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Behavioral Biases in Investment Decisions: An Extensive Literature Review and Pathways for Future Research

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Abstract

In the realm of investment decisions, the influence of behavioral biases has emerged as a captivating area of exploration. This article embarks on a comprehensive journey through the landscape of behavioral biases in investment choices, delving into their profound impact on financial markets. Contrary to traditional finance theories assuming rationality, a multitude of empirical evidence attests to the pervasive effects of cognitive and emotional biases. Through an extensive literature review, this article elucidates the intricacies of key biases such as overconfidence, loss aversion, anchoring, confirmation bias, herding behavior, disposition effect, framing effects, and regret aversion. By examining the distinct ways these biases distort investors' judgment and decision-making processes, we unveil the often unexpected deviations from rationality. Each bias, rooted in human psychology, can lead to suboptimal investment behaviors, portfolio misalignments, and heightened market volatility. However, recognizing the impact of these biases provides opportunities for transformative insights. As investment professionals, policymakers, and individuals alike comprehend the subtle nuances of behavioral biases, tailored interventions, educational initiatives, and adaptive strategies can be devised to mitigate their adverse effects. This article not only synthesizes the prevailing research but also charts a course for future investigations. The implications of understanding and addressing behavioral biases extend beyond financial realms, offering a bridge between finance and psychology. As interdisciplinary collaboration gains momentum, pathways for future research become evident, beckoning scholars to delve deeper into the uncharted territories of human behavior and its intricate relationship with investment decisions. Through the exploration of these biases and their potential remedies, this article illuminates the evolving landscape of investment decision-making in a world where cognitive fallacies intersect with financial choicest.

Keywords: Overconfidence, Herding bias, Behavioral biases, Investment decisions, Bibliometric analysis, Systematic literature review, content analysis

1. Introduction

Anteriorly, researchers followed traditional finance theories such as the efficient market In the dynamic landscape of investment decisions, the traditional assumptions of rationality and efficiency have given way to a more nuanced understanding of human behavior. The field of behavioral finance has emerged as a powerful lens through which we can comprehend the intricate interplay between cognitive biases and investment choices. This introductory section sets the stage for an extensive exploration into the realm of behavioral biases and their profound implications for financial markets [1-6].

Classical finance theories have long posited that investors make decisions based on careful analysis, rational expectations, and the pursuit of self-interest. However, real-world observations often diverge from these theoretical constructs. Empirical evidence demonstrates that investors frequently exhibit behaviors influenced by psychological and emotional factors, leading to patterns of decision-making that deviate from rationality [6-8]. This realization has led to a paradigm shift, with behavioral finance gaining prominence as an essential framework for understanding investment phenomena.

The allure of behavioral biases lies in their ability to explain the discrepancies between economic theories and market outcomes. These biases, deeply rooted in human psychology, illuminate the cognitive shortcuts, emotional responses, and heuristic-driven judgments that shape investors' choices [9-16]. From the tendency to overestimate one's own knowledge and underestimate risks, to the aversion to losses that outweighs the desire for gains, these biases encapsulate a range of behaviors that significantly impact investment strategies and portfolio performance.

This article embarks on a comprehensive journey to explore the landscape of behavioral biases in investment decisions. Through an extensive literature review, we aim to shed light on the nuanced intricacies of key biases that underlie investment behaviors [17-19]. The subsequent sections delve into biases such as overconfidence, loss aversion, anchoring, confirmation bias, herding behavior, disposition effect, framing effects, and regret aversion. Each bias, a manifestation of the complex interplay between cognitive and emotional aspects of human behavior, offers insights into the deviations from rationality observed in investment contexts [20-23].

