

Availability Heuristic, Risk Tolerance, and Investment Decision-Making: A Behavioral Perspective

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Abstract. This paper examines the mechanisms through which cognitive biases shape investment decisions in emerging markets, situated within the framework of behavioral finance. Combining case analysis and empirical evidence, it explores how heuristics such as availability bias, overconfidence, and anchoring influence investment behavior via the mediating role of risk tolerance. Key findings include: (1) investors dynamically adjust risk tolerance based on readily accessible information (e.g., vaccine news, airline crisis reports), leading to irrational portfolio adjustments; (2) media overexposure to rare but sensational events (e.g., terrorist attacks, plane crashes) significantly distorts risk perception beyond statistical probabilities; (3) gender disparities emerge, with women showing higher sensitivity to availability heuristics in insurance decisions and men demonstrating greater risk tolerance; and (4) risk tolerance acts as a critical intermediary, highlighting the interplay between emotional and cognitive factors in financial decision-making. The study innovates by extending behavioral finance theories to non-Western contexts and systematically demonstrating the reinforcing effects of cultural and institutional factors on bias transmission. Policy recommendations include establishing multi-dimensional financial literacy education systems, developing gender-differentiated investment advisory services, constructing regulatory frameworks for media risk communication, and designing dynamic risk tolerance assessment tools. This research provides theoretical foundations and practical pathways for optimizing investor behavior and regulatory policies in emerging markets.

Keywords: Availability bias, overconfidence, anchoring effect, representation bias, media exposure.

1. Introduction

In recent decades, behavioral finance has emerged as a critical field of study, challenging the traditional assumption of rational decision-making in financial markets. Investors are increasingly recognized to be influenced by cognitive biases and heuristics, such as availability bias, overconfidence, anchoring effects, and representativeness heuristics, which systematically deviate from rationality. For instance, during the COVID-19 pandemic, retail investors on platforms like Robinhood adjusted their portfolios based on virus-related news, demonstrating how easily accessible information shapes investment choices. Similarly, media coverage of airline and cruise company crises led to significant fluctuations in risk tolerance, highlighting the role of availability heuristics in decision-making. These observations underscore the need to explore how cognitive biases interact with risk tolerance and media influence to affect investment behavior, particularly in emerging markets like China, where cultural and institutional contexts may amplify these effects.

Existing literature has extensively documented heuristics in Western financial systems, but their applicability to developing countries remains underexplored. This study bridges this gap by examining how availability bias, overconfidence, anchoring, and representativeness heuristics impact investment decisions through the mediating role of risk tolerance. Additionally, it investigates how media exposure and gender differences moderate these relationships, using real-world examples such as post-9/11 risk perceptions and insurance purchasing behavior.

By integrating behavioral theories with empirical evidence, this paper aims to provide insights into optimizing investment strategies and improving financial literacy in non-Western settings.

2. Risk tolerance in investment behavior

2.1. Basic Facts

When people make risk judgments, they tend to rely on a factor: the availability heuristic, which involves how easily examples of a risky event come to mind. Following the availability heuristic, people assess the frequency or probability of an event by the ease with which instances or occurrences of that event can be brought to mind. Someone may, for instance, judge the prevalence of heart attacks by recalling occurrences of heart attacks among their acquaintances [1].

During the pandemic, retail investors on the Robinhood platform would quickly adjust their investment portfolios based on news related to the virus. For instance, when there was news about progress in vaccine development, they would flock to the stocks of related pharmaceutical companies. This is because news about the success of vaccine development is easily accessible information, and investors, based on this, believed that the stocks of pharmaceutical companies had significant potential for growth, thus making investment decisions [2]. This behavior reflects the availability heuristic, where investors rely on easily accessible news to determine investment directions, thereby influencing their investment decisions.

