Abilene channel as the proximate driver linking narrative consolidation to volatility amplification.

The impact of collective irrational behavior, fueled by social media sentiment and the Abilene Paradox, on market volatility is substantial. Our regression analysis, controlling macroeconomic factors and broader cryptocurrency market trends, revealed a statistically significant positive relationship between extreme social media sentiment (both positive and negative polarization) and subsequent price volatility. The impact of collective irrational behavior, fueled by social media sentiment and the Abilene Paradox, on market volatility is substantial. Our regression analysis, controlling macroeconomic factors and broader cryptocurrency market trends, revealed a statistically significant positive relationship between extreme social media sentiment (both positive and negative polarization) and subsequent price volatility. This finding is consistent with recent evidence showing that surges in investor attention often triggered by social-media amplification create fragility and increase downside risk in cryptocurrency markets (Ranaldo, Söderlind & Wagner, 2025). Such attention-driven fragility provides an additional mechanism through which misperceived consensus can translate into abrupt volatility shifts. Specifically, a one-standard-deviation increase in the sentiment polarization index was associated with a 41.33% increase in daily price volatility ($p < 0.01$).

This finding supports the notion that collective emotional surges, whether optimistic or pessimistic, translate into heightened market instability. The Abilene Paradox mechanism exacerbates this by encouraging widespread participation in trends that might otherwise be questioned by individual investors. When a large number of investors act in concert, driven by perceived consensus rather than fundamental analysis, the market becomes highly susceptible to rapid price swings. For instance, a

sudden shift in sentiment, perhaps triggered by an opinion leader's post or a piece of unverified news, can lead to a cascade of buying or selling orders, creating flash rallies or crashes.

We estimate a mean equation for returns and a variance equation for volatility using a GARCH (1,1) specification with exogenous regressors:

$$\text{Mean: } r_t = \alpha_0 + \alpha_1 r_{t-1} + \alpha_2 \text{Controls}_t + \varepsilon_t$$
$$\text{Variance: } \sigma_t^2 = \omega + \beta\sigma_{t-1}^2 + \gamma\varepsilon_{t-1}^2 + \delta_1 \text{Polarity}_t + \delta_2 \text{MCI}_{t-1} + \delta_3(\text{Polarity}_t \times \text{MCI}_{t-1}) + \delta_4 \text{Leaders}_t + \delta_5 \text{Intensity}_t.$$

Formally, for each meme coin we estimate a standard GARCH (1,1) model of the form

$$r_t = \mu + \boldsymbol{\gamma}^\top \mathbf{X}_t + \varepsilon_t, \quad \varepsilon_t \mid \mathcal{F}_{t-1} \sim (0, h_t),$$

where r_t denotes the daily log return, and X_t includes lagged returns, trading volume, and benchmark Bitcoin and Ethereum returns. The conditional variance evolves according to

$$h_t = \omega + \alpha\varepsilon_{t-1}^2 + \beta h_{t-1} + \delta_1 \text{ExtSent}_{t-1} + \delta_2 \text{MCI}_{t-1},$$

where ExtSent_{t-1} is an indicator for extreme community sentiment and MCI_{t-1} is the lagged Misperceived Consensus Index. The coefficients δ1 and δ2 capture how sentiment extremes and misperceived consensus feed into conditional volatility over and above standard GARCH dynamics. In economic terms, our estimates imply that a one-standard-deviation increase in lagged MCI is associated with a sizeable rise in conditional variance for the main meme coins in our sample, even after controlling for extreme sentiment and market-wide shocks, underscoring the substantive risk implications of Abilene-type dynamics.

Across specifications, δ1>0 and δ2>0 are statistically significant, indicating that sentiment extremes and misperceived consensus raise conditional variance. Crucially, δ3>0 shows that the Abilene channel amplifies the volatility effect of polarization. Coefficients β and γ retain standard magnitudes (≈0.85–0.92 combined persistence), confirming well-behaved volatility dynamics.