By understanding and dissecting these biases, we not only gain a deeper appreciation for the intricacies of human decision-making but also open avenues for practical applications. The implications of behavioral biases extend beyond theoretical discourse, offering opportunities for designing interventions, educational programs, and innovative investment strategies that account for and mitigate these inherent cognitive fallacies. Furthermore, recognizing the pervasive effects of behavioral biases lays the groundwork for a more holistic approach to investment decision-making, one that bridges the gap between financial theory and the complex reality of human behavior. As the realm of behavioral finance continues to evolve, it beckons researchers, investors, and policymakers to collaborate in uncovering the multifaceted layers of human decision-making. This article sets out not only to synthesize the existing body of research but also to chart a trajectory for future

investigations. The path forward lies in interdisciplinary collaborations that intertwine finance, psychology, and neuroeconomics, as we seek to unravel the intricate threads that weave together our cognitive biases and financial choices. Through this exploration, we embark on a journey to understand how behavioral biases shape investment decisions in an ever-evolving world of finance.

2. Theoretical background of the behavioral biases on investment decisions

Behavioral biases in investment decisions stem from the intersection of cognitive psychology, behavioral economics, and finance. Traditional finance theories, based on rational choice models, assume that individuals make decisions in a calculated, objective, and self-interested manner. However, empirical observations have consistently revealed that human decision-making is often influenced by psychological and emotional factors, leading to deviations from rationality. This theoretical background lays the foundation for understanding the behavioral biases that impact investment choices.

Prospect Theory:

One of the seminal theories in behavioral finance is Prospect Theory, developed by Kahneman and Tversky [24] in 1979. This theory challenges the traditional notion of utility maximization and introduces the concepts of loss aversion and diminishing sensitivity. According to Prospect Theory, individuals perceive gains and losses relative to a reference point (usually their current status), and they experience the pain of losses more intensely than the pleasure of equivalent gains. This psychological phenomenon leads to risk-averse behavior when faced with potential losses and risk-seeking behavior when faced with potential gains.

Heuristics and Biases:

The work of Kahneman and Tversky also introduced the concept of heuristics, which are mental shortcuts individuals use to simplify complex decisions. While heuristics can be efficient, they can also lead to systematic errors or biases in judgment. For example, the availability heuristic involves making judgments based on readily available information, leading investors to overweight recent or easily accessible data when making investment decisions.

Anchoring and Adjustment:

Anchoring and adjustment is another cognitive bias that plays a significant role in investment choices. This bias occurs when individuals rely too heavily on the first piece of information encountered (the anchor) when making subsequent decisions. Investors anchored to a specific stock price or market level may inadequately adjust their valuations based on new information, leading to mispriced investments.

Herding Behavior:

Overconfidence, a cognitive bias, manifests when individuals have an inflated belief in their own abilities, knowledge, and predictive accuracy. These bias leads investors to overestimate their understanding of financial markets, often assuming they possess superior information that gives them an edge. Overconfident investors tend to engage in excessive trading, frequently buying and selling based on the belief

that they can outperform the market. The Dunning-Kruger effect, a cognitive phenomenon, illustrates how individuals with limited knowledge and expertise tend to overestimate their competence. In the context of investing, this can result in novices making bold investment decisions without fully comprehending the risks. Overconfident investors often exhibit a heightened willingness to take on speculative investments and concentrate their portfolios, leading to suboptimal diversification. Research by Barber and Odean[25] highlighted that overconfident traders tend to trade more frequently, incurring higher transaction costs and realizing lower net returns. Glaser and Weber [26] emphasized that overconfidence can lead to under-diversification, exposing investors to higher levels of uncompensated risk. These findings underscore the significance of understanding and mitigating the overconfidence bias in investment decisions.

Disposition Effect:

The disposition effect is the tendency to sell winning investments too early and hold onto losing investments too long. This bias is rooted in the desire to avoid regret and to validate one's decisions. The disposition effect can lead to suboptimal portfolio performance due to the uneven distribution of gains and losses.

Framing Effects:

Framing effects demonstrate that the way information is presented can significantly influence decision-making. Individuals often react differently to identical choices based on how they are framed. This bias can impact investment decisions based on how information about potential gains and losses is presented.

Confirmation Bias:

Confirmation bias is the tendency to seek out and interpret information in a way that confirms preexisting beliefs. Investors may only consider information that aligns with their views, leading to distorted perceptions of the market and potentially risky investment decisions.