Investors also react to negative news about stocks, such as adopting a "buy on the dip" strategy, which is evident in the stocks of airlines and cruise lines affected by the pandemic. The negative news about these companies being impacted by the pandemic was widely spread and easily accessible. Under the influence of this negative information, some investors believed that there were investment opportunities after the stock prices dropped and thus made purchase decisions [2]. This indicates that investors base their judgments on the risks and returns of stocks on easily accessible negative news and make investment decisions, accordingly, demonstrating the impact of the availability heuristic on decision-making.

Analysis of the above two cases leads to the following conclusion: Investors tend to adjust their risk judgments based on easily accessible news events (such as vaccine development progress, pandemic spread data). For example, when news about vaccines appears frequently, investors underestimate the risks of pharmaceutical stocks, believing they have certain returns, and thus increase their risk tolerance (such as making large purchases); while when negative news about airlines being hit by the pandemic is widely spread, investors may overestimate the risks of these stocks and choose to avoid or contrarily buy at the bottom, showing fluctuations in their risk tolerance. It can be seen that the availability heuristic further influences their investment decisions by affecting investors' risk tolerance.

2.2. Theory Analysis

Heuristics are mental shortcuts for decision-making and problem-solving that people learn through experience when facing complex issues. These heuristics include anchoring, availability, representativeness, and overconfidence, among others. Within the framework of behavioral finance, the formation mechanism of investors' decision-making biases has always been a research focus. Cognitive biases such as overconfidence, anchoring effect, representativeness bias, and availability bias are widespread in the investment process [1]. However, in investment decisions, personal experience, intuition, and other factors can also influence the decision-making results. Therefore, multiple mediating mechanisms need to be considered to affect the influence of risk tolerance and financial literacy on heuristic biases and investment decisions. It should be noted that research results from Western and capitalist countries may not be applicable to the context of emerging and developing countries.

Risk tolerance has been confirmed as an important mediating factor in how overconfidence, anchoring effect, representativeness bias, and availability bias influence investment decisions. This means that when investors face risks, their risk tolerance affects how they process information and make decisions. If investors have a higher risk tolerance, they are more likely to take risky actions and thus are more susceptible to the availability heuristic. Conversely, if investors have a lower risk

tolerance, they tend to adopt conservative investment strategies and are less likely to be influenced by the availability heuristic. Therefore, understanding investors' risk tolerance can help us better understand their behavior in investment decisions and assist in formulating more effective financial education strategies.

Overconfidence: Overconfidence is when investors are overly optimistic about their own abilities and judgments. Studies have shown that overconfident investors tend to overestimate their investment ability and underestimate risks, resulting in over-investment [3]. This overconfidence can affect investors' risk tolerance, making them more inclined to take high risks. For example, in [4], the author points out that high overconfidence of investors will make them have a high-risk tolerance, which will affect investment decisions. In the investment research of Batam, the high overconfidence of investors makes it easier for them to ignore risks and make risky decisions in investment decisions [5].

Anchoring effect: The anchoring effect refers to the excessive reliance of investors on initial information when making decisions, thus affecting subsequent judgments. When investors are subject to anchoring effects, their risk tolerance can change. For example, in literature [6], the impact of external anchor value information on consumers' perception of food safety risk was studied, and its impact was assessed through experimental intervention. The results showed that before the intervention, the respondents were generally concerned about food poisoning. After the intervention, their level of concern about the problem increased further. It can be inferred that anchoring effect can also affect investment decisions by affecting risk tolerance.

Representativeness bias: Putri and Halmawati's research found that representativeness bias can affect investment decisions and indirectly affect investment decisions through affecting risk tolerance [7]. When investors are affected by representation bias, they may judge the risks and benefits of an investment project based on some superficial characteristics, while ignoring other important factors. This one-sided judgment will affect their assessment of risks and determination of risk tolerance. For example, if investors believe that a certain investment project has representative characteristics, such as high return and low risk, they may overestimate the return of the project and underestimate the risk, so as to improve the risk tolerance and make investment decisions.

