Decision Making in Financial Markets: What Role Do Emotions Play?

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Abstract

This research aims to explore the impact of emotions in trading and investing an area which has increasingly gained popularity in recent years. Emotional factors like greed, anger and overconfidence are often believed to influence decision-making power of the investors yet the reasons remain poorly understood. This study touches upon how emotions affect investment choices, market fluctuations and broader financial landscape.

The primary question which this research attempt to answer is: How do emotions influence individuals and institutional trading and investing decisions? Additionally, this study also examines how specific emotional responses such as fear, or greed can alter the decision making and lead to financial downturns. The main hypothesis of this paper is that emotional regulation (or lack thereof) significantly shapes the investing behavior and contribute to market inefficiencies.

The research paper employs a mixed approach by extensively investigating various literatures and case studies to depict balanced viewpoints. The qualitative component investigates historical case studies, such the fallout of Archegos Capital Management, to showcase how emotional biases can contribute to the financial crisis. The quantitative aspect involves a meta-analysis of existing studies, focusing on correlation and statistical significance of these biases in investment decision making.

The findings suggest that emotions have significant impact on financial markets, often worsening volatility possibly leading to systemic risk. Lastly, this study also underscores the need for better emotional awareness in investing and regulatory policies through financial literacy.

Introduction: Emotions in Our Daily Lives

Emotions are an innate part of being human and have evolved alongside humans over the centuries. The idea of rational decision making seems improbable because it assumes that we take time to list the advantages and disadvantages or costs and benefits for all alternatives in our everyday lives. In reality, the process of decision making itself is emotional as we do tend to engage ourselves in the outcomes. When these outcomes materialize, the decision maker may experience range of emotions like regret, surprise, joy or disappointment.

The brain plays a crucial role in this process; it maps and marks current events according to emotional consequences in the past. There has been overwhelming evidence by neuroscientists that there is continual interchange between brain networks associated with feelings (amygdala) and conscious thoughts (prefrontal cortex) and therefore sometimes the decision which we consider to be rational can sometimes unknowingly comes from an emotional place (Tuckett, 2012).

In his book, Sigmund Freud (A general introduction to psychoanalysis, 1920/1952) stated that "our entire psychical activity is bent upon procuring pleasure and avoiding pain." When making a decision, the person tries to maximize the pleasure from the decision and avoids pain at all costs. However, this does not imply that we are entirely controlled by our emotions; at times we often attempt to regulate our emotions to make more balanced decisions. Each emotion triggers a distinct motivation that influences actions. For instance, fear promotes avoidance of risks while anger drives action and challenges perceived threats. This concept is captured by "feeling-is-for-doing" approach (Marcel Zeelenberg, 2023), wherein emotions or feelings trigger motivational states that drive behavior and serve as adaptive responses to environment challenges.

1. The emotional system is the primary motivational system for goal-directed behavior
2. Each specific emotion serves distinct motivational functions in goal striving
3. These motivational functions cannot be reduced to the overall valence of the specific emotions
4. The distinct motivational functions are rooted in the experiential qualities of the specific emotions
5. Emotions can be either endogenous (an integral part) or exogenous (environmentally invoked) to the goal striving process, their effect on behavior being contingent on their perceived relevance to the current goal.

Table 1: Propositions Summarizing "Feeling-is-for-doing" Perspective (Marcel Zeelenberg, 2023)

Thus, decision-making is not purely a rational process but integrates logical and emotional elements. Yet various financial and economic models is based on assumption of rationality or consider the impact of emotions in general and on investment decisions to be moderate. In contrast, the emerging field of behavioral finance realistically assume that investors frequently act irrationally and is subject to biases with regards to investors perception and evaluation. Therefore, understanding the interconnection between emotions and decision-making is important to understand human behavior, especially in financial markets. This can lead to better investment strategies, improved market stability and more realistic finance models that reflect actual human behavior.

Emotional Finance: Uncertainty in Financial Decision Making

In the field of finance, traditional models lack personal reference points, but behavioral finance opposes this assumption. An individual's personality largely develops in their childhood, when they typically learn what is considered correct behavior in the social context – a concept reflected in behavioural finance as "herd behaviour" in financial markets. The inherent uncertainty of the stock markets and trading activities can create a feeling excitement and tension among investors. Depending on the performance of the portfolio, investors go through different emotional states as illustrated in the Figure 1. Investment decisions are associated with euphoria, nervousness and desperation relating to potential gains and losses.

