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The Impact of Sentiment and Cognitive Load on Investment Decisions: A Conceptual Framework

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ABSTRACT

This conceptual paper examines the hardship that emotional cognition inhibits in investment decisions in light of neurofinance. Based on theories from emotional decision-making, cognitive load theory, and behavioural finance, the present paper builds a framework to gain insight into the relationship between investor sentiment, mental processing, and decision outcomes. Before cognition load, positive sentiment leads to more risk-taking and negative sentiment to risk averse, but cognition load decrease this effect. High cognitive load, such as well-explained when investors are confronted with complex financial decisions, may prejudice their cognitive information process and lead to emotional-based decisions. This research, which combines neuroscience, psychology, and finance to gain a better understanding how investors' mental states and external emotional stimuli affect their financial decisions. There are implications from the findings for financial advisors, policymakers, and investors to construct strategies that can enhance decision-making efficiency and risk management.

Keywords: *sentiment, cognitive load, investment, decision-making, risk management, Neurofinance etc.*

1. INTRODUCTION

Investment is a complex and uncertain decision process which also involves emotional aspects; hence it is a common topic of research in finance and psychology. Traditional financial theory assumes that investors are rational and that their decisions are based solely on objective information (Markowitz, 1952). But behavioural finance has taught us that feelings, biases, and cognitive constraints have a major impact on financial choices (Kahneman & Tversky, 1979). Sentiment and cognitive load are critical factors in our investment behaviour that traditional finance models may not adequately consideró (McMillan 2020).

Sentiment: the aroused emotional state influenced by external elements, including market news, social media, and economic conditions has shown to have an impact on making decisions in finance (Baker & Wurgler, 2007) Positive sentiment generally promotes risk-taking, but negative sentiment tends to promote risk aversion (Lo, 2005). On the other hand, cognitive load, which is the amount of mental effort we need to exert in order to use information, has been shown to have a very bad effect on our decision-making efficiency (Sweller, 1988). Because complex information, or deciding under duress, leads to a high cognitive load, this can make a person less able to think critically, and more likely to make biased or suboptimal decisions (Clark & Paivio, 1991).

Though emotion and cognitive load have been extensively studied separately, little attention has been paid to how these two variables combine and affect investing choices together. By putting out a conceptual framework that incorporates emotion and cognitive load in the context of neurofinance- a multidisciplinary concept that investigate the neurological mechanisms behind financial decision making – this study aims to give a deeper understanding of how sentiment and cognitive load influence investors' financial decisions, especially in difficult times, by utilizing concepts from behavioural finance, cognitive psychology, and neuroscience (Lo, 2005). This framework will serve as a foundation for future empirical research into how these factors interact and how they can be leveraged to enhance financial decision-making.

In addition to being essential for expanding theoretical understanding in neurofinance, an understanding of the relationship between emotion and cognitive load has applications. A better knowledge of the ways in which cognitive and emotional elements impact decision-making can be advantageous for investors, financial advisers, and legislators. This information may be used to improve financial education, provide better decision-support systems, and strengthen methods for controlling emotional biases while making investment decisions. This information may be used to improve financial education, provide better decision-support systems, and strengthen methods for controlling emotional biases while making investment decisions. Furthermore, investors may be better able to make judgements that support their long-term financial objectives even in the face of emotional or cognitive difficulties if they acknowledge the significance of these psychological aspects.

Given the rapid advancements in cognitive sciences and international financial markets, this study is relevant today. Understanding the psychological processes behind investment decisions is more crucial than ever as technology continues to transform the investing landscape with the rise of online trading platforms and algorithmic trading. This research contributes to the growing body of literature on neurofinance by providing a conceptual model that incorporates sentiment and cognitive load. It also offers valuable insights that may influence future investment strategies and financial advising techniques.

1.1 Research problem

Although behavioural finance has examined emotion and cognitive load independently, little is known about how they interact to affect investing behaviour. By putting out a conceptual model that incorporates mood, cognitive load and investment decisions, this study seeks to close this gap.

1.2 Significance of the study

Enhancing financial decision-making techniques, increasing the accuracy of financial forecasting models, and helping financial advisers create better client interventions all depend on an understanding of the cognitive-emotional aspects that influence investment decisions.

