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Behavioral biases and investment decision-making: effects of loss aversion, overconfidence, and herd behavior.

Behavioral biases and investment decision-making: effects of loss aversion, overconfidence and herding behavior

Conduct behavior and decision-making in inversions: effects of aversion to loss, excess confidence and group behavior

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SUMMARY

Traditional financial theory models investment decisions based on agents processing information and choosing alternatives according to their preferences and constraints. However, behavioral finance literature demonstrates that judgments under risk and uncertainty can exhibit systematic patterns incompatible with strict versions of rationality. This article analyzes loss aversion, overconfidence, disposition effect, anchoring, and herd behavior, relating these biases to asset selection, holding, and trading. A structured narrative review of seminal and contemporary literature is used, including studies published up to 2025. The analysis shows that biases should not be treated as universal explanations for any observed behavior; their identification depends on the empirical design, context, and explanatory alternatives. Recent literature also investigates how digital tools and artificial intelligence can alter the relationship between biases and decisions. It can be concluded that more robust investment processes require decision rules, diversification, documentation of assumptions, and review mechanisms capable of reducing the influence of inconsistent judgments, without presuming that technology or models eliminate uncertainty.

Keywords: behavioral finance; investments; loss aversion; overconfidence; herd behavior; disposition effect.

ABSTRACT

Traditional financial models investment decisions through agents who process information and choose alternatives according to preferences and constraints. Behavioral financial literature, however, shows that judgments under risk and uncertainty may display systematic patterns inconsistent with strict versions of rationality. This article examines loss aversion, overconfidence, the disposition effect, anchoring, and herding, relating these biases to asset selection, holding, and trading. The article uses a structured narrative review of seminal and contemporary literature, including studies published through 2025. The analysis shows that biases should not be treated as universal explanations for every observed behavior; identification depends on empirical design, context, and competing explanations.

Recent literature also investigates how digital tools and artificial intelligence may alter the relationship between biases and decisions. The article concludes that more robust investment processes require decision rules, diversification, documented assumptions, and review mechanisms that reduce inconsistent judgments without assuming technology or models eliminate uncertainty.

Keywords: behavioral finance; investments; loss aversion; overconfidence; herding; disposition effect.

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1 INTRODUCTION

Expected utility and traditional asset-pricing frameworks provide powerful benchmarks for financial choice, but observed decisions frequently exhibit regularities that motivated behavioral approaches. Kahneman and Tversky (1979) proposed prospect theory as a descriptive model of decision under risk, highlighted reference dependence, nonlinear probability weighting, and an asymmetric value function around gains and losses.

One implication of reference dependence is that the psychological evaluation of an outcome can depend on its position relative to a reference point rather than solely on final wealth. This insight provides a foundation for further research on investment behavior, including the tendency to treat gains and losses differently when deciding whether to realize a position.

Behavioral finance does not imply that investors are uniformly irrational. Rather, it studies systematically deviations, limits to arbitration, institutional frictions, and contexts in which heuristics may affect decisions.decisions Barberis and Thaler (2003) organize this literature around beliefs, preferences, and market implications, highlighting that behavioral explanations must be connected to explicit mechanisms.

Investment decisions are especially suitable for this analysis because they combine uncertainty, feedback, social information, and repeated choices. Prices change continuously, performance can be evaluation relative to purchase prices or benchmarks, and investors are exposed to narratives that may reinforce confidence or imitation.

The objective of this article is to examine how loss aversion, overconfidence, disposition effects, anchoring, and herding can affect investment decisions and to discuss mechanisms that may reduce their influence. The analysis combines foundational research with contemporary evidence through 2025 and avoids attributing undocumented professional outcomes to the author.

2 METHODOLOGY

This study adopts a structured narrative literature review. The method is appropriate because the objective is to integrate theoretical mechanisms and empirical findings from studies using experiments, brokerage records, surveys, and market data rather than estimating a new causal model.