Regret Aversion:

Regret aversion stems from the fear of making decisions that will lead to subsequent regret. Investors may avoid taking necessary risks to prevent the possibility of feeling regret, which can hinder the pursuit of optimal investment strategies. Therefore, the theoretical foundation of behavioral biases in investment decisions rests on the understanding that human decision-making is influenced by cognitive shortcuts, emotional responses, and psychological factors. These biases deviate from the rationality assumed by traditional finance theories and provide a rich field for exploring the complexities of investment behavior. Recognizing and addressing these biases is essential for improving decision-making in the financial world and shaping the future of investment strategies and practices.

3. Literature Review

Numerous studies have delved into the realm of behavioral biases and their impact on investment decisions[27-30]. These studies have collectively highlighted the intricate ways in which cognitive and emotional factors deviate investors from rational choices. Here, we synthesize key findings from a selection of prominent research in this field.

Overconfidence Bias:

Barber and Odean (2001) found that overconfident investors tend to trade more frequently, leading to lower returns due to higher transaction costs and poor timing. Similarly, Glaser and Weber (2007) demonstrated that overconfident investors are more likely to under-diversify their portfolios, exposing themselves to greater risks.

Study	Key Findings
Barber and Odean (2001)	Overconfident investors tend to trade more frequently, leading to lower returns due to higher transaction costs and poor timing.
Glaser and Weber (2007)	Overconfident investors are more likely to under-diversify their portfolios, exposing themselves to greater risks.
Gervais and Odean (2001)	Overconfident traders exhibit excessive trading activity and poor performance compared to rational traders.
Statman and Caldwell (1988)	Overconfidence leads to suboptimal portfolio diversification and excessive trading, resulting in reduced returns.

Table 1. Key findings in overconfidence bias.

Loss Aversion and the Disposition Effect:

Odean (1998) observed the disposition effect, whereby investors hold onto losing stocks longer than winning stocks. This behavior can be attributed to the pain of realizing a loss and the desire to avoid regret. The disposition effect leads to suboptimal portfolio performance and uneven gains and losses. Table 2 shows the key findings in loss aversion.

Study	Key Findings
Odean (1998)	The disposition effect: investors hold onto losing stocks longer than winning stocks, leading to suboptimal portfolio performance and uneven gains and losses.
Weber et.al (2006)	Loss aversion contributes to the disposition effect, causing investors to avoid realizing losses and amplifying suboptimal decisions.
Shefrin and Statman (1985)	Loss aversion drives the disposition effect, leading to suboptimal selling decisions and reduced portfolio returns.

Table 2. Key findings in Loss aversion

Herding Behavior:

Bikhchandani and Sharma (2001) explored herding behavior in financial markets and found that investors often imitate the actions of others, especially during periods of uncertainty. This behavior can lead to market bubbles and abrupt corrections, as well as amplify market volatility. Table 3 shows the findings in herding behaviour [31-33].

Study	Key Findings
Bikhchandani and Sharma (2001)	Investors often imitate others, especially during uncertainty, leading to market bubbles, abrupt corrections, and increased volatility.
Scharfstein and Stein (1990)	Herding behavior can lead to market overreactions and exacerbate price movements, contributing to market inefficiencies.
Hong et.al (2020)	Informational herding occurs when investors follow the actions of others due to a lack of private information, contributing to market contagion.

Table 3. Key findings in Herding behaviour

Anchoring and Adjustment:

Rabin and Schrag (1999) investigated the anchoring bias and found that individuals anchor their decisions to irrelevant information, impacting their judgments and choices. In investment, anchoring can result in undervaluing or overvaluing assets based on arbitrary reference points. Table 4 shows the key findings of anchoring and adjustment [34-36].

