Psychological Traps in Decision-making: Anchoring, Heuristics, and Loss Aversion

Songpo Li *

Department of Management and Marketing, The University of Melbourne, Melbourne, Australia

* Corresponding author: songpo.li@student.unimelb.edu.au

Abstract. Through a comprehensive analysis of existing theories and related experimental research, this article explores the psychological mechanisms and causes of three critical psychological phenomena in behavioral finance - anchoring effect, representative heuristic and loss aversion, and their specific manifestations in the financial market. The research background reveals the prevalence of these psychological biases in investment decisions and their impact on market efficiency. This article analyzes the cognitive and emotional factors behind these phenomena and explores the impact of cultural and social context on their manifestations. Furthermore, by comparing cases in different market and economic contexts, this study demonstrates how these psychological biases can be identified and exploited in global financial practices. The findings suggest that a deeper understanding of these psychological biases is critical to optimizing investment decisions and promoting market stability. The insights from this study provide market participants with practical strategies to deal with and exploit these psychological biases and promote the exchange and integration of financial practice and behavioral science.

Keywords: Anchoring effect, heuristic, loss aversion, behavioral finance, Investment decision.

1. Introduction

Behavioral finance is a crucial field that investigates irrational behaviours and psychological biases in financial markets. Contrary to traditional financial theory's assumption of rational market participants, behavioral finance identifies that actual market behaviour often strays from rational expectations [1]. Key phenomena such as the anchoring effect, representative heuristic, and loss aversion significantly influence investor decision-making. Despite advancements in theory and experimentation, a thorough understanding of these phenomena in specific market contexts remains limited.

This study assesses the existing theoretical and experimental research to uncover these biases' psychological and cognitive underpinnings and their frequent occurrence in investor behaviour. It explores how these biases impact investment decisions through emotional responses and cognitive strategies in various market conditions and examines the influence of sociocultural factors.

This research aims to provide a systematic perspective to aid market participants in managing these complex psychological phenomena, thereby bridging theoretical gaps and offering practical tools and strategies to enhance investment decision-making and market strategy development. This provides a theoretical and practical basis for the future application of insights from behavioral finance in different market environments worldwide.

2. Anchoring Effect

Anchoring effect is a psychological phenomenon that describes the tendency of individuals to rely too heavily on information first acquired during the decision-making process. In the investment field, this phenomenon is widespread and profoundly impacts investors' decision-making. By understanding the anchoring effect's working mechanism and application scenarios, investors and market participants can better identify, respond to, and exploit this psychological bias to optimize decision-making and improve investment efficiency.

When exploring the impact of the anchoring effect on investor decision-making, the more central issue is to understand why the anchoring effect occurs. Humans look for simplified processing strategies when faced with complex decisions due to limited cognitive resources. The anchoring effect manifests this cognitive tendency, in which individuals rely on first exposure to information as the basis for decision-making [2]. This dependence stems from the way the human brain processes information. When faced with many choices and large amounts of data, the brain automatically finds a fixed point (i.e., "anchor") to reduce cognitive load and simplify decision-making. When faced with a highly uncertain decision-making environment, people naturally seek stability and reduce cognitive load [3]. This causes individuals to rely on the behaviour of those around them and generally accepted opinions to form their judgments and decisions without clear information. However, while this simplification has adaptive value, it can also lead to bias because it causes people to rely too much on the initial information when subsequent information becomes available rather than thoroughly evaluating all available data.

In addition, emotional factors also play an essential role in the generation of anchoring effects. Investment decisions are not purely based on logic and rational analysis. Emotions and psychological states also significantly affect investors' choices [4]. When investors are faced with first-hand information or initial data, the information is accompanied not only by the facts themselves but also by emotional reactions such as excitement, fear, or greed. These emotional responses deepen the psychological imprint of the message, making the initial message an even stronger anchor. Later, even if new, more reasonable information becomes available, these emotional anchors may cause investors to ignore the updated data and rely on the original judgment. For example, an investor may be particularly proud of his initial purchase of a stock, and even if market conditions change significantly, this emotional binding may cause him to continue to hold the stock and ignore reasonable opportunities to sell.

Among market participants, the strategic use of anchoring effects occurs at multiple levels. For example, in capital marketing, a company can create a psychological anchor by setting its IPO (initial public offering) price high or low, influencing investors' judgment of its market value. In product pricing strategies, the anchoring effect influences consumers' purchasing decisions by setting a relatively high price as the "original price" and then providing seemingly significant discounts. This strategy is widespread in retail and online markets.