2. LITERATURE REVIEW

When it comes to influencing investment behaviour, sentiment is crucial. Sentiment analysis, which offers insights into market patterns and investor sentiment, is essential in influencing investing decisions. Investors may gain a better understanding of how market dynamics are affected by financial news and social media sentiment by utilising sophisticated machine learning models like BERT and finBERT. Strategic investment decisions are informed and prediction accuracy is improved by this combination of sentiment data and conventional financial measures. The paper's suggested approach for making investment decisions incorporates sentiment analysis using data from twitter. By recording market sentiment, it improves forecasting accuracy and gives investors in the Indian market useful information when paired with technical and fundamental analysis(Goel & Shyamala, 2024).Market sentiment can influence investors' actions, according to behavioural finance studies. Positive sentiment encourages risk-taking, whereas negative sentiment causes risk aversion (Baker & Wurgler, 2007). It has been demonstrated that sentiment analysis from sources such as news articles, social media, and market indicators correlates with both individual investing decisions and market volatility. Higher investor sentiment may result in lower accounts receivable ratios, which would have a substantial impact on corporate financial decision-making, according to the research(Chen et al., 2024), which shows a negative association between investor sentiment and the percentage of corporate accounts receivable. According to (Wiyasa et al., 2024) investment decisions are greatly influenced by positive market mood, which empowers investors to make well-informed judgements. Positive emotion and good technical analytical abilities contribute to higher, but incomplete market knowledge might result in bad investing choices even for technically skilled individuals. By integrating investors' emotional patterns into stock price forecasts, sentiment analysis greatly improves investment choices. According to the study, investors' decision making processes benefit from the increased forecast accuracy and decreased prediction time that come from combining sentiment data with a modified extreme learning machine. Social media data gauge public sentiment towards stocks, influencing investment decisions.(*Using Social Media & Sentiment Analysis to Make Investment Decisions*, n.d.) Presents a prototype that measures and visualizes sentiment metrics, aiding users in making informed investment choices based on collective sentiment.

According to the Cognitive Load Theory (CLT) (Sweller, 1988), people's ability to comprehend information is restricted. A heavy cognitive load hinders judgement and may result in less-than-ideal decisions. Investors are more likely to make biased or emotionally motivated judgements while making financial decisions because they may find it difficult to absorb sophisticated financial information when under a lot of cognitive load. The perceived assistance is diminished as a result of the high cognitive load resulting from complex sentiment in evaluations, which complicates the decision making process. This study emphasises the need for balancing detail and intelligibility in reviews, as increased attributes and sentiment variation can overwhelm consumers, negatively influencing their choices (Zhang et al., 2024). (Tacker & Silvia, 1991) according to the article, human agents may find it difficult to understand contradictory or incomplete input, which might impair sentiment analysis's efficacy and decision making quality overall. This can result in erroneous decision-making in complicated situations. And also sentiment analysis may be distorted by cognitive load, which can lead to intuitive,

stereotype-based judgements, especially in punitive choices when emotional reactions take precedence over critical analysis(*The Effects of Cognitive Load and Stereotyped Groups on Punitiveness*, 2016). Investment decisions are greatly impacted by cognitive burden since working memory constraints and cognitive exhaustion lead to performance deficiencies. Decision-making processes in financial situations may be impacted by increased cognitive load, which can result in less optimization and increased risk-taking(*Cognitive Workload and Fatigue in Financial Decision Making | SpringerLink*, n.d.).

3. CONCEPTUAL FRAMEWORK

This study's conceptual approach combines sentiment and cognitive load, two important psychological components, to investigate how they function together to affect investment decision-making. To show how emotional and cognitive processes interact to influence investor behaviour, the framework integrates ideas from behavioural finance, neurofinance and cognitive psychology. The concept seeks to explain how decision-making in the context of investment decisions is influenced by the interaction between external emotional inputs (sentiment) and the cognitive resources needed to comprehend information (cognitive load).

