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Original Article

Overconfidence and Loss Aversion in Retail Investment Decision-Making: A Conceptual Framework for Understanding Portfolio Diversification

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ABSTRACT

Purpose: This paper develops a conceptual framework explaining how overconfidence and loss aversion may shape portfolio diversification decisions among individual retail investors. It brings together behavioural finance and portfolio theory to explain why investors may hold concentrated portfolios even when diversification is a recognised risk-management principle. Design/methodology/approach: The paper uses a theory-led conceptual synthesis of foundational work on portfolio selection, prospect theory, investor overconfidence and individual trading behaviour. It does not report primary data, statistical tests or empirical findings. Conceptual argument: Overconfidence may encourage investors to rely heavily on their own security-selection ability, underestimate uncertainty and concentrate investments in a limited number of holdings. Loss aversion may influence asset selection and portfolio adjustment by increasing sensitivity to potential losses, encouraging preference for familiar assets, or discouraging the realisation of losses. Its effect on diversification may therefore depend on investor circumstances and the way diversification is measured. Contribution: The framework distinguishes the mechanisms associated with the two behavioural biases and clarifies why portfolio concentration should not be judged solely by the number of securities held. It offers propositions and a future research agenda for empirical examination, including in the Indian retail-investment context. Originality/value: The paper focuses on portfolio diversification as a distinct investment outcome and provides a framework for examining cognitive confidence and loss-related preferences together.

Keywords: Behavioural finance, overconfidence, loss aversion, portfolio diversification, portfolio concentration, retail investors, prospect theory, modern portfolio theory

INTRODUCTION

Portfolio diversification is a central principle of investment management. By allocating wealth across assets with different risk and return characteristics, investors may reduce exposure to risks associated with individual securities or particular segments of the market. Markowitz's (1952) portfolio-selection framework demonstrates that portfolio risk depends not only on the risk of each holding but also on the relationships among asset returns. Diversification is therefore a matter of allocation and covariance, rather than simply increasing the number of securities in a portfolio.

In practice, individual investors do not always construct portfolios in accordance with formal portfolio theory. Some concentrate their investments in a small number of securities, familiar companies or preferred sectors. Behavioural finance provides explanations for such departures from fully rational decision-making. Investors may overestimate their knowledge and forecasting ability, or they may respond to potential losses more strongly than to equivalent gains. These tendencies can affect security selection, risk perception and willingness to adjust an existing portfolio.

Overconfidence is relevant because investors who believe that their analysis is unusually accurate may place excessive weight on their own security choices and underestimate the benefits of diversification. Research on individual investors has linked overconfidence-related behaviour with frequent trading and weaker investment performance (Barber & Odean, 2000; Odean, 1998). Goetzmann and Kumar (2008) also document under-diversification among individual equity investors and examine factors associated with portfolio concentration.

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Loss aversion offers a different behavioural explanation. Prospect theory suggests that losses generally have greater psychological impact than equivalent gains (Kahneman & Tversky, 1979). This sensitivity may influence investors' willingness to accept risk, sell loss-making investments or move into unfamiliar assets. However, loss aversion does not necessarily lead to one uniform portfolio outcome: it may encourage risk reduction and broader allocation in some circumstances, while encouraging concentration in familiar or perceived-safe holdings in others.

Although both biases are relevant to investment decisions, their implications for portfolio diversification should be considered separately. This paper develops a conceptual framework that explains the potential pathways through which overconfidence and loss aversion may influence portfolio diversification. It also identifies conditions that future empirical research should consider when examining retail investors.

2. Conceptual approach and scope

This paper adopts a theory-led conceptual approach. It synthesises selected foundational contributions relevant to portfolio selection, prospect theory, overconfidence and the investment behaviour of individuals. The discussion is organised around the relationship between behavioural biases and portfolio diversification, rather than around a claim to provide an exhaustive or systematic review of all published studies.

The paper does not use a survey, interview dataset or secondary investor-level dataset. Accordingly, it does not report a sample, questionnaire results, structural equation modelling estimates or hypothesis-test outcomes. The propositions developed below are theoretical statements intended to guide future empirical research; they are not findings.

The focus is on individual retail investors who make or materially influence their own investment decisions. The framework is relevant to the Indian retail-investment setting, while its propositions are not limited to a particular district or geographical sample.

3. Theoretical foundations

3.1 Modern portfolio theory and diversification

Modern portfolio theory explains how investors can combine assets to balance expected return and risk. In Markowitz's (1952) framework, portfolio variance depends on the variance of individual assets and the covariance between them. Assets that do not move perfectly together may reduce overall portfolio risk when combined. Consequently, a portfolio with many highly correlated holdings may remain exposed to concentrated risk, whereas a smaller portfolio may provide meaningful diversification if its holdings have sufficiently different risk characteristics.