In an investment negotiation scenario, setting a preliminary investment condition or price, even if the condition is well above the market average, can effectively anchor subsequent discussions around this starting point. For example, a startup may deliberately overestimate its valuation when negotiating with venture capital investors. Even if the price ultimately agreed to by both parties is lower than the initial offer, this strategy can still help the startup obtain a relatively higher financing valuation.

Companies and analysts can also use the anchoring effect when issuing market forecasts or performance guidance. For example, a company may deliberately issue a more conservative earnings forecast. If actual results exceed expectations, even if the excess is limited, the market reaction will be more positive because the lower forecast has anchored investor expectations. On the contrary, overly optimistic forecasts may raise the anchor point of investors' expectations. Even if the company's performance grows, the market reaction may still be negative if it fails to meet high expectations.

3. Representativeness Heuristic

The formation of the representative heuristic is a natural product of human cognitive processes, and it reflects the brain's basic strategy when processing complex information. This psychological tendency enables individuals to reduce cognitive load and improve decision-making efficiency when faced with situations that require quick judgment [5-6]. Since human cognitive resources are limited, and the brain faces massive information and decision-making needs in daily life, it must find an

effective way to optimize the processing of this information. In this process, the representational heuristic serves as a fast, intuitive way of thinking that allows people to make decisions quickly by identifying surface features or patterns in information, thereby maintaining functionality in resource-constrained environments.

In addition, the strong pattern recognition ability of the human brain is another critical factor in forming representativeness heuristics. This ability has been essential for survival during the evolutionary process, allowing humans to quickly identify patterns and potential environmental threats, such as food sources and natural enemies [5]. In modern society, although the context and complexity of decision-making have far exceeded prehistoric environments, this pattern recognition ability still guides people's behaviour and decision-making, especially when information is incomplete, or time is tight.

A core feature of the representational heuristic is its strong reliance on intuition. Intuitive decision-making is advantageous in many scenarios, particularly in emergencies or when swift responses are essential. However, this dependence may bias complex decision-making processes, as intuitive judgments often rely on superficial similarities or personal experiences rather than thorough logical analysis [6]. While intuitive decisions are rapid, they may lack accuracy without deeper analytical consideration.

The representativeness heuristic also reflects the individual's need to simplify decision-making [2]. In the face of complex choices, people often reduce uncertainty by aligning new information with familiar categories or patterns. This method speeds up decision-making but can also lead to errors by ignoring detailed insights. Although this psychological tendency is adaptive under certain conditions, it can hinder precise analysis needed in complex situations.

Understanding why the representational heuristic occurs is crucial for recognizing its role and limitations in decision-making. The appropriate use of this heuristic depends on the specific context of a decision. Leveraging this bias can be beneficial in situations demanding quick reactions or when only basic assessments are necessary. Conversely, complex scenarios requiring detailed planning or where high risks are involved call for a more systematic and thorough analysis. Adapting decision-making strategies to suit different situations is key to enhancing decision quality in diverse and uncertain environments. This adaptation involves recognizing the strengths and weaknesses of the representational heuristic and developing skills to blend intuitive and analytical approaches. Through this balance, decision-making biases can be minimized, improving both the accuracy and efficiency of the process.

4. Loss Aversion

Loss aversion, deeply ingrained in human psychology and behavior, arises from the complex interaction of psychological, biological, and social-cultural factors. Psychologically, the impact of a loss generally elicits a stronger emotional response than an equivalent gain. Biologically, this response is rooted in the brain's processing of loss and threat, particularly within the amygdala, which is pivotal in emotional reactions. Neuroscience research has revealed that activity in these areas of the human brain increases when faced with losses, making avoiding losses a stronger drive than pursuing gains of equal value [7]. This biological evidence supports that loss aversion has a biological basis deeply embedded in the human brain.

Further exploring the underlying reasons for loss aversion, we can find that human evolutionary history also has a non-negligible impact on forming this psychological characteristic, humans have developed this sensitivity to loss as a survival mechanism [5]. In early human settings, resource scarcity meant that a loss could decrease survival chances, reinforcing loss aversion over generations. This ancient mechanism still influences modern decision-making processes, illustrating how our evolutionary past shapes current behaviors.

From a cognitive psychology standpoint, loss aversion also involves a bias in how information is processed. Research indicates that people tend to focus more on information related to losses than on

gains, affecting memory and attention [8]. This means that people are more likely to remember and pay attention to information associated with losses than, to the same extent, information about gains. This information processing bias further strengthens the psychological effect of loss aversion.