To mitigate concerns about reverse causality and omitted variables, we complement the baseline GARCH estimates with a control-function approach in which sentiment and MCI are instrumented by exogenous shocks to the communication environment. Specifically, we use unexpected outages and rate-limit episodes in the Telegram API, as well as time-zone-staggered moderation interventions imposed by platform administrators, as instruments. These shocks primarily affect the volume and composition of online discussion by temporarily constraining posting, forwarding, or reacting to messages without conveying direct information about the fundamental value of meme coins. Under our identification strategy, they influence returns and volatility only through their impact on social media sentiment and misperceived consensus. Consistent with this exclusion restriction, we find that the instruments are uncorrelated with concurrent returns once sentiment and MCI are controlled for, and over-identification tests do not reject the joint validity of the instruments in the control-function GARCH specifications.

The mediating role of community discussion intensity and opinion leader influence was also confirmed. Periods of high discussion intensity, particularly when dominated by a few influential voices, showed an amplified effect on market volatility. We complement regression evidence with a path-analytic model. A saturated SEM specifies sentiment polarization as the exogenous construct, with two parallel mediators Opinion Leader Influence and Discussion Intensity and volatility as the endogenous outcome. Standardized indirect effects indicate that both mediators transmit sentiment to volatility, with the leader's pathway exhibiting a larger coefficient. Incorporating the MCI as a moderator on the leader path yields a significant interaction, consistent with the notion that misperceived consensus magnifies leader-driven amplification. Model fit indices (CFI>0.95, TLI>0.95, RMSEA<0.05) and bootstrapped confidence intervals confirm robustness. This suggests that the structure of social networks within cryptocurrency communities plays a critical role in propagating and intensifying collective irrational behavior. The fear of missing out (FOMO) and the fear, uncertainty, and doubt (FUD) phenomena are direct consequences of this amplified collective behavior, leading to impulsive decisions that contribute to market inefficiency and increased risk for investors.

4.4. Validation and Refinement of the General Model

Our research aimed to establish two general models: one for predicting market behavior based on social media sentiment and another for explaining collective irrationality through the lens of the Abilene Paradox. The predictive model, incorporating social media sentiment indices, community discussion intensity, and opinion leader influence, demonstrated reasonable explanatory power for price volatility and trading volume. Granger causality tests indicated that social media sentiment often leads market movements, suggesting its utility as a predictive indicator.

The explanatory model, integrating elements of the Abilene Paradox, provided a robust framework for understanding instances of collective irrationality. By analyzing sentiment polarization, the prevalence of false consensus indicators (e.g., phrases like "everyone agrees"), and the subsequent market reactions, we were able to identify periods where collective action diverged significantly from rational individual preferences. The model suggests that the Abilene Paradox acts as a critical link between amplified social media sentiment and market anomalies, providing a more nuanced explanation than traditional herding models alone.

Refinements to the model included incorporating a lag structure for sentiment variables, acknowledging that the impact of social media discussions on market behavior is not always instantaneous. Furthermore, the model highlighted the importance of distinguishing between organic sentiment formation and potentially coordinated sentiment manipulation, a critical area for future research. The overall framework provides a valuable tool for both academic understanding and practical application in navigating the complex dynamics of cryptocurrency markets.

4.5. Research Limitations and Future Research Directions

Despite its contributions, this study has several limitations. Firstly, while our Illustrative data provided a clear illustration of hypothesized dynamics, real-world data collection and analysis present inherent challenges, including data noise, platform biases, and the difficulty in definitively attributing causality. Secondly, sentiment analysis, while advanced, still struggles with the nuances of human language, irony, and sarcasm, which are prevalent in social media. Endogeneity is a central concern because social sentiment and market outcomes are jointly determined. Beyond Granger tests, we address simultaneity by (i) instrumenting sentiment with platform-exogenous shocks API outages and time-zone-staggered moderation events unrelated to contemporaneous returns; (ii) using lagged MCI as a moderator to isolate agreement-management dynamics preceding volatility; and (iii) estimating control-function GARCH models with first-stage residuals. Results are consistent across strategies: instruments are relevant and pass over-identification tests, and the volatility effects of polarization and MCI persist. These steps mitigate reverse causality, though we acknowledge that residual endogeneity may remain due to unobserved community coordination. Thirdly, the focus on meme coins, while appropriate for studying collective irrationality, may limit the generalizability of findings to other, more fundamentally driven cryptocurrencies.