Availability bias: Availability bias is when investors make judgments based on easily recalled information. When investors are affected by availability bias, their perception of risk can be skewed, which affects risk tolerance. In literature [8], it is found that risk tolerance plays a mediating role in the impact of availability bias on investment decisions. Investors, affected by availability bias, may pay excessive attention to certain easily recalled risk events, thereby reducing risk tolerance and affecting investment decisions.

2.3. Behavior optimization

Improve investor awareness: Investors should strengthen their understanding of the availability heuristic and understand its possible biases and risks. By learning financial knowledge and investment theory, investors can better understand the process and influencing factors of investment decision making, thus reducing the influence of availability heuristics. For example, investors can learn the relevant knowledge of behavioral finance, understand the various biases and heuristic thinking modes in human decision-making, and how to avoid the impact of these biases on investment decisions [9].

Diversified information sources: When making investment decisions, investors often rely on limited information sources, which can easily lead to availability heuristic bias. To avoid this, investors should diversify their information sources to obtain more comprehensive and accurate information. For example, they can pay attention to the views of different news media, research institutions, and professional analysts, and also refer to historical data and statistical information to assess investment opportunities more objectively [9].

Avoid blind following: In investment, avoid making decisions merely based on others' behaviors or media hype. Investors should make decisions based on their own research and analysis, and dare to take contrarian strategies when necessary. If investors blindly follow others' investment behaviors,

they are likely to be influenced by the availability heuristic without fully considering the fundamentals of the investment.

3. Media exposure and risk perception

3.1. Example: The availability bias of media exposure affects risk perception

Terrorism is a strategy of political violence aimed at increasing the perceived risk of attack and evoking a widespread sense of fear and vulnerability. Terrorists exploit the dual tendency of people to exaggerate the risk of graphic, sensational threats - especially those that attract media attention - and to underestimate the risk of ordinary threats that are statistically more likely but less alarming [10]. For example, after the September 11 terrorist attacks in New York and Washington, many Americans seemed more concerned about the possibility of becoming a victim of terrorism while flying or shopping at a mall than they were about the greater likelihood of a fatal traffic accident while driving. Five years later, 30% of Americans reported that they were still reluctant to fly because of 9/11 [11].

3.2. Analysis

Availability heuristic: According to one of the earliest studied heuristics, the availability heuristic [12], people measure the probability of an event by relying intuitively on cognitive availability, that is, how easy it is for people to imagine or recall an event or similar event. More available events are often judged to be more likely to occur. In effect, subjective assessments of probability replace objective data about the actual frequency of events with aspects of an individual's own cognitive process-ease of recall, familiarity, and salience. The media's vivid, vivid coverage of threat incidents captures the public's attention, increases the availability of awareness, and increases the associated risk awareness. For example, as viewers' exposure to television crime coverage increases, so does their fear of crime - often far exceeding the risk implied by actual crime rates [13]. Similarly, commentators have hypothesized that the disproportionate fear of terrorism is due to increased cognitive availability due to media exposure [14, 15].

Loss aversion: On the other hand, in traffic accidents, driving has a relatively high probability of fatal accidents, while airplane crashes have a low probability but huge losses [16]. Therefore, in the transportation choice, people may be more inclined to choose to drive because of the fear of huge losses such as plane crashes, even though the probability of fatal traffic accidents is higher when driving. Media reports tend to amplify the loss of aircraft crashes, which further enhances people's perception of the loss, thus affecting their transportation choices.

On risk perception bias and micro-agents: Happiness depends not only on how people actually perform, but also on whether they do better than expected [17]. This suggests that subjective feelings have an important influence on people's judgments. In risk assessment, micro actors may also be influenced by subjective feelings, not just objective probabilities. Uncertainty predicts subjective feelings of stress in unstable environments, and social prediction errors affect the self-worth of individuals with low self-esteem. All this suggests that subjective feelings and emotions play an important role in people's decision-making and risk assessment.