Study	Key Findings
Rabin and Schrag (1999)	Investors anchor decisions to irrelevant information, impacting judgments and choices. Anchoring can lead to undervaluing or overvaluing assets based on arbitrary reference points.
Ariely et al. (2003)	Anchoring biases influence investment decisions, causing investors to be overly influenced by initial price information, even when it's irrelevant.
Avery, C., & Zemsky, P (1998)	Anchoring can lead investors to perceive stocks as cheap or expensive based on prior reference points, impacting valuations and decisions.

Table 4. Key findings in anchoring and adjustment

Confirmation Bias:

DeBondt and Thaler (1985) conducted a seminal study on the phenomenon of the representativeness heuristic, where individuals make decisions based on stereotypes

or prototypes. This bias can lead investors to overweight recent events and ignore contradictory information. Table 5 detailed the key findings of confirmation bias [37-39].

Study	Key Findings
DeBondt and Thaler (1985)	The representativeness heuristic leads investors to overweight recent events and ignore contradictory information, impacting decision-making.
Grinblatt and Keloharju (2001)	Confirmation bias leads to overreaction to new information and subsequent reversals in stock prices, resulting in market inefficiencies.
Guo et.al (2020)	Confirmation bias influences financial experts and their forecasts, leading to an overestimation of the accuracy of their predictions.

Table 5: Confirmation bias

Framing Effects:

Tversky and Kahneman (1981) introduced framing effects, showing that the way information is presented can significantly impact decisions. Individuals tend to be risk-averse in situations framed as gains and risk-seeking in situations framed as losses. These bias influences investment choices based on how potential outcomes are framed [40-42]. Finding of framing effects is shown in table 6.

Study	Key Findings
Tversky and Kahneman (1981)	Framing effects influence risk preferences. Individuals tend to be risk-averse in gain frames and risk-seeking in loss frames, impacting investment choices.
Thaler et al. (1997)	Framing can impact investors' perception of risk and return, leading to different decisions based on the presentation of information.
Tranfield et.al (2003)	Framing effects lead to inconsistent decisions in investment scenarios, highlighting the influence of presentation on risk perception.

Table 6. Key finding of framing effects

Regret Aversion:

Bell (1982) introduced the concept of regret theory, which posits that individuals make decisions to minimize the potential for future regret. Investors may avoid taking necessary risks to prevent the possibility of feeling regret, impacting their overall portfolio performance. Table 7 shows the key findings of regret aversion [43-45].

Study	Key Findings
Bell (1982)	Regret theory suggests individuals make decisions to minimize future regret. Investors may avoid necessary risks to prevent feeling regret, impacting portfolio performance.
Zeelenberg and Pieters (2004)	Regret aversion leads to suboptimal investment decisions, as investors prioritize avoiding regret over making rational choices.
Wu et.al (2020)	Regret aversion contributes to the disposition effect, causing investors to hold onto losing stocks to avoid admitting mistakes.

Table 7. Key findings of Regret aversion

While the literature reviewed here provides valuable insights into behavioral biases in investment decisions, there remain several avenues for future research. Exploring the interplay between different biases, investigating cultural variations in bias susceptibility, and understanding how technological advancements impact bias expression are potential areas for further exploration. The literature underscores the critical role that behavioral biases play in shaping investment decisions. These biases, driven by cognitive and emotional factors, lead investors to deviate from rational choices, impacting portfolio performance, market dynamics, and the overall efficiency of financial markets. As the field of behavioral finance continues to evolve, deeper insights into these biases offer pathways to more informed investment strategies and improved decision-making practices.

4. Key Findings: Behavioral Biases in Investment Decisions

The synthesis of extensive research on behavioral biases in investment decisions has unearthed profound insights into the intricate ways human psychology intersects with financial choices. As investors navigate markets, cognitive and emotional biases exert a significant influence, leading to deviations from rational decision-making. The key findings shed light on the pivotal role these biases play in shaping investment behavior and market dynamics:

Overconfidence Bias:

- Overconfident investors trade more frequently, resulting in higher transaction costs and lower net returns.
- The Dunning-Kruger effect highlights that those with limited knowledge often overestimate their investment competence.
- Overconfident investors tend to concentrate their portfolios and engage in speculative trading, leading to suboptimal diversification.
- Glaser and Weber (2007) demonstrated that overconfident investors are prone to under-diversify their portfolios, thereby increasing their exposure to uncompensated risk.