The review prioritizes peer-reviewed articles and established academic syntheses that directly address prospect theory, loss aversion, overconfidence, disposition effects, and herding. The review combines foundational works with later empirical research and a 2025 study examining artificial intelligence, investment decisions, and behavioral biases.

The analysis is organized by mechanism rather than chronology. Each bias is discussed in terms of

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its conceptual definition, observable implications, empirical evidence, alternative interpretations, and potential consequences for portfolio decisions.

This article uses no primary data, invented percentages, or undocumented results from Enzo Leonardo Tieppo's professional activity. The figure included in this article is explicitly conceptual and does not represent prevalence estimates or effect sizes.

A limitation is that behavioral constructs can be operationalized differently across studies and populations. consequently, evidence from one investor group or market cannot automatically be generalized to all investors. The discussion therefore distinguishes established mechanisms from context-dependent empirical findings.

3 PROSPECT THEORY, REFERENCE POINTS AND LOSS AVERSION

Kahneman and Tversky (1979) developed prospect theory to describe choices in which observed behavior violated predictions of expected utility theory. Outcomes are evaluated relative to a reference point, and the value function is generally concave for gains, convex for losses, and steeper for losses rather than for gains.

Loss aversion is therefore not equivalent to ordinary risk aversion. It concerns the asymmetric evaluation of changes around a reference point. In investment contexts, the acquisition price, recent portfolio peak, benchmark, or expectation may become a salient reference, although the empirically relevant reference point must be established rather than assumed.

Tversky and Kahneman (1992) extended the framework through cumulative prospect theory, incorporating rank-dependent probability weighting and providing a richer representation of risky choice. The development strengthened the theoretical basis for studying decisions in which investors overweight or underweight probabilities.

Loss aversion may influence portfolio behavior when investors avoid realizing losses, change risk-taking after negative outcomes, or frame positions separately rather than at portfolio level. These mechanisms can interact with taxes, transaction costs, beliefs, and liquidity needs, so observed selling behavior cannot automatically be attributed to psychology alone.

From a risk-management perspective, reference-dependent behavior matters because an economically irrelevant historical purchase price may influence a current decision. A disciplined process can reduce this effect by requiring evaluation of each position using forward-looking expected risk, return, diversification contribution, and updated information.

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4 DISPOSITION EFFECT AND REALIZATION DECISIONS

Shefrin and Statman (1985) formalized the disposition to sell winners too early and ride losers too long, linking prospect theory, mental accounting, regret, and self-control. The hypothesis predicts an asymmetry in realization behavior based on whether investors perceive positions as gains or losses. Odean (1998) tested this behavior using trading records and found evidence consistent with investors realizing gains more readily than losses, while examining alternative explanations. This study matters because it moves the disposition effect from a theoretical proposition to a behavioral observable in transaction data.

The disposition effect can impair decision quality when the decision to hold a losing asset is driven primarily by reluctance to recognize a loss rather than updated expectations. Conversely, selling a winner merely to lock in psychological satisfaction can prematurely remove an asset whose expected contribution remains attractive.

However, realization patterns also reflect rational considerations. Taxes, liquidity, rebalancing, transaction costs, portfolio constraints, and information can affect which positions are sold. Empirical identification therefore requires designs that can distinguish behavioral mechanisms from these alternatives.

A practical control is to separate the historical outcome from the current investment thesis. Written criteria for entry, review, and exit can make it easier to determine whether an investor retains a position because its expected characteristics remain desirable or because the investor is psychologically attached to the reference price.

5. OVERCONFIDENCE AND NEGOTIATION

Overconfidence refers to several related phenomena, including excessive precision in beliefs, overestimation of ability, and overly favorable self-assessment. In finance, these mechanisms can increase trading when investors believe their private judgments are more accurate than they actually are.

Barber and Odean (2000) examined common-stock investments and documented that the households that traded most earned lower net returns than fewer active households in their sample. Their results support the proposition that excessive trading can impose substantial performance costs after transaction expenses.

Barber and Odean (2001) further examined differences in trading behavior and interpreted higher trading by men in their sample through an overconfidence framework. Such findings are population-

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and period-specific and should not be generalized beyond the studied setting without additional evidence.