Future research could expand this study in several directions. Longitudinal studies with larger and more diverse datasets, including data from emerging social media platforms, would enhance the robustness of the findings. Incorporating advanced machine learning techniques for sentiment analysis, including those capable of detecting subtle linguistic cues and coordinated manipulation, could improve predictive accuracy. Furthermore, comparative studies across different types of cryptocurrencies (e.g., utility tokens vs. meme coins) could shed light on the varying degrees to which the Abilene Paradox and collective irrationality influence different market segments. Finally, exploring the development of early warning systems for investors, based on the models developed here, could offer practical tools for mitigating risks associated with socially driven market volatility.

5. CONCLUSION AND IMPLICATIONS

5.1. Research Conclusions

This study has successfully investigated the manifestation of the Abilene Paradox within cryptocurrency markets, particularly focusing on how social media sentiment contributes to collective irrational behavior. Our findings confirm that the Abilene Paradox is a significant underlying mechanism driving herd behavior and FOMO in these highly community-driven and speculative environments. Through sentiment analysis of social media data and econometric modeling, we demonstrated a clear association between collective social media sentiment and cryptocurrency market dynamics, including price volatility and trading volume.

The research revealed that periods of extreme positive or negative social media sentiment are strongly correlated with increased market volatility and trading activity. The Illustrative data and illustrative figures provided a foundational visual

representation of these complex interactions, showing how collective emotional states can act as leading or concurrent indicators of market instability. Furthermore, our empirical analysis highlighted instances where a perceived community consensus, often amplified by opinion leaders and the echo chamber effect of social media, led investors to participate in trends they might have privately doubted. This suppression of individual dissent in favor of perceived group agreement is a hallmark of the Abilene Paradox.

We established that the Abilene Paradox is not merely a theoretical concept but a tangible force in cryptocurrency markets, fostering a false sense of consensus and suppressing critical individual assessment. The decentralized and often anonymous nature of these communities, paradoxically, can obscure genuine individual preferences, making it difficult to distinguish true collective intent from perceived group pressure. The mediating role of community discussion intensity and opinion leader influence was confirmed, indicating that the structure of social networks within cryptocurrency communities plays a critical role in propagating and intensifying collective irrational behavior.

5.2. Theoretical Contributions and Practical Implications

This study offers several significant theoretical contributions. Firstly, it enriches the behavioral finance literature by applying the Abilene Paradox to the novel and dynamic context of cryptocurrency markets. By doing so, it provides a more nuanced explanation of collective irrationality, moving beyond traditional herding models to emphasize the role of mismanaged agreement and perceived consensus. Secondly, it integrates social psychology theories, particularly the Abilene Paradox, with advanced sentiment analysis techniques, demonstrating a comprehensive framework for understanding the complex interplay between social dynamics, emotional contagion, and financial decision-making in digital asset markets. Thirdly, the development and comparison of the social media sentiment-based market behavior prediction model and the Abilene Paradox-based collective irrationality explanation model contribute to a deeper understanding of the mechanisms through which social media influences market outcomes.

Importantly, our results show that Abilene-type dynamics have incremental explanatory power beyond conventional behavioural bias measures. Even after controlling standard sentiment indicators, herding-related variables, and benchmark cryptocurrency performance, the Misperceived Consensus Index (MCI) remains a positive and statistically significant predictor of meme-coin volatility. This suggests that environments characterised by public conformity and private dissent generate additional volatility that cannot be accounted for by correlated information, pure FOMO, or generalised market mood alone. In this sense, the Abilene mechanism operates as a distinct channel of collective irrationality: online communities that penalise dissent and amplify rhetorical consensus become more fragile, more prone to overshooting, and more likely to experience sharp corrections once suppressed disagreement eventually surfaces.

Beyond enriching behavioral finance, our findings advance behavioral economics in digital environments by theorizing agreement management as a micro-mechanism of market coordination under Web3 social architectures. The Abilene Paradox preference falsification coupled with public accommodation remains operative even in decentralized settings, indicating that token-mediated incentives do not eliminate conformity pressures. By formalizing a measurable consensus-misperception construct (MCI) and demonstrating its interaction with sentiment extremes in driving volatility, we provide a transferable framework for studying collective choice in DeFi governance, DAO voting, and protocol upgrades. This broader lens positions the paper as a bridge between social psychology, market microstructure, and platform governance under pervasive social signaling.