3.3. Behavior optimization

The availability heuristic leads people to perceive danger based on social media exposure and disaster potential rather than true mortality. When a certain risk event is frequently exposed on social media, people will be more likely to recall these events, thus overestimating the probability and severity of the risk. This overestimation of risk will reduce people's risk tolerance and make people more cautious when facing decisions. For example, when information about a certain disease is widely disseminated on social media, people may think that the risk of contracting the disease is high because they are easy to remember the information, and thus reduce their tolerance to the risk of involving the disease [18].

Monitoring social networks: The rise of social media platforms provides a channel for the dissemination of information about aircraft crashes, and can also be used as a tool to monitor aircraft crashes [19]. By monitoring the formation of social networks and the speed of information, people can understand the situation of plane crashes in time and provide first-hand information for micro-actors. For example, in the case of a commercial airliner accident, a quantitative analysis of social network formation based on comprehensive network indicators can be useful in dealing with air demand, especially in terms of optimal communications operations management in the event of a crisis.

Raise public awareness of aviation safety: Educate the public about aviation safety through various channels, such as media, schools, communities, etc. Make people aware of the strict standards and procedures in aircraft design, manufacture, maintenance, and pilot training, thereby enhancing confidence in aviation safety [20]. For example, popular science videos about aircraft safety can be made and widely disseminated on social media platforms. The structural strength, advanced navigation system and strict safety inspection process of the aircraft are introduced, so that the public can understand the multiple guarantees of modern aircraft in terms of safety.

Transparent and open accident investigation process and results: When an aircraft accident occurs, the relevant authorities should promptly and accurately disclose the progress and results of the accident investigation to the public. Explain the cause of the accident and the improvement measures taken in detail to avoid excessive concern and fear of the public due to the opacity of information [21]. For example, in the process of accident investigation, regular press conferences can be held to inform the public of the phased results of the investigation and answer questions of public concern. At the same time, official websites, social media and other platforms are used to timely release the investigation dynamics, so that the public can understand the whole process of handling the accident.

Awareness of media bias: It is necessary to recognize that different media organizations may have bias in terms of political stance, business interests, etc., so it is necessary to collect information from many aspects and compare and analyze.

Remain calm and objective: When accepting and processing relevant information, it is necessary to maintain a calm and objective attitude, free from personal emotions and biases, in order to make more accurate and rational judgments.

4. Purchase insurance

4.1. The availability heuristic influences people's perception of risk to decide whether to buy insurance

In the early stage of natural disaster, individuals are more likely to be affected by the "availability heuristic" and increase their insurance purchase intention. Over time, however, this effect waned. Conversely, individuals who have experienced multiple disasters are more susceptible to the "gambler's fallacy," believing that the risk of another disaster is reduced and thus reducing insurance purchases. The experiment also revealed that women are more susceptible to the availability heuristic than men, while high-income groups are less likely to change their insurance options in the short term due to disasters. In addition, for those who switched to buying insurance after a natural disaster, the study found through regression analysis that younger, female, and risk-averse people were more likely to make the switch. These findings not only help to understand the dynamics of the insurance market after natural disasters but also provide references for formulating relevant insurance policies [22].

4.2. Analysis

4.2.1. Availability heuristic

The role of availability heuristics in risk assessment and insurance purchase decision-making is to make people more likely to think that they need to buy insurance and increase their willingness to buy insurance. This is because when people face risks such as natural disasters, they are more likely

to think that they need to buy insurance to cover potential losses, which leads to the availability heuristic. However, it is important to note that the availability heuristic does not necessarily reflect the true probability, as it can be influenced by other factors, such as personal experience, media coverage, and so on.

4.2.2. For investors of different genders

Differences in risk perception and return expectations: Male and female investors differ in risk perception and return expectations, and this difference may influence their investment decisions under the availability heuristic. In general, female investors may be more conservative and have a lower tolerance for risk, while male investors may be more aggressive and have a higher tolerance for risk [23]. Under the influence of the availability heuristic, female investors may be more susceptible to negative information and thus make more cautious investment decisions. Male investors, on the other hand, may be more likely to be influenced by positive information and thus be more daring in their investment decisions

Differences in information access and processing: Male and female investors may also differ in information access and processing. For example, female investors may pay more attention to details and carefully analyze and compare various information, while male investors may pay more attention to macro information and pay more attention to the overall trend of the market [23]. This difference may lead them to make different investment decisions under the availability heuristic.