Overconfidence can also affect diversification. An investor who places excessive confidence in familiar companies, sectors, countries, or personal forecasts may concentrate risk by mistaking subjective certainty for informational advantage. This can interact with confirmation bias when contrary evidence receives less attention.

Controls against overconfidence include pre-defined decision criteria, explicit probability ranges, independent review, performance attribution, and comparison between forecasts and realized outcomes. These mechanisms do not eliminate judgment but create feedback that can reveal persistence calibration errors.

6. Herd Behavior and Social Information

Herding occurs when decisions become correlated because agents respond to others' actions or inferred information. It must be distinguished from correlated trading caused by common public information, similar constraints, or shared fundamentals. Observing many investors buying the same asset is not by itself proof of behavioral herding.

Banerjee (1992) developed a model in which rational agents may follow previous decisions even when their own information differs, generating inherited behavior through informational inference. Bikhchandani, Hirshleifer, and Welch (1992) similarly analyze informational cascades in sequential decisions.

In financial markets, social information can accelerate narrative diffusion and create feedback between price movements and investor attention. Investors may infer that others possess superior information, particularly when uncertainty is high and independent valuation is difficult.

Herding can reduce diversification when portfolios converge toward popular assets or themes. It can also amplify turnover when investors enter and exit positions in response to social signals rather than changes in underlying expected cash flows or portfolio objectives.

Mitigation requires distinguishing information from popularity. investment committees and individual investors can document the fundamental reason for a decision, identify what evidence would falsify the thesis, and compare the position with portfolio-level concentration limits before acting on widely shared narratives.

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7. ANCHORING, FRAMING AND INFORMATION PROCESSING

Anchoring describes the influence of an initial value or salient reference on subsequent judgments. In investments, historical prices, analyst targets, recent highs, or initial forecasts can become anchors even when new information should materially change the assessment.

Framing refers to changes in choice caused by how equivalent outcomes are presented. Prospect theory research demonstrates that descriptions in terms of gains or losses can affect risk preferences, illustrating why presentation format can influence financial decisions even when underlying economic outcomes are comparable.

Anchoring can interact with loss aversion when purchase price becomes the dominant reference for deciding whether to sell. It can also interact with overconfidence when investors insufficiently update an initial thesis because they place too much weight on their prior judgment.

A structured valuation process can reduce anchoring by requiring estimates to be rebuilt from current inputs rather than mechanically adjusted from an old target. Scenario analysis can further expose whether conclusions depend disproportionately on a single starting assumption.

These controls do not imply that historical information is irrelevant. The distinction is between usage prior information as evidence and allowing an arbitrary initial value to constrain updating. Robust decision-making requires that the weight assigned to prior beliefs change when new evidence justifies revision.

8 EVIDENCES AND DEVELOPMENTS UNTIL 2025

Recent research continues to examine behavioral biases alongside technological changes in investment decision-making. A 2025 study published in the International Journal of Accounting and Information Management investigated anchoring, representativeness, overconfidence, loss aversion, and herding among 462 individual investors in India using a structured questionnaire and PLS-SEM. The study, titled 'Insight over instinct: AI's role in rationalizing investment decisions', examines artificial intelligence as part of the relationship between behavioral biases and investment decisions. Its contribution is contemporary and context-specific: evidence from a defined sample should not be interpreted as universal proof that AI eliminates behavioral bias.

The emergence of AI-assisted investment tools creates a new research question rather than a definitive one solution. Algorithms may support consistency, information processing, and comparison of alternatives, but their outputs depend on data, objectives, model design, and user interpretation. Behavioral errors can therefore shift rather than disappear.

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Contemporary decision support should be evaluated by whether it improves calibration, diversification, documentation, and adherence to risk constraints. A system that merely increases confidence in a recommendation could reinforce overconfidence if users do not understand uncertainty or model limitations.