3.1 Sentiment and investment decisions

Accoding to Baker and Wurgler (2007), sentiment is the emotional state or mood brought on by outside factors like financial news, market movements, social media, or macroeconomic circumstances. Financial decisions are heavily influenced by investor mood, with negative sentiment tending to increase risk aversion and good sentiment genrally encouraging risk-taking behaviour (Lo, 2005). This connection stems from the affect heuristic, a psychological process in which feelings influence judgement (Slovic et al., 2007). Overconfidence and unrealistic expectations about market success can result from positive emotion, which encourages investors to take on greater risk. Negative mood, on the other hand, might increase anxiety and loss aversion, which lowers the desire to invest in risky assets ((Kahneman & Tversky, 1979).

3.2 Cognitive load and investment decisions

As defined by Sweller (1988), cognitive load is the mental effort required to process information, especially when faced with complex or uncertain decisions. High cognitive load occurs when people have to process a lot of information or make decisions under time pressure, which can cause mental fatigue and reduced cognitive resources. According to research, investors are more likely to rely on intuitive, emotionally driven decisions rather than careful, rational analysis when cognitive load is high. Cognitive load theory suggests that when cognitive resources are limited, decision-makers may use heuristics or simplifies strstegies, which could result in less-than-ideal choices (Sweller, 1988).

3.3 Interaction between sentiment and cognitive load

An essential element of this conceptual framework is the interplay between mood and cognitive burden. High cognitive load may amplify sentiment's impact on investors, causing them to react more emotionally and make fewer logical decisions. The emotional toll of bad news, for instance, might cause investors who are already cognitively exhausted by the intricacy of the issue to sell out in a panic during a market crisis. On the other hand, investors may have more cognitive resources available to comprehend and evaluate the information objectively when cognitive load is low, which might somewhat offset the sentiment-induced emotional biases.

Essentially, it is hypothesized that sentiment and cognitive load operate in a feedback loop, with strong sentiment influencing the amount of mental effort investors are willing to put forth when evaluating complex investment decisions and high cognitive mood making investors more susceptible to sentiment-driven decisions. Individual traits like risk tolerance, experience, and cognitive capacity may have an impact on this connection.

According to the conceptual model, sentiment and cognitive load have the following interactions:

Low cognitive load + positive attitude: Increases the likelihood that investors will take chances and make assured choices.

Low cognitive load + negative sentiment: Make investors excessively cautious and risk averse.

High cognitive load + positive attitude: Difficult for an investor to digest complicated information, which might result in overconfidence or rash actions.

Negative sentiment+ high cognitive load: negative emotions can be made worse by high cognitive load, which can result in poor decision-making or risk-averse behaviour.

3.4 Neurofinance perspective

From the standpoint of neurofinance, the way sentiment and cognitive load combine to affect decision-making is largely determined by brain mechanisms. According to studies, the prefrontal cortex, which controls higher-order cognitive functions, controls cognitive processes like risk assessment and decision evaluation, while the amygdala, a part of the brain involved in emotional processing, is activated by emotional stimuli (such as fear or excitement)(Bechara et al., 2000). A heavy cognitive load might overwhelm the prefrontal cortex, which can hinder decision making and increase reliance on amygdala-mediated emotional reactions. Therefore, emotion and cognitive load interact in a way that is not only

psychological but also includes certain brain circuits that influence investing decisions.

According to the framework, when there is a high cognitive load, emotions may take over and lead to less logical decisions that are more influenced by sentiment from the outside world. This is why emotional regulation, which is supported by the prefrontal cortex, is crucial in reducing the impact of sentiment.

3.5 Hypothesized relationships in the conceptual framework

The study makes the following proposed connections based on the integration of sentiment, cognitive load, and neurofinance principles:

H1: when making investing decisions, positive sentiment enhances risk-taking behaviour and negative sentiment fosters risk aversion (Baker & Wurgler, 2007; Lo 2005).

H2: Emotional, sentiment- driven decisions are more common when there is a high cognitive load, which hinders logical decision-making (Sweller, 1988; Clark & Paivio, 1991).

H3: high cognitive load increases the impact of sentiment on investment decisions, resulting in more emotional biases in judgement (Lo, 2005; Kahneman & Tversky, 1979).

H4: The interaction between sentiment and cognitive load is significantly shaped by the brain systems underlying emotion and cognition, namely the amygdala and prefrontal cortex (Bechara et al., 2000).