4.3. Behavior optimization

Provide personalized investment advice: Financial advisors can provide personalized investment advice to investors based on factors such as gender, age, income, risk appetite and so on. Research has found that women investors who work with female advisers show higher risk tolerance, lower cash allocations, and higher investment knowledge and confidence. Therefore, it is recommended that female investors preferentially choose female advisers to improve investment efficiency. It is also recommended that institutions improve gender ratios by recruiting and retaining female advisers to meet the needs of female investors [24]. Financial advisors can develop a personalized investment plan for investors by understanding their investment goals, risk tolerance, investment time and other factors. An investment plan can include elements such as asset allocation, portfolio management, and risk management. Financial advisers can also provide targeted investment advice based on the gender difference of investors. For example, for more conservative female investors, some relatively low-risk investment products can be recommended, such as bonds and monetary funds. At the same time, in terms of asset allocation, the proportion of cash and fixed income assets can be appropriately increased to reduce the risk of the portfolio. For male investors, some high-risk and high-return investment products such as stocks and stock funds can be recommended according to their high risk tolerance. But at the same time, remind them to pay attention to risk control and avoid excessive risk-taking.

Increased transparency: Insurance companies can help consumers better understand risks and the role of insurance by providing more information, such as historical data, statistics, etc., so as to avoid being misled by the availability heuristic.

Guide rational thinking: Insurance companies can guide rational thinking and decision-making by educating consumers about risk and insurance, rather than relying solely on the availability heuristic.

5. Conclusion

This study is situated within the framework of behavioral finance, addressing the limitations of rational choice theory by examining how cognitive biases shape investment decisions. The proliferation of media and social networks in the digital age has amplified the impact of availability heuristics, making it crucial to understand how easily accessible information influences risk perception and tolerance.

The paper explores four key areas:

- (1) The role of availability heuristics in investment risk tolerance.
- (2) Media's influence on risk perception through vivid exposure.
- (3) Gender differences in insurance purchasing behavior.
- (4) Strategies to mitigate heuristic-driven biases. Its goal is to uncover the mechanisms through which cognitive biases affect financial decisions in emerging markets, offering practical implications for investors and policymakers.

This article found that:

- (1) Availability Bias: Investors rely heavily on easily retrievable information (e.g., vaccine news, airline crisis reports) to adjust risk tolerance, leading to irrational portfolio shifts.
- (2) Media Influence: Media magnification of rare but sensational events (e.g., terrorist attacks, plane crashes) distorts risk perception, often overriding statistical probabilities.
- (3) Gender Disparities: Women exhibit higher sensitivity to availability heuristics in insurance choices, while men demonstrate greater risk tolerance.
- (4) Mediation Role: Risk tolerance acts as a critical intermediary between heuristics and decision-making, emphasizing the need to address emotional and cognitive factors in financial education.

Limitations: Despite its contributions, the study has several limitations. First, the analysis primarily focuses on Chinese and Indonesian contexts, limiting generalizability to other cultures. Second, the reliance on cross-sectional data restricts the ability to observe long-term behavioral changes. Third, while gender differences are identified, the study does not delve into intersectional factors (e.g., age, income) that may further moderate biases.

Future Directions: Future research should extend the analysis to diverse cultural settings, incorporating longitudinal data to track behavioral shifts over time. Additionally, exploring the interplay between heuristics and technological advancements (e.g., algorithmic trading, AI-driven recommendations) could offer novel insights. Neuroeconomic approaches might also shed light on the neural mechanisms underlying heuristic-based decisions. Finally, integrating behavioral insights into policy design—such as tailored financial literacy programs for women and media literacy campaigns—could enhance decision-making outcomes in an increasingly complex financial landscape.

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