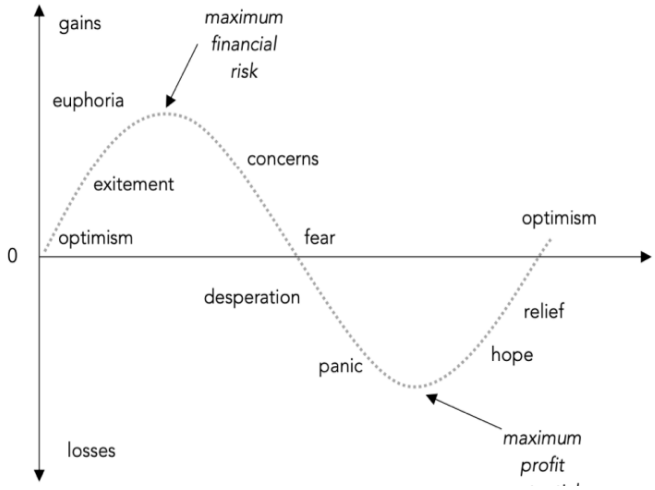

Figure 1: Stock market development and emotions (Dierks & Tiggelbeck, 2021)

Financial markets are unpredictable, ambiguous and volatile in nature. Unlike purchasing everyday items like a smartphone, investing in financial assets involves future prices based on anticipated cash flows. Theoretically, these cashflows are based on traditional statistical models but in the face of volatility asset prices are not predictable in advance. In the Annual Nicholas Barbon Lecture, Professor David Tuckett remarked, "volatility distribution of financial assets are path-dependent to a degree but not to a predictable degree" (Tuckett, 2012).The infamous concept of efficient frontier introduced by Nobel Laureate Harry Markowitz, implies that there exists an "optimal portfolio" offering highest expected return for a given level of risk. However, this theory has many assumptions that often fail to align with the reality. For instance, one such assumption is that investors are rational and avoid risk, when possible, but the reality proves that market includes irrational risk seeking investors.

Evaluation of asset managers becomes a tedious task as their performance may reflect luck rather skill. Portfolio management is inherently time-dependent and uncertain; good portfolio decisions (ex-ante) can easily turn out to be bad later, and vice versa. The information available in market is incomplete and ambiguous so constructing reliable probability distributions are nearly impossible. Conclusively, it is fundamentally a matter of judgement and waiting. The question then arises: How do investors make the uncertain choices amidst such situations? It is a very well observed behaviour among investors, that they often construct strong convictions about their decisions which strongly influence asset valuations. The history of financial markets has seen numerous crises driven by inflated asset prices stemming from these by the strong opinions and exchanges of narratives by the investors. This occurrence is further exacerbated by confirmation bias, where investors selectively seek information that supports their existing beliefs while

disregarding the actual contradictory evidence. In an attempt to do so, investors choose to trust the market or other market participants.

Trust inevitably helps the vulnerable retail investors to manage uncertainty and creates bond with the securities (Tuckett, 2012). Additionally, traders also try to imitate each other to adapt and learn without having to previously gain the relevant experience themselves. When investors follow the same the trend, it leads to inflated asset prices or increased selloffs, creating market crashes. This can amplify market volatility and possibly collapse the entire financial system due to interconnectedness of financial institutions and markets triggering a domino effect. While herd behaviour can improve market efficiency, it can also increase the possibility of systemic risk. During 2008 financial crisis when the stock market crashed, primarily caused by housing bubble, risky positions, deregulations and excessive risk-taking, herd behaviour was commonly witnessed.

Literature Review: Meta-Analysis Addressing Emotional Biases

The study on relationship between emotional bias and investment decisions (Kumar & Chaurasia, 2024) conducted research to investigate the relation between emotional biases and investment decisions. Decision making process is influenced by primarily two biases – emotional and cognitive biases. Cognitive biases occur due to poor investment decisions, misjudging the risks or following market trends without proper analysis whereas emotional bias occur due to emotional factors such as fear of realizing losses when selling a stock. Existing research has examined into how emotional biases like loss aversion bias, regret aversion bias and overconfidence bias affect investment decisions? This research recognises the need for a meta-analysis to shed light on significance and intensity of these biases in investment decision-making.

The results of this study included data from 31 studies from different countries across the globe and performed hypotheses testing and examined rank correlation between variable – loss aversion bias, overconfidence bias, regret aversion bias and investment decision across different studies.