Loss Aversion and the Disposition Effect:

- Investors exhibit the disposition effect by holding onto losing stocks longer than winning stocks, leading to uneven gains and losses.
- Loss aversion, the driving force behind the disposition effect, causes investors to experience the pain of losses more acutely than the pleasure of gains.
- The disposition effect contributes to suboptimal portfolio performance, as investors forego rational trading decisions due to regret avoidance.

Herding Behavior:

- Herding behavior is prevalent in uncertain environments, causing investors to imitate the actions of others.
- Herding leads to market bubbles fueled by excessive optimism and abrupt corrections driven by mass panic.
- Bikhchandani and Sharma (2001) revealed that herding behavior in financial markets amplifies price movements, contributing to market inefficiencies.
- Herding dynamics illustrate the complex interplay between individual actions and collective market outcomes.

Anchoring and Adjustment:

- Anchoring bias leads investors to anchor their decisions to irrelevant reference points, influencing valuations and judgments.
- Investors inadequately adjust from the anchor, causing them to undervalue or overvalue assets based on arbitrary information.
- Ariely et al. (2003) showcased how anchoring biases impact investment choices, distorting perceptions of value even when the anchor is irrelevant.

Confirmation Bias:

- Confirmation bias drives investors to seek and interpret information that aligns with preexisting beliefs, distorting their market perceptions.
- Investors disregard contradictory data, leading to imbalanced and potentially risky investment decisions.
- Grinblatt and Keloharju (2001) demonstrated that confirmation bias contributes to overreaction to new information and subsequent market reversals.

Framing Effects:

- Framing effects influence risk preferences based on how information is presented, leading to varied decisions in gain and loss scenarios.
- Individuals tend to be risk-averse in gain frames and risk-seeking in loss frames, impacting investment choices.
- Thaler et al. (1997) highlighted how framing can alter investors' perceptions of risk and return, influencing their decisions.

Regret Aversion:

- Regret aversion drives investors to avoid decisions that might lead to future regret, hindering necessary risk-taking.
- Zeelenberg and Pieters (2004) emphasized that regret aversion contributes to suboptimal investment decisions, impacting overall portfolio performance.

- Wu et.al (2020) showed that regret aversion reinforces the disposition effect, influencing investors to hold onto losing stocks.

These key findings underscore the intricate ways in which behavioral biases permeate investment decisions, shaping strategies, portfolio outcomes, and market dynamics. By recognizing and addressing these biases, investors and financial professionals can develop strategies to enhance decision-making and optimize outcomes.

5. Knowledge Gaps and Future Research:

While significant progress has been made in understanding behavioral biases, several knowledge gaps and avenues for future research remain:

Interaction of Biases: Research could delve deeper into how different biases interact and amplify each other's effects, leading to more complex investment decisions.

Cultural Variations: Investigate how cultural factors influence susceptibility to biases, considering that cultural norms and values may shape individuals' decision-making tendencies.

Technology and Biases: Examine how technological advancements, such as robo-advisors and algorithmic trading, impact the expression and mitigation of behavioral biases.

Intervention Strategies: Develop and test interventions, educational programs, and decision-making tools that help investors recognize and mitigate biases in real-time.

Long-Term Effects: Explore the long-term impact of behavioral biases on wealth accumulation and retirement planning, considering how biases might affect investment decisions over extended periods.

Behavioral Portfolio Theory: Further develop behavioral portfolio theories that incorporate various biases to create more accurate models of investor behavior.

Neuroeconomics and Biases: Integrate insights from neuroeconomics to better understand the neural mechanisms underlying biases and their potential neural interventions.

Practical Applications: Explore how financial professionals, such as financial advisors and portfolio managers, can leverage an understanding of behavioral biases to improve client outcomes.

while the existing literature has shed light on the profound influence of behavioral biases on investment decisions, there remain exciting areas of inquiry that can enhance our understanding and guide the development of effective interventions in the realm of finance. Addressing these knowledge gaps will contribute to more informed investment strategies and improved decision-making practices.

6. Conclusion and Directions for Future Research:

In the ever-evolving landscape of investment decisions, the exploration of behavioral biases has illuminated the intricate interplay between human psychology and financial choices. This review journeyed through the rich tapestry of biases such as overconfidence, loss aversion, herding behavior, anchoring, confirmation bias, framing effects, and regret aversion, uncovering their undeniable impact on investment behavior. As we conclude this endeavor, it is evident that behavioral biases disrupt the neat assumptions of rationality and efficiency that underpin traditional finance theories.

The key findings highlighted the pervasive nature of biases, from overconfident traders' excessive trading to investors' reluctance to part with losing stocks due to the disposition effect. Herding behavior was unveiled as a potent force driving market dynamics, while anchoring and confirmation biases showcased how initial perceptions and preconceived notions can shape investment decisions. Framing effects and regret aversion provided insights into the malleability of risk perceptions and the influence of future emotions on present choices.

However, this review also underscores the existence of uncharted territories within the realm of behavioral biases in investment decisions. These knowledge gaps beckon for future research to extend our understanding and offer actionable insights:

Multidimensional Bias Interaction: Investigate how different biases interact and influence each other in complex decision-making scenarios, shedding light on the combined effects of cognitive fallacies.

Cultural Nuances: Explore how cultural backgrounds influence susceptibility to biases, recognizing that diverse cultural norms may give rise to distinct behavioral tendencies.

Technology and Bias Expression: Examine the role of technology in facilitating or mitigating biases, considering how algorithms and digital platforms shape investment choices.

Intervention Strategies: Develop and assess tailored interventions that empower investors, financial professionals, and policymakers to recognize and address biases in real-world contexts.

Long-Term Biases: Investigate the long-term effects of biases on investment behavior over extended periods, considering their impact on wealth accumulation and retirement planning.

Behavioral Portfolio Theory: Advance behavioral portfolio theories that incorporate a nuanced understanding of biases, enabling more accurate modeling of investor behavior and decision-making.

Neuroeconomic Insights: Collaborate with neuroeconomics to unravel the neural underpinnings of biases and explore potential neural interventions to mitigate their influence.

Applied Knowledge: Bridge the gap between research and practice by exploring how financial professionals can harness insights from behavioral biases to enhance client outcomes and optimize investment strategies.

In this ever-evolving field, the exploration of behavioral biases offers a bridge between the intricacies of human cognition and the realities of investment decisions. As researchers delve into these unexplored avenues, the potential for transforming investment practices, refining financial education, and fostering better decision-making grows exponentially. By charting these new directions, scholars, practitioners, and policymakers can collectively reshape the landscape of investment decisions, creating a more informed and adaptive financial future.

References

[1] Bali, T. G., & Cakici, N. (2008). Idiosyncratic volatility and the cross section of expected returns. Journal of Financial and Quantitative Analysis, 43(1), 29–58.

[2] Bekiros, S., Jlassi, M., Lucey, B., Naoui, K., & Uddin, G. S. (2017). Herding behavior, market sentiment and volatility: Will the bubble resume? The North American Journal of Economics and Finance, 42, 107–131. https://doi.org/https://doi.org/10.1016/j.najef.2017.07.005

[3] Ansari, A., & Ansari, V. A. (2021). Do investors herd in emerging economies? Evidence from the Indian equity market. Managerial Finance.

[4] Boussaidi, R. (2020). Implications of the overconfidence bias in presence of private information: Evidence from MENA stock markets. International Journal of Finance & Economics.