Culturally, loss aversion is a universal phenomenon, but its expression varies significantly across different societies [9]. This suggests that while loss aversion is a universal psychological tendency, the cultural context has an essential influence on its specific manifestations. For example, individuals who are more financially unstable or have experienced financial distress may exhibit greater loss aversion because the consequences of a loss may be more severe for them. Likewise, social status and identity play a role in this process. In some cultures, financial losses are viewed as a lack of ability or judgment, causing individuals to be more conservative or anxious when making decisions about potential losses.

Strategies that use loss aversion to influence consumer decisions can greatly incentivize purchasing behaviour and enhance customer loyalty. First, the limited time offer strategy creates a sense of urgency by setting an expiration time, prompting consumers to purchase before the offer disappears. This "miss it or lose it" pressure, especially during large promotions like Black Friday, can significantly increase the sales velocity of a product. Secondly, member-exclusive offers take advantage of consumers' reluctance to miss out on these exclusive benefits by offering exclusive discounts and offers, thereby increasing members' loyalty and the possibility of continued consumption. For example, the Amazon Prime membership service not only provides express delivery discounts but also includes exclusive video content and other benefits, thereby increasing the attractiveness and stickiness of the service. Finally, product bundling bundles multiple products or services at a discounted price, making consumers believe they will lose more value by purchasing each product individually. This strategy encourages consumers to adopt more affordable purchasing methods by highlighting the cost-effectiveness of bundled purchases, such as purchasing a smartphone, earphones, and protective case simultaneously. These strategies effectively promote purchasing decisions by stimulating consumers' loss aversion psychology, showing the practical application value of the loss aversion principle in promoting sales and enhancing consumer experience.

5. Conclusion

This study delves deeply into the impact of three psychological phenomena—anchoring effect, representative heuristic, and loss aversion—on investment decisions and financial markets. These biases enhance our academic understanding of investor behaviour and pose practical challenges and opportunities for financial practitioners.

First, the anchoring effect illustrates how investors depend on initial information to make decisions, allowing this initial data to influence subsequent choices disproportionately. This bias is especially significant in contexts like stock pricing and forecasting. Recognizing and understanding the anchoring effect can help investors avoid typical pitfalls, such as excessive reliance on historical price levels while neglecting current market fundamentals. Second, the representative heuristic shows how investors simplify decision-making processes under conditions of incomplete information. While this strategy facilitates quick decisions, it can also lead to errors, particularly with complex financial products or volatile markets. Investors and financial strategists need to be aware of this bias and enhance decision quality through more thorough data analysis and the use of diverse decision-making models. Third, loss aversion highlights the undue sensitivity people have toward potential losses, a trait clearly visible in behaviours such as stock market overreactions and risk aversion. Understanding the roots and impacts of loss aversion can assist financial institutions in crafting products and strategies that resonate with investor psychology, helping investors manage risk and return more effectively.

Beyond theoretical investigation and empirical study, this research underscores the necessity of applying these psychological insights in a globalized financial landscape. As markets evolve, the

influx of participants from emerging markets and investors with varying cultural backgrounds introduces new behavioural patterns and challenges, expanding the scope and complexity of behavioural finance research.

References

[1] Ackert, L. F. Traditional and Behavioral Finance. In Investor Behavior, John Wiley & Sons, Ltd, 2014: 25 - 41.

[2] Tversky, A., Kahneman, D. Judgment under Uncertainty: Heuristics and Biases. Science, 1974, 185 (4157): 1124 – 1131.

[3] Simon, H. A. A Behavioral Model of Rational Choice. The Quarterly Journal of Economics, 1955, 69 (1): 99 – 118.

[4] Shiller R J. Measuring bubble expectations and investor confidence. The Journal of Psychology and Financial Markets, 2000, 1 (1): 49-60.

[5] Kamil, A. C. Evolution and Cognition. Evolution and Human Behavior, 2001, 22 (6): 439 – 442.

[6] Kahneman, D. Thinking, fast and slow. Macmillan, 2011.

[7] De Martino, B., Kumaran, D., Seymour, B., Dolan, R. J. Frames, Biases, and Rational Decision-Making in the Human Brain. Science, 2006, 313 (5787): 684 – 687.

[8] Barber B M, Odean T. Trading is hazardous to your wealth: The common stock investment performance of individual investors. The journal of Finance, 2000, 55 (2): 773 - 806.

[9] Henrich J, Boyd R, Bowles S, et al. “Economic man” in cross-cultural perspective: Behavioral experiments in 15 small-scale societies. Behavioral and brain sciences, 2005, 28 (6): 795 - 815.