This distinction is important when evaluating retail portfolios. The number of securities held is an incomplete measure of diversification. A more informative assessment considers concentration by security and sector, allocation across asset classes, the correlation of holdings, position sizes, investment horizon and the investor's risk capacity. A portfolio should not be labelled objectively inefficient merely because it contains relatively few securities.

3.2 Overconfidence in investment decisions

Overconfidence refers to an inflated assessment of one's knowledge, judgement or ability. In investment settings, it can be expressed through at least three related dimensions. Overestimation involves overrating one's own performance or forecasting ability. Overplacement involves believing that one's ability is superior to that of other investors. Overprecision involves excessive certainty about the accuracy of personal estimates or predictions. Costa et al. (2025) provide an investment-related measurement approach that distinguishes these dimensions.

These dimensions may influence diversification through different but related mechanisms. Overestimation may cause investors to believe that they can identify winning securities more accurately than they actually can. Overplacement may strengthen the belief that their security-selection skills exceed those of other market participants. Overprecision may lead them to underestimate uncertainty around expected returns. Together, these tendencies may encourage investors to place larger weights on selected securities and give insufficient attention to portfolio-level risk.

Evidence that overconfident investors trade more actively is relevant to this argument. Barber and Odean (2000) report that excessive trading can reduce net returns for individual investors, while Odean (1998) examines trading behaviour consistent with investors' belief that they are better informed or more capable than average. These studies do not establish

that every overconfident investor holds an under-diversified portfolio, but they support the broader proposition that confidence miscalibration can affect investment choices.

3.3 Loss aversion and investment decisions

Prospect theory explains that people evaluate outcomes relative to a reference point and typically experience losses more intensely than equivalent gains (Kahneman & Tversky, 1979). In investment decisions, loss aversion may increase attention to downside outcomes and influence the perceived attractiveness of risky assets. Investors may avoid unfamiliar investments, prefer assets they perceive as safer, or delay portfolio changes because selling a loss-making holding makes the loss psychologically salient.

Loss aversion should not be treated as identical to the disposition effect. Odean (1998) examines investors' reluctance to realise losses, while Shefrin and Statman (1985) explain the disposition to sell winners too early and hold losing investments too long. These behaviours are related to loss-related decision processes, but the concepts are not interchangeable. A conceptual model should measure loss aversion separately from specific selling and holding behaviours.

The relationship between loss aversion and diversification is theoretically ambiguous. An investor who is highly sensitive to losses may spread investments across assets to reduce perceived downside risk. Another investor may avoid unfamiliar assets and remain concentrated in a small set of familiar holdings. The outcome may also depend on financial literacy, investment experience, access to advice, available investment products and the investor's financial goals.

4. Conceptual synthesis: behavioural biases and portfolio diversification

The framework proposes that overconfidence and loss aversion are distinct behavioural influences on portfolio diversification. Overconfidence is primarily a confidence-calibration problem: investors may place excessive trust in their own information, predictions or security-selection ability. Loss aversion is primarily a reference-dependent response to potential losses: investors may place disproportionate weight on downside outcomes and respond cautiously to the possibility of realising losses.

The two biases may operate simultaneously. For example, an investor may be highly confident in a small number of selected securities while also being reluctant to sell a holding that has declined in value. In this situation, confidence in the original selection and sensitivity to realised losses may both discourage portfolio adjustment. This is a plausible mechanism, not a universal pattern; the actual effect will depend on investor circumstances and portfolio characteristics.

For conceptual clarity, this paper uses the term portfolio under-diversification to describe a portfolio that is more concentrated or less broadly allocated than would be appropriate given the investor's objectives, risk tolerance, investment horizon and available alternatives. This definition avoids assuming that a fixed number of securities is sufficient to classify every portfolio. Where future researchers use the broader term suboptimal diversification, they should state the criteria used to judge optimality.

Table 1: Conceptual Dimensions and Proposed Portfolio Pathways

Construct	Core meaning	Possible pathway to portfolio diversification
Overestimation	Inflated belief about personal investment knowledge or performance	May increase reliance on selected securities and reduce perceived need to diversify.
Overplacement	Belief that one's investment ability is superior to that of others	May encourage concentrated choices based on perceived superior stock-selection skill.
Overprecision	Excessive certainty in estimates and predictions	May cause investors to underestimate uncertainty and portfolio risk.
Loss aversion	Greater sensitivity to losses than equivalent gains	May encourage risk avoidance, preference for familiar assets, or reluctance to realise losses; the diversification effect may vary.

Source: Developed by the author from the cited theoretical literature.

5. Proposed conceptual framework and propositions

The proposed framework positions overconfidence and loss aversion as separate behavioural constructs that may influence portfolio diversification. Overconfidence is expected to be associated with greater concentration when investors overrate their security-selection ability or underestimate uncertainty. Loss aversion is expected to influence allocation and portfolio adjustment, although the direction of its association with diversification may vary across investors and contexts.

Figure 1: Proposed Conceptual Framework. Source: Developed by the Author.