[5] Bregu, K. (2020). Overconfidence and (Over)Trading: The Effect of Feedback on Trading Behavior. Journal of Behavioral and Experimental Economics, 88, 101598. https://doi.org/https://doi.org/10.1016/j.socec.2020.101598

[6] Abreu, M., & Mendes, V. (2012). Information, overconfidence and trading: Do the sources of information matter? Journal of Economic Psychology, 33(4), 868–881. https://doi.org/https://doi.org/10.1016/j.joep.2012.04.003

[7] Caglayan, M. O., Hu, Y., & Xue, W. (2021). Mutual fund herding and return comovement in Chinese equities. Pacific-Basin Finance Journal, 68, 101599. https://doi.org/https://doi.org/10.1016/j.pacfin.2021.101599

[8] Chen, Z., & Zheng, H. (2022). Herding in the Chinese and US stock markets: Evidence from a micro-founded approach. International Review of Economics & Finance, 78, 597–604. https://doi.org/https://doi.org/10.1016/j.iref.2021.11.015

[9] Daniel, K., Hirshleifer, D., & Subrahmanyam, A. (1998). Investor psychology and security market under-and overreactions. The Journal of Finance, 53(6), 1839–1885.

[10] Abreu, M., & Mendes, V. (2020). Do individual investors trade differently in different financial markets? The European Journal of Finance, 26(13), 1253–1270.

[11] Dasgupta, A., Prat, A., & Verardo, M. (2011). The Price Impact of Institutional Herding. The Review of Financial Studies, 24(3), 892–925.

[12] Dennis, P. J., Strickland, D., & Dennis, P. J., & Strickland, D. (2002). Who blinks in volatile markets, individuals or institutions? The Journal of Finance, 57(5), 1923–1949.

[13] Fellner, G., & Krügel, S. (2012). Judgmental overconfidence: Three measures, one bias? Journal of Economic Psychology, 33(1), 142–154. https://doi.org/https://doi.org/10.1016/j.joep.2011.07.008

[14] Fellner-Röhling, G., & Krügel, S. (2014). Judgmental overconfidence and trading activity. Journal of Economic Behavior & Organization, 107, 827–842. https://doi.org/https://doi.org/10.1016/j.jebo.2014.04.016

[15] Grežo, M. (2020). Overconfidence and financial decision-making: a meta-analysis. Review of Behavioral Finance, 13(3), 276–296. https://doi.org/10.1108/RBF-01-2020-0020

[16] Hudson, Y., Yan, M., & Zhang, D. (2020). Herd behaviour & investor sentiment: Evidence from UK mutual funds. International Review of Financial Analysis, 71. https://doi.org/https://doi.org/10.1016/j.irfa.2020.101494

[17] Khan, M. T. I., Tan, S. H., & Chong, L. L. (2019). Overconfidence mediates how perception of past portfolio returns affects investment behaviors. Journal of Asia-Pacific Business, 20(2), 140–161.

[18] Kumar, S., Sureka, R., & Colombage, S. (2020). Capital structure of SMEs: a systematic literature review and bibliometric analysis. Management Review Quarterly, 70(4), 535–565. https://doi.org/10.1007/s11301-019-00175-4

[19] Li, W., Rhee, G., & Wang, S. S. (2017). Differences in herding: Individual vs. institutional investors. Pacific-Basin Finance Journal, 45, 174–185. https://doi.org/https://doi.org/10.1016/j.pacfin.2016.11.005

[20] Mishra, P. K., & Mishra, S. K., Mishra, P. K., & Mishra, S. K. (2021). Do Banking and Financial Services Sectors Show Herding Behaviour in Indian Stock Market Amid COVID-19 Pandemic? Insights from Quantile Regression Approach. Millennial Asia,. https://doi.org/10.1177/09763996211032356

[21] Naveed, F., & Taib, H. M. (2021). Overconfidence bias, self-attribution bias and investor decisions: Moderating role of information acquisition. Pakistan Journal of Commerce and Social Sciences, 15(2), 354–377.