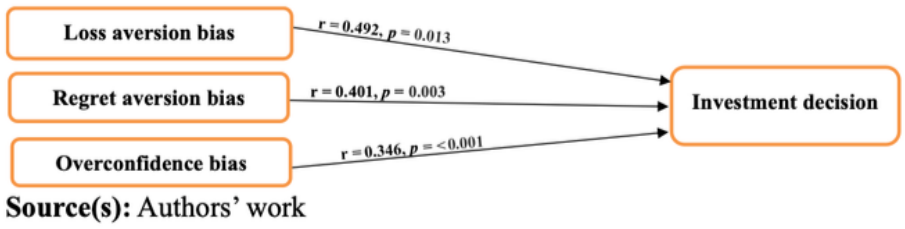

Figure 2: Results of research model (Kumar & Chaurasia, 2024)

The results of this study indicated a significant positive correlation between the emotional bias and investment decisions.

Loss-aversion bias:

The positive relation between the variables ($r = 0.492$, $p = 0.013$) illustrates that investors tend to be more loss-averse because they fear losses more than they value equivalent gains. As a result, investors may hold onto losing investments to avoid realizing a loss or avoid taking risks that could lead to potential gains.

Regret-aversion bias:

A moderate, statistically significant relationship ($r= 0.401$, $p=0.003$) shows that fear of making regrettable decision affects investment behaviour. This happens when investors avoid making decisions because they fear future regret. This group of investors tend to be overly conservative leading to missed opportunities in undervalued stocks.

Overconfidence bias:

This bias arises when investors overestimate their knowledge or ability to predict market movements. This group tends to take excessive risk, trade too frequently or underestimate potential losses. The analysis done by the authors of this meta-analysis demonstrates positive relationship ($r=0.346$, $p < 0.001$) between overconfidence bias and investment decision-making.

These p values below 0.05, confirm that the correlations are statistically significant, suggesting that emotional biases strongly influence investment decisions. However, there are certain limitations to this study, which the authors of the study acknowledge, includes:

- Sample characteristics in cultural contexts which may differ across the studies.
- The correlation data shows relationships but not causation. Investment decisions also are also impacted by factors like individual risk tolerance, financial literacy and market condition.
- Moreover, there is a limited data on regret-aversion bias and its effect on investment decision. Therefore, there is a need for further exploration on this to enhance the reliability of the results.

Case Study: The Collapse of Archegos Capital Management

Background

On the fateful day of 26th March 2021, Archegos Capital, a New York based family office defaulted on margin calls from various financial institutions. This default led to huge losses for some global banks. Bill Hwang, founder of Archegos Capital Management took some large exposures and highly leveraged positions on stocks like Viacom CBS by entering derivatives positions in total return swaps (TRS) with its counterparties like Goldman Sachs, Credit Suisse,

and Nomura. When the prices of the underlying stocks declined rapidly, Hwang was unable to meet the margin requirements, that resulted in liquidation of stocks by these banks. This led to huge losses of estimated over USD $10 billion dollars of counterparties and Hwang was accused of market manipulation. These events eventually led to collapse of a USD $36 billion-dollar private investment firm.

Who is Bill Hwang?

Bill Hwang, a Korean immigrant and founder of Archegos Capital Management, was largely mysterious to the public and professionals in finance industry but well known for making profits with his aggressive investment strategies. Being a man with strong beliefs, he did not believe in material wealth but did indulge in casino like risk. In 1992, after working as a salesman in two security firms he landed an analyst job at Tiger Management hedge fund with Julian Robertson as his mentor. Under his mentorship, Hwang opened a New York based fund focusing on Asian Markets known as Tiger Asia management (Pennington, 2021). This fund outperformed and grew immensely, mainly because of Bill's aggressive investment style i.e. using borrowed money to increase the position which didn't come in light until 2008. Later in 2010, it was uncovered by U.S. security regulators Bill was involved in insider trading of Chinese bank stocks. Two years, he pleaded guilty to the charges of making profitable trades using confidential information. This was the end of Tiger Asia management but not for Bill Hwang.

Archegos – a family office that rattled the stock market

After closing Tiger Asia, Hwang turned it into a family office and that was the birth of Archegos Capital Management. His trading style was interestingly very simple – Archegos would borrow money and purchase stocks after doing fundamental analysis that Bill believed would go up. While Hwang managed to turn initial sum of $200 million dollars into $10 billion dollars, his own positions were valued at $30 billion dollars (Winokur, 2021). This was possible due to his exposure in derivative contracts like total return swaps (TRS). By using multiple swaps, Archegos was able to make loads of profits without revealing themselves as major investor. However, it all unravelled when in March 2021 prices of stocks held by Archegos started falling rapidly. Soon Hwang was unable to cover the collateral, and its bank counterparts started to fire sell the stocks to minimize losses. Between the six banks involved, an estimated of $10 billion dollars was recorded and Bill lost $20 billion dollars in a matter two days (Bouveret & Haferkorn, 2022).