The conceptual framework offers a thorough understanding of how sentiment and cognitive load combine to affect investor behaviour in intricate decision-making scenarios, laying a strong basis for future empirical research in neurofinance. In addition to advancing theoretical knowledge, this framework offers guidance for creating tactics that assist investors in overcoming cognitive overload and emotional biases, which improves financial market decision-making.

4. CONCLUSION

A paradigm for comprehending how sentiment and cognitive load interact during financial decision-making is offered by this conceptual research. The suggested model provides a better understanding of the cognitive-emotional elements that influence investing decisions by combining knowledge from behavioural economics, psychology, and neurofinance. The paradigm may be empirically tested in future studies and expanded to include real-world financial applications.

REFERENCES

[1] Bechara, A., Damasio, A. R., & Damasio, H. (2000). Emotion, decision making and the orbitofrontal cortex. *Cerebral Cortex*, 10(3), 295-307.

[2] Clark, J. M., & Paivio, A. (1991). Dual coding theory and education. *Educational Psychology Review*, 3(3), 149-210.

[3] Kahneman, D., & Tversky, A. (1979). Prospect theory: An analysis of decision under risk. *Econometrica*, 47(2), 263-291.

[4] Lo, A. W. (2005). Reconciling efficient markets with behavioral finance: The adaptive markets hypothesis. *Journal of Investment Consulting*, 7(2), 21-44.

[5] Markowitz, H. M. (1952). Porttfolio selection. *The Journal of Finance*, 7(1), 77-91.

[6] Sweller, J. (1988). Cognitive load during problem solving: Effects on learning. *Cognitive Science*, 12(2), 257-285.

[7] Baker, M. P., & Wurgler, J. (2007). Investor sentiment in the stock market. *Journal of Economic Perspectives*, 21(2), 129-152.

[8] Slovic, P., Finucane, M. L., Peters, E., & MacGregor, D. G. (2007). The affect heuristic. *European Journal of Operational Research*, 177(3), 1333-1352.

[9] Chen, S., Qi, J., & Yan, H. (2024). The Impact of Investor Sentiment on Corporate Financial Decision-making: Taking New Media Platforms as an Example. *Finance & Economics*, *1*(9), Article 9. https://doi.org/10.61173/46x43y69

[10] *Cognitive Workload and Fatigue in Financial Decision Making | SpringerLink*. (n.d.). Retrieved January 13, 2025, from https://link.springer.com/book/10.1007/978-4-431-55312-0

[11] Goel, H., & Shyamala, L. (2024). Enhancing Investment Decision-Making: A Comprehensive Approach through Fundamental, Technical and Sentiment Analysis with Machine Learning and Deep Learning Algorithms. *2024 10th International Conference on Communication and Signal Processing (ICCSP)*, 1655–1660. https://doi.org/10.1109/ICCSP60870.2024.10544298

[12] Tacker, E. C., & Silvia, M. T. (1991). Decision making in complex environments under conditions of high cognitive loading: A personal expert systems approach. *Expert Systems with Applications*, *2*(2), 121–127. https://doi.org/10.1016/0957-4174(91)90109-R

[13] *The Effects of Cognitive Load and Stereotyped Groups on Punitiveness*. (2016, January 1). SciSpace - Paper. https://typeset.io/papers/the-effects-of-cognitive-load-and-stereotyped-groups-on-4ye59zstc0

[14] *Using Social Media & Sentiment Analysis to Make Investment Decisions*. (n.d.). Retrieved January 13, 2025, from https://www.mdpi.com/1999-5903/15/1/5

[15] Wiyasa, I. W. A., Akob, M., & Sumail, L. O. (2024). Akankah Sentimen Pasar Menghasilkan Keputusan Investasi yang Tepat? *Jurnal Samudra Ekonomi Dan Bisnis*, *15*(2), Article 2. https://doi.org/10.33059/jseb.v15i2.9039

[16] Zhang, M., Wei, Z., & Liu, Y. (2024). The impact of review sentiment complexity on perceived helpfulness: An information overload perspective. *Journal of Research in Interactive Marketing*, *ahead-of-print*(ahead-of-print). https://doi.org/10.1108/JRIM-04-2024-0196