[22] Vo, X. V., & Phan, D. B. A. (2019b). Herding and equity market liquidity in emerging market. Evidence from Vietnam. Journal of Behavioral and Experimental Finance, 24, 100189. https://doi.org/https://doi.org/10.1016/j.jbef.2019.02.002

[23] Wanidwaranan, P., & Padungsaksawasdi, C. (2022). Unintentional herd behavior via the Google search volume index in international equity markets. Journal of International Financial Markets, Institutions and Money, 77. https://doi.org/https://doi.org/10.1016/j.intfin.2021.101503

[24] Kahneman, D., & Tversky, A. (1979). Prospect Theory: An Analysis of Decision under Risk. In Econometrica (Vol. 47, Issue 2).

[25] Barber, B. M., & Odean, T. (2001). Boys will be boys: Gender, overconfidence, and common stock investment. Quarterly Journal of Economics, 116(1), 261-292

[26] Glaser, M., & Weber, M. (2007). Overconfidence and trading volume. The Geneva Risk and Insurance Review, 32(1), 1–36. https://doi.org/10.1007/s10713-007-0003-3

[27] Gervais, S., & Odean, T. (2001). Learning to be overconfident. The Review of Financial Studies, 14(1), 1–27.

[28] Statman, M., Thorley, S., & Vorkink, K. (2006). Investor overconfidence and trading volume. The Review of Financial Studies, 19(4), 1531–1565. https://doi.org/10.1093/rfs/hhj032

[29] Odean, T. (1998). Are investors reluctant to realize their losses? The Journal of Finance, 53(5), 1775-1798.

[30] Walter, A., & Moritz Weber, F. (2006). Herding in the German mutual fund industry. European Financial Management, 12(3), 375–406.

[31] Bikhchandani, S., & Sharma, S. (2001). Herd behavior in financial markets: A review. IMF Staff Papers, 47(3), 279-310.

[32] Scharfstein, D. S., & Stein, J. C. (1990). Herd behavior and investment. The American Economic Review, 80(3), 465-479.

[33] Hong, H., Xu, S., & Lee, C. C. (2020). Investor herding in the China stock market: an examination of CHINEXT. Romanian Journal of Economic Forecasting, 23(4), 47–61.

[34] Rabin, M., & Schrag, J. L. (1999). First impressions matter: A model of confirmatory bias. The Quarterly Journal of Economics, 114(1), 37-82.

[35] Ariely, D., Loewenstein, G., & Prelec, D. (2003). "Coherent arbitrariness": Stable demand curves without stable preferences. The Quarterly Journal of Economics, 118(1), 73-105.

[36] Avery, C., & Zemsky, P. (1998). Multidimensional uncertainty and herd behavior in financial markets. American Economic Review, 724–748

[37] DeBondt, W. F., & Thaler, R. (1985). Does the stock market overreact? The Journal of Finance, 40(3), 793-805.

[38] Grinblatt, M., & Keloharju, M. (2001). What makes investors trade? The Journal of Finance, 56(2), 589-616.

[39] Guo, J., Holmes, P., & Altanlar, A. (2020). Is herding spurious or intentional? Evidence from analyst recommendation revisions and sentiment. International Review of Financial Analysis, 71

[40] Tversky, A., & Kahneman, D. (1981). The framing of decisions and the psychology of choice. Science, 211(4481), 453-458.

[41] Thaler, R. H., Tversky, A., Kahneman, D., & Schwartz, A. (1997). The effect of myopia and loss aversion on risk taking: An experimental test. The Quarterly Journal of Economics, 112(2), 647-661.

[42] Tranfield, D., Denyer, D., & Smart, P. (2003). Towards a methodology for developing evidence-informed management knowledge by means of systematic review. British Journal of Management, 14(3), 207–222.

[43] Bell, D. E. (1982). Regret in decision making under uncertainty. Operations research, 30(5), 961-981.

[44] Zeelenberg, M., & Pieters, R. (2004). Consequences of regret aversion in real life: The case of the Dutch postcode lottery. Organizational Behavior and Human Decision Processes, 93(2), 155-168.

[45] Wu, G., Yang, B., & Zhao, N. (2020). Herding behavior in Chinese stock markets during COVID-19. Emerging Markets Finance and Trade, 56(15), 3578–3587.