The 2025 literature thus extends, rather than replaces, foundational behavioral finance. Prospect theory, disposition effects, overconfidence, and herding remain useful mechanisms, while digital tools add another layer through which information is filtered, and decisions are implemented.

9 DISCUSSION

The reviewed literature shows that behavioral biases help explain recurring investment decisions, but they should not be used as post hoc labels for every unfavorable outcome. A losing investment can result from uncertainty rather than bias, and a profitable investment can still result from a poverty decision process.

Loss aversion and the disposition effect are closely related but analytically distinct. The former concerns asymmetric valuation around reference points; the latter describes a realization pattern that may arise from multiple mechanisms. Maintaining this distinction improves both academic analysis and practical diagnosis.

Overconfidence and inheritance may appear contradictory because one emphasizes excessive faith in one's own information while the other emphasizes reliance on others. In practice, they can coexist across decisions or stages: an investor may confidently adopt a socially reinforced narrative and then underestimate evidence to the contrary.

Decision-process controls are therefore more defensible than attempts to eliminate individual biases one by one. Diversification rules, written theses, pre-defined review criteria, independent challenge, scenario analysis, and performance attribution addresses multiple mechanisms simultaneously.

The contemporary evidence on AI adds an important qualification. technology can structure decisions and process information at scale, but it does not remove model risk, data limitations, or human interpretation. The objective should be decision quality and transparency rather than assuming mechanically rational behavior.

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FIGURE 1 – CONCEPTUAL MAP OF THE DISCUSSED BIASES

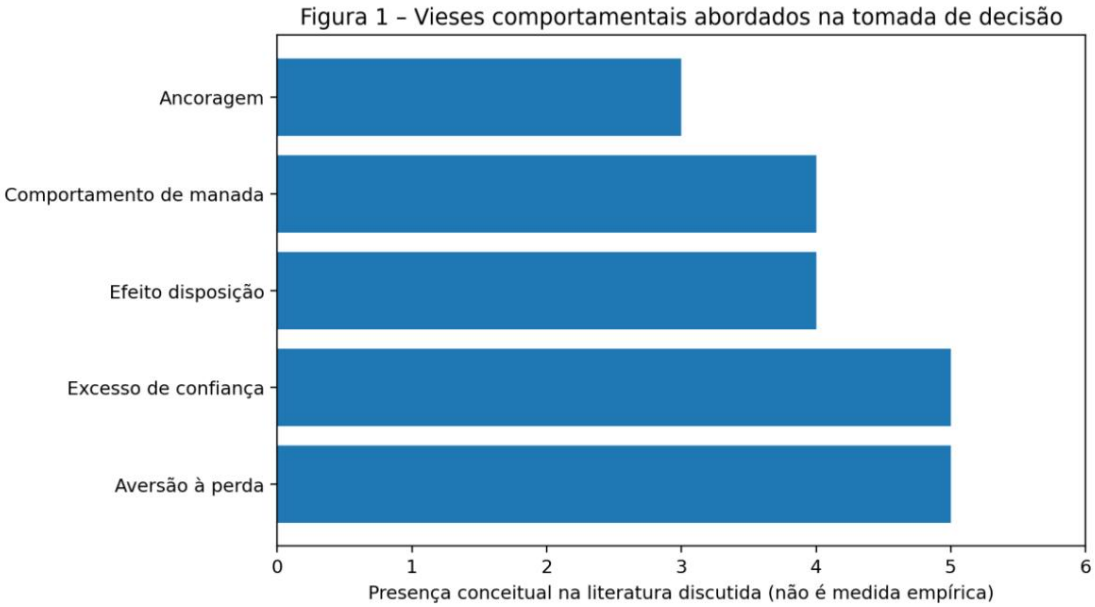


Figure 1 – Biases discussed in the article. The bars are merely a visual representation of the presence
Thematic values do not correspond to prevalence, frequency, or effect size.
Source: author's elaboration based on the literature discussed.