Overconfidence • Overestimation • Overplacement • Overprecision	→	**Portfolio diversification (concentration / under-diversification)**
Loss aversion • Sensitivity to losses • Avoidance of loss realisation	→	Outcome depends on risk tolerance, familiarity, experience and context
Contextual considerations	→	Financial literacy, investment horizon, portfolio size and financial advice

5.1 Propositions

Proposition 1: Higher levels of overconfidence are likely to be associated with greater portfolio concentration, particularly when investors believe that their security-selection ability is superior and underestimate uncertainty.

Proposition 2: Loss aversion influences portfolio allocation and adjustment decisions through heightened sensitivity to potential losses, preference for perceived safety or familiarity, and reluctance to realise losses.

Proposition 3: The relationship between loss aversion and portfolio diversification is contingent on investor characteristics and decision context; it may lead to broader risk spreading in some circumstances and greater concentration in others.

Proposition 4: The association between behavioural biases and portfolio diversification should be evaluated alongside relevant investor and portfolio characteristics, including financial literacy, investment experience, risk tolerance, investment horizon and portfolio size.

6. Implications

6.1 Theoretical implications

The framework contributes to behavioural finance by treating portfolio diversification as a distinct investment outcome rather than combining it with general investment intention, trading frequency or investment performance. It also distinguishes the mechanisms of overconfidence from those of loss aversion. This distinction is important because the two biases may influence portfolio choices through different psychological processes and may not have identical effects on concentration.

The paper also highlights the need for a context-sensitive definition of under-diversification. Portfolio concentration should be assessed in relation to asset correlations, allocation weights and investor objectives rather than through a simple count of securities. This approach is consistent with the portfolio-level logic of Markowitz's (1952) framework.

6.2 Practical implications

Investor education initiatives may help individuals recognise overconfidence by encouraging them to compare forecasts with actual outcomes, consider alternative explanations and acknowledge uncertainty. Education on diversification should explain the importance of asset allocation, sector exposure, correlation and periodic portfolio review, rather than focusing only on the number of securities held.

Financial advisers may use structured portfolio reviews to identify concentration risk and discuss the behavioural reasons behind reluctance to rebalance. Discussions should account for each investor's goals, risk capacity, time horizon and financial circumstances. These implications are general educational considerations and do not constitute individual investment advice.

6.3 Implications for investor education and protection

Investor associations, educational institutions and regulated intermediaries may consider incorporating

behavioural-bias awareness into financial literacy programmes. Such programmes can explain the limits of personal forecasting, the psychological impact of losses and the importance of evaluating risk at the portfolio level. Any programme should avoid suggesting that diversification eliminates investment risk or guarantees positive returns.

7. Future research agenda

The propositions provide a basis for future empirical studies of retail investors. Researchers may examine the framework in India, including district-level settings such as Kanyakumari, provided that the geographical population and sampling procedures are clearly defined. Future studies should consider the following priorities:

- Use validated measures of overestimation, overplacement and overprecision, and distinguish loss aversion from the disposition effect and general risk aversion.
- Measure diversification using more than the number of securities held. Where participants are willing to provide information, collect approximate allocation weights across securities, sectors and asset classes.
- Record relevant investor characteristics, including financial literacy, investment experience, risk tolerance, investment horizon, portfolio size and access to financial advice.
- Use an appropriate sample-size justification and a transparent sampling procedure. The choice of covariance-based SEM, PLS-SEM or another analytical method should follow the research question, measurement model and data characteristics.
- Consider longitudinal or repeated-measure designs where feasible, because cross-sectional associations alone cannot establish the temporal order or causal effects of behavioural biases.
- Examine whether the association between loss aversion and diversification differs across investor groups or market conditions, while ensuring that subgroup comparisons are adequately powered.

8. Limitations

This paper is conceptual and does not present primary data or empirical tests. Its arguments are based on a selected set of foundational and investment-related studies rather than a systematic review of the full literature. The proposed relationships therefore require empirical assessment. In addition, behavioural constructs may be measured differently across studies, and self-reported perceptions may not fully reflect actual portfolio choices. Future research should address these limitations through transparent review procedures, validated measures and, where possible, portfolio-composition information.

CONCLUSION

This paper develops a conceptual framework for understanding how overconfidence and loss aversion may shape portfolio diversification among retail investors. Drawing on modern portfolio theory, prospect theory and research on individual investor behaviour, it explains why overconfidence may encourage concentrated investment choices and why loss aversion may influence asset selection and portfolio adjustment. The effect of loss aversion on diversification is not assumed to be uniformly positive or negative; it may depend on investor characteristics, familiarity, risk tolerance and financial circumstances.

The paper's central argument is that behavioural biases should be examined in relation to actual portfolio structure and investor objectives. Diversification cannot be assessed solely by counting securities, and portfolio concentration should not automatically be treated as evidence of irrationality. The proposed propositions offer a foundation for future empirical research, including studies of retail investors in India. Since no primary data are analysed in this paper, the propositions remain theoretical and should not be interpreted as established empirical findings.

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