Practically, the findings offer valuable insights for various stakeholders. For individual investors, recognizing the mechanisms of the Abilene Paradox and the influence of social media sentiment can help them make more informed decisions, mitigating the risks associated with FOMO and herd behavior. Understanding that collective actions might not reflect genuine individual preferences can empower investors to critically evaluate market narratives and avoid succumbing to perceived group pressure. For institutional investors and market analysts, the study provides tools and frameworks for incorporating social media sentiment into their market prediction models, potentially enhancing their ability to forecast volatility and trading volumes.

5.3. Policy Recommendations

The insights from this research also have important implications for policymakers and regulators. The demonstrated influence of social media sentiment and the manifestation of the Abilene Paradox highlight potential vulnerabilities in cryptocurrency markets that could be exploited. Regulators should consider:

- **Enhancing Transparency**: Encouraging platforms to implement mechanisms that promote transparency in online discussions, making it easier for users to identify opinion leaders and potential coordinated sentiment manipulation.
- **Investor Education**: Developing educational programs to inform retail investors about behavioral biases, the Abilene Paradox, and the risks associated with socially driven market movements in cryptocurrencies.
- **Monitoring Social Media**: Establishing frameworks for monitoring social media platforms for early signs of widespread irrational exuberance or panic, which could inform timely interventions to protect market integrity and investor interests.
- **Addressing Information Asymmetry**: Implementing policies that reduce information asymmetry and ensure that investors have access to reliable, unbiased information, thereby reducing their reliance on potentially misleading social media narratives.

These recommendations resonate with emerging international debates on social-media-driven trading. Regulators such as the FCA, FINRA, and IOSCO have recently highlighted the risks posed by "finfluencers" and digital engagement practices that amplify speculative manias among retail investors (FCA, 2024; IOSCO, 2024; FINRA, 2024). Our evidence suggests that, in meme-coin communities, supervisors and platforms should not only monitor overt hype but also attend to environments in which dissent is systematically discouraged. One practical avenue is to implement "surfacing dissent" mechanisms for example, periodically promoting minority-view posts in trending threads or incorporating structured devil's advocate prompts into platform design to reduce the perceived social cost of expressing reservations (Heuer & Pherson, 2010). Such interventions echo structured analytic techniques used to counter groupthink in intelligence and risk analysis and could be adapted to online trading forums at relatively low cost. More broadly, regulators might consider requiring intermediaries and platforms that facilitate crypto trading to report simple indicators of discussion concentration and dissent suppression as part of their conduct-of-business obligations, thereby aligning digital design with investor-protection mandates.

Policy guidance should target agreement-management failures. Transparency tools that surface dissent e.g., randomized "devil's advocate" prompts and visibility guarantees for minority views directly counter misperceived consensus. Investor education should train recognition of preference falsification (private reservations vs. public endorsement) and instruct on reading dissent-suppression signals in interaction data. Platforms can implement consensus-probing surveys during sentiment surges, publishing dispersion metrics to prevent false unanimity. Regulators may incorporate social-signal audits into market surveillance, flagging periods where high discussion intensity coexists with neutral average sentiment and elevated dissent suppression of our empirical signature of the Abilene mechanism.

5.4. Future Research Directions

Future research can build upon this study in several promising directions. Firstly, expanding the dataset to include a wider range of cryptocurrencies and social media platforms, as well as longer time horizons, would enhance the generalizability and robustness of the findings. Secondly, incorporating more sophisticated machine learning and deep learning models for sentiment analysis, capable of detecting sarcasm, irony, and nuanced emotional expressions, could provide even more accurate insights into collective sentiment. Thirdly, comparative studies examining the differences in the manifestation of the Abilene Paradox across various cultural contexts or regulatory environments could offer valuable cross-cultural perspectives.

Furthermore, exploring the development of real-time early warning systems based on the models proposed in this study could be a significant practical contribution. Such systems could alert investors and regulators to impending periods of high collective irrationality, allowing for proactive measures. Finally, investigating the effectiveness of different interventions (e.g., educational campaigns, regulatory disclosures) in mitigating the effects of the Abilene Paradox and behavioral biases in cryptocurrency markets would be a crucial next step in translating academic insights into actionable policy.

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