CONCLUSION

Behavioral finance expanded investment analysis by showing that decisions under uncertainty can display systematic patterns not fully captured by strict rational-choice benchmarks.
Prospect theory established reference dependence and asymmetric treatment of gains and losses as central mechanisms descriptive. These ideas help explain why historical purchase prices and others reference points can influence decisions even when forward-looking information should dominate.
The disposition-effect literature shows how these mechanisms may appear in actual realization decisions, while also requiring care to distinguish behavioral explanations from taxes, liquidity, rebalancing, and other rational motives.
Research on overconfidence shows that excessive certainty can affect trading intensity, concentration, and how investors interpret information. The practical implication is not that active decisions are inherently irrational, but that confidence should be calibrated against evidence and outcomes.
Herding research similarly requires conceptual precision. Correlated trading can arise from shared information or constraints, while true herding involves dependence on others' actions or inferred information. Investment governance should therefore separate popularity from independent economic

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justification.

Anchoring and framing show that a problem's presentation and starting point can influence judgment. Rebuilding assumptions, using scenarios, and documenting decision criteria can reduce dependence on arbitrary reference values.

Research through 2025 indicates that artificial intelligence and digital decision support are becoming part of the behavioral-finance agenda. These technologies can improve structure and information processing, but they do not eliminate uncertainty, model risk, or the possibility that users misinterpret outputs.

It can be concluded that robust investment management from a behavioral perspective depends less about the pretense of eliminating human biases and more about building processes capable of Detect them, limit their effects, and make decisions auditable. Diversification, explicit rules, Independent review, disciplined updating of assumptions, and evaluation of results offer A bridge between behavioral evidence and financial practice.

REFERENCES

BANERJEE, Abhijit V. A simple model of inherited behavior. The Quarterly Journal of Economics, vol. 107, no. 3, p. 797–817, 1992. DOI: 10.2307/2118364.

BARBER, Brad M.; ODEAN, Terrance. Trading is dangerous to your wealth: The common stock investment performance of individual investors. The Journal of Finance, vol. 55, no. 2, p. 773–806, 2000. DOI: 10.1111/0022-1082.00226.

BARBER, Brad M.; ODEAN, Terrance. Boys will be boys: Gender, overconfidence, and common stock investment. The Quarterly Journal of Economics, vol. 116, no. 1, p. 261–292, 2001. DOI: 10.1162/003355301556400.

BARBERIS, Nicholas; THALER, Richard. A survey of behavioral finance. In: CONSTANTINIDES, George M.; HARRIS, Milton; STULZ, René M. (eds.). Handbook of the Economics of Finance. Amsterdam: Elsevier, 2003. v. 1B, p. 1053–1128. DOI: 10.1016/S1574-0102(03)01027–6.

BIKHCHANDANI, Sushil; HIRSHLEIFER, David; WELCH, Ivo. A theory of fads, fashion, custom, and cultural change as informational cascades. Journal of Political Economy, vol. 100, no. 5, p. 992–1026, 1992. DOI: 10.1086/261849.

KAHNEMAN, Daniel; TVERSKY, Amos. Prospect theory: An analysis of decisions under risk. Econometrica, vol. 47, no. 2, p. 263–291, 1979. DOI: 10.2307/1914185.

ODEAN, Terrance. Are investors reluctant to realize their losses? The Journal of Finance, vol. 53, no. 5, p. 1775–1798, 1998. DOI: 10.1111/0022-1082.00072.

SHEFRIN, Hersh; STATMAN, Meir. The disposition to sell winners too early and ride losers too long: Theory and evidence. The Journal of Finance, vol. 40, no. 3, p. 777–790, 1985. DOI: 10.1111/j.1540-6261.1985.tb05002.x.

TVERSKY, Amos; KAHNEMAN, Daniel. Advances in prospect theory: Cumulative representation of uncertainty. Journal of Risk and Uncertainty, vol. 5, p. 297–323, 1992. DOI: 10.1007/BF00122574.

Insight over instinct: AI's role in rationalizing investment decisions. International Journal of Accounting and Information Management, vol. 33, no. 4, p. 672–692, 2025. DOI: 10.1108/IJAIM-12-2024-0455.

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