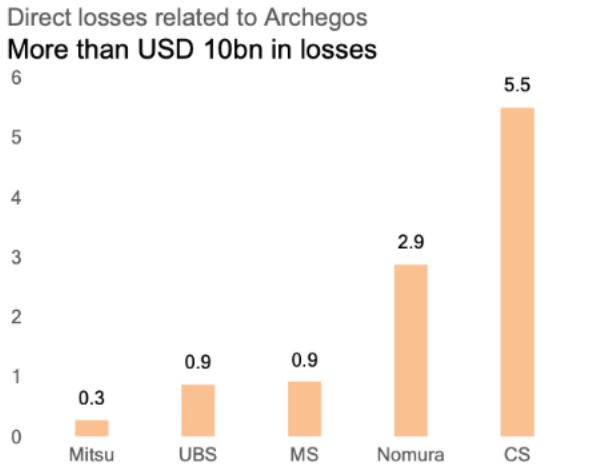

Figure 3: Graph indicating losses to Archegos' counterparties (Bouveret & Haferkorn, 2022)

The Archegos Capital collapse illustrates how emotions play a crucial role in shaping investor behaviour, implying that biases that impact financial stability. Overconfidence bias led Archegos to overleverage its positions. Archegos was overleveraged by the time stock prices started to fall. It couldn't meet the margin calls, leading to collapse and significant losses to banks like Nomura and Credit Suisse. In its initial years, from 2012 to 2020 Archegos' net asset value surged from USD $ 500 million to almost USD $10 billion (Schatzker, Natarajan, & Burton, 2021). During this period, it also faced large breakdowns indicating aggressive investments strategies of Bill Hwang. Loss aversion bias likely contributed to reluctance in unwinding positions despite increasing risk.

Initially, the regret aversion bias may have discouraged the counterparties of Archgos from acknowledging mistakes, further exacerbating the crisis. The failure of Archegos showed how interconnected the financial system really is, as losses incurred by a single entity could ripple through multiple financial institution – like domino effect. It prompted global banks to reassess their exposure to similar risks, recognizing the systemic risk posed by poorly managed leverage.

The collapse of Archegos Capital is a constant reminder of the consequences possessed by highly leveraged positions, and excessive risk taking possibly driven by overconfidence bias. Bill Hwang's aggressive style of investment, excessive use of total return swaps and concentration in a few stocks exposed both Archegos and its counterparties to significant risks, hinting presence of loss aversion and regret bias, sending shockwaves in entire financial markets in 2021. In 2024, jury found Bill Hwang and his CFO, Patrick Halligan, guilty of fraud that wiped billions of dollars off the financial markets.

Conclusion and Future Ahead

Conventional economic and financial models are oversimplified when accounting for reality and this especially true when accounting for investors' emotions and rationality in the face of uncertainty. Behavioural finance aims to refine this assumption of investment decisions and market developments. This paper observed that real-world decision-making is deeply influenced by emotional biases like loss aversion, regret aversion and overconfidence. The case of Archegos Capital showcases the impact of these biases and consequences to the financial system.

The meta-analysis by (Kumar & Chaurasia, 2024) highlights the need for more better financial models that account for psychological factors. However, limitations in research, particularly regarding cultural differences in emotional biases and long-term effects of regret aversion on market stability has yet to be explored.

- **Need of Improvement in Financial Literacy:**
  Financial literacy programs, in collaboration with governments across the world, could incorporate training on emotional biases and risk management to help investors recognize and mitigate emotional decision-making. Portfolio and money managers should be

trained in emotional regulation techniques to prevent impulsive decisions during market volatility.

- **Refinement of Classical models:**
  Classical models should be refined to include behavioural variable like "emotional risk factors" to better assess market stability. Use of machine learning and sentiment analysis can help investors understand future market movements.
- **Regulatory Measure to curb excessive risk taking:**
  The lessons learned from Archegos emphasize the need for better transparency, enhanced regulatory frameworks, and stricter controls on leverage to prevent such a collapse from happening again. Without the relevant reporting requirement, the authorities did not have ability to identify risks that were associated with Archegos, including high leverage and concentrated positions.
- **Behavioural Nudges and AI Driven Decision Support:**
  Investment platforms can integrate behavioural "nudges" to help investors overcome emotional biases – for example, alerting when a trader is overtrading due to overconfidence or holding onto losing positions due to loss aversion. AI driven models could analyse historical emotional patterns of investors and recommend a more balanced strategy.

Acknowledging the role of emotions in decision-making is not a weakness but a necessary step ahead to create resilient markets. The future ahead requires collaboration among economists, psychologists and regulators along with technology to build a better financial ecosystem.

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