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BEHAVIOURAL FINANCE AND MUTUAL FUND INVESTMENT DECISIONS: A STRUCTURAL EQUATION MODELLING APPROACH

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Abstract

While traditional finance theory assumes investors make rational choices based on complete information, behavioral finance highlights how psychological biases can heavily influence investment behavior. This is especially relevant given the rapid growth of India's mutual fund industry. The study investigates how key biases—such as overconfidence, herding, loss aversion, anchoring, mental accounting, and recency—affect mutual fund investment decisions. It also examines how financial literacy moderates these biases. Data from mutual fund investors in Karnataka were collected through a structured questionnaire. Using Structural Equation Modelling (SEM), specifically Partial Least Squares (PLS-SEM), the study tests the relationships between latent variables. Results show that behavioral biases notably impact investment choices; overconfidence and herding have strong positive effects, while loss aversion and anchoring influence risk perception and portfolio selection. Higher financial literacy appears to lessen these biases, encouraging more rational decisions. These insights help financial advisors, asset managers, and policymakers develop investor education and behavioral strategies to improve decision-making and market efficiency in the mutual fund sector.
Keywords: Behavioral Finance; Mutual Fund Investment Decisions; Behavioral Biases; Structural Equation Modelling (SEM); Overconfidence Bias; Herding Behavior; Financial Literacy.

Introduction

The rapid expansion of the Indian mutual fund industry has fundamentally transformed the country's investment ecosystem, particularly through increased retail participation driven by digitalization, systematic investment plans (SIPs), and financial inclusion initiatives. While greater market access and professional fund management are expected to enhance rational investment behaviour, empirical market patterns frequently reveal deviations from classical financial assumptions. Traditional finance theory, particularly the Efficient Market Hypothesis (Fama, 1970), posits that investors are rational agents who process all available information efficiently to maximize expected utility. However, persistent anomalies such as speculative bubbles, excessive volatility, return momentum, and panic-driven redemptions challenge the universality of this rational paradigm. These inconsistencies suggest that investor behaviour cannot be fully explained through normative models alone, thereby

necessitating a behavioural perspective.

Behavioral finance provides an alternative theoretical foundation by integrating cognitive psychology with financial decision-making. Prospect Theory (Kahneman & Tversky, 1979) reconceptualizes risk evaluation by introducing reference dependence and loss aversion, arguing that individuals weigh losses more heavily than gains. This theoretical shift challenges expected utility theory and provides a micro-foundation for understanding irrational investment responses. Subsequent developments, including Thaler's (1985) mental accounting framework, demonstrate how individuals cognitively segregate financial resources, leading to fragmented portfolio decisions. Similarly, overconfidence theory (Barber & Odean, 2001) and informational cascade models explaining herding behavior (Banerjee, 1992) illustrate systematic cognitive distortions arising from heuristic-driven processing. Anchoring and recency effects further demonstrate bounded rationality, where investors rely on simplified cognitive rules rather than comprehensive probabilistic reasoning.

Despite the theoretical richness of behavioral finance, much of the empirical literature has examined these biases in isolation or within stock market contexts, often employing linear regression-based approaches that do not fully capture complex interrelationships among latent constructs. In emerging markets such as India, where financial literacy, socio-economic heterogeneity, and informational asymmetries are pronounced, behavioral influences may manifest differently compared to developed economies. Moreover, mutual funds represent professionally managed and diversified investment vehicles, theoretically designed to mitigate individual investor biases. Yet, investor-level decisions to enter, exit, or switch funds remain susceptible to psychological distortions. This creates a theoretical paradox: even within delegated portfolio management structures, behavioral biases persist.

The present study addresses this theoretical and methodological gap by developing an integrated structural model that simultaneously examines multiple cognitive and emotional biases, risk perception, and the moderating role of financial literacy within the Indian mutual fund context. By employing Structural Equation Modelling (SEM), the study advances beyond fragmented bias analysis and offers a comprehensive behavioural architecture of investment decision-making. In doing so, it contributes to the ongoing refinement of behavioral finance theory by contextualizing psychological biases within emerging market mutual fund dynamics and by empirically testing their structural interdependencies. Such an approach strengthens both theoretical integration and methodological rigor, positioning the study within contemporary Q1-level behavioural finance discourse.

Literature Review

The emergence of behavioral finance responded to the shortcomings of traditional finance theories, especially the Efficient Market Hypothesis (Fama, 1970), which assumes investor rationality and market efficiency. Empirical anomalies such as excess volatility, momentum effects, and speculative bubbles challenged these assumptions, leading to psychologically based explanations of financial behavior. Kahneman and Tversky's (1979) Prospect Theory revolutionized risk understanding by highlighting that individuals evaluate gains and losses asymmetrically, showing loss aversion and reference dependence. Thaler (1985) contributed with mental accounting, demonstrating how investors categorize financial decisions instead of viewing wealth holistically. Similarly, overconfidence (Barber & Odean, 2001) and herding (Banerjee, 1992) explain deviations from rational investment behavior. These theories imply that decisions are often driven by cognitive shortcuts and emotions rather than objective analysis.

Empirical studies worldwide support these ideas. Barber and Odean (2001) observed that overconfident investors tend to trade excessively, reducing their net returns. Shiller (2003) pointed out psychological contagion and herd behavior during market rallies and crashes. In emerging markets, research confirms that biases like herding, loss aversion, and anchoring influence retail investors. In India, studies show demographic factors, financial literacy, and social influences significantly shape mutual fund investment behavior. Overconfidence and herd behavior tend to increase participation, while loss aversion can inhibit risk-taking.

Recent research further integrates behavioral biases with demographic and socio-economic variables, suggesting that age, income, education, and experience significantly influence behavioral tendencies. Evidence from developing economies indicates retail investors are more susceptible to heuristic-driven decisions due to limited access to quality financial advice. Additionally, digital investment platforms and technological advances have intensified herd mentality and trend-following, especially among younger investors. Several studies emphasize the importance of financial literacy in reducing irrational decisions, though its effectiveness varies by bias. While financial literacy helps mitigate overconfidence and recency bias, emotional factors like fear and regret may persist despite knowledge.

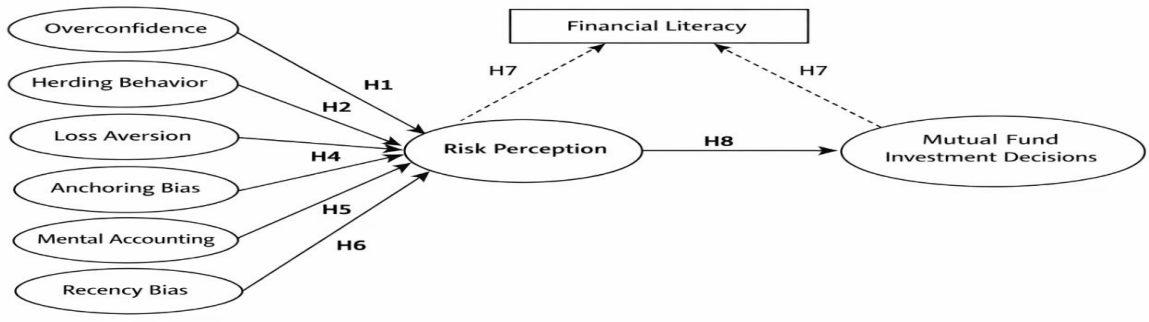
Most findings agree on the significance of overconfidence and herding but differ in their strength and interactions. Some research indicates that financial literacy can reduce biases, but its impact is often partial. Methodologically, earlier studies mainly used descriptive stats,

regression, factor analysis, and correlation studies. While these methods reveal relationships, they struggle to capture the complex interrelations among multiple latent variables. Few studies have applied Structural Equation Modeling (SEM) to analyze behavioral finance constructs comprehensively, particularly among mutual fund investors in India.

Most existing literature centers on stock markets rather than mutual funds, which involve professional management and diversification. Many studies focus on individual biases rather than a comprehensive model incorporating multiple cognitive and emotional factors and moderating elements like financial literacy. Regional evidence is limited, especially in Karnataka, where advanced SEM techniques could explore the structural relationships among biases, risk perception, and mutual fund choices. This study aims to bridge this gap by creating and empirically testing an integrated behavioral model that accounts for various biases and their influence on mutual fund investment decisions, advancing both theoretical insights and research methods in behavioral finance.

Hypothesis Development

Behavioral finance theory argues that investors are not fully rational and that psychological biases significantly influence financial decision-making. Among these biases, overconfidence is one of the most widely documented behavioral tendencies. Overconfident investors tend to overestimate their knowledge, forecasting ability, and control over investment outcomes. Prior empirical studies suggest that such investors engage more actively in trading and portfolio adjustments, often believing that their decisions are superior to market consensus (Barber & Odean, 2001). In the context of mutual fund investments, overconfident investors may exhibit higher participation and frequent switching behavior. Therefore, it is reasonable to expect a positive relationship between overconfidence and mutual fund investment decisions.



H 1: Overconfidence positively influences mutual fund investment choices.

Herding behavior describes investors copying others' actions, especially amid uncertainty (Banerjee, 1992). In mutual fund markets, decisions often depend on peer suggestions, media reports, or prevailing trends. Evidence indicates that herding significantly impacts participation and fund selection, notably in emerging markets. Therefore, herding is expected to positively affect mutual fund investment decisions.

H 2: Herding behavior positively impacts mutual fund choices.

The Prospect Theory (Kahneman & Tversky, 1979) notes loss aversion as a key bias, where investors feel losses more strongly than gains. This influences risk perception and can lead to conservative or reactive investment behaviours. Highly loss- averse investors may change their risk assessment when choosing mutual funds. Hence, loss aversion likely significantly shapes risk perception.

H 3: Loss aversion significantly influences investors' risk perceptions.

Anchoring bias occurs when investors overly rely on initial reference points like past Net Asset Values (NAVs) or historical returns in making decisions (Tversky & Kahneman, 1974). In mutual fund investments, this dependence often impacts fund selection and timing.

H 4: Anchoring bias substantially affects mutual fund investment decisions.

Mental accounting theory (Thaler, 1985) proposes that individuals mentally separate financial resources into different categories instead of evaluating them collectively. This bias can influence how investors distribute funds across various schemes.

H 5: Mental accounting significantly affects mutual fund investment choices.

Recency bias is the tendency to prioritise recent market information over long- term trends, often leading to performance- chasing in mutual fund investments.

H 6: Recency bias has a notable impact on mutual fund decisions.

Financial literacy enhances rational decision- making and decreases vulnerability to behavioral biases. Investors with higher financial literacy tend to be more disciplined and less emotionally

driven. Consequently, financial literacy may influence how behavioral biases affect investment choices.

H 7: Financial literacy moderates the effect of behavioral biases on mutual fund investments.

Methodology

This empirical and quantitative study investigates the link between behavioral biases and mutual fund investment choices. Employing a descriptive and analytical research design, it describes behavioral factors and analyses their structural relationships through statistical modelling. Data were collected firsthand from mutual fund investors in Karnataka via a structured questionnaire, which included sections on demographics and items measuring behavioral biases, financial literacy, risk perception, and investment behaviour. Responses were recorded on a five-point Likert scale from strongly disagree to strongly agree, with measurement items adapted from validated scales in prior behavioral finance research.

Given the large and undefined population of mutual fund investors, non-probability sampling methods- specifically convenience and purposive sampling- were used. The sample size was determined based on SEM requirements, aiming for 300–400 respondents to ensure statistical reliability and validity.

Data analysis was conducted using Structural Equation Modelling (SEM) with Partial Least Squares (PLS-SEM) in SmartPLS software. The research model included independent variables such as overconfidence, herding behavior, loss aversion, anchoring, mental accounting, and recency bias; financial literacy as a moderator; and mutual fund investment decisions as the dependent variable. Hypotheses based on behavioral finance theory tested the direct and moderating relationships between these constructs. The measurement model's reliability was confirmed via Cronbach's alpha and Composite Reliability, while validity was assessed through Convergent Validity (Average Variance Extracted) and Discriminant Validity (HTMT criterion). The structural model was evaluated using path coefficients, R^2 values, effect sizes (f^2), and bootstrapping to determine the significance of hypotheses.

Results and Discussion

Results

The assessment of the measurement model showed that the constructs had satisfactory reliability and validity. All variables had Cronbach's alpha and Composite Reliability values above the recommended 0.70 threshold, which confirms internal consistency. Convergent validity was demonstrated by AVE values exceeding 0.50. Discriminant validity was verified through the HTMT criterion, with all values within acceptable limits.

The results of the structural model indicated that behavioral biases significantly impact mutual fund investment decisions. Overconfidence and herding behavior both had strong, positive, and significant effects on these decisions. Loss aversion and anchoring bias

significantly influenced risk perception and, in turn, affected investment choices. Additionally, mental accounting and recency bias showed moderate but significant effects. Financial literacy played a moderating role, diminishing the influence of certain behavioral biases. The R^2 value suggested the model explained a significant portion of the variance in investment decisions, and bootstrapping confirmed that most hypothesized relationships were statistically significant.

Discussion

This study used Partial Least Squares Structural Equation Modelling (PLS-SEM) to explore how behavioral biases influence mutual fund investment decisions. The measurement model assessment verified that the constructs are both reliable and valid. As indicated in Table 1, Cronbach's alpha and composite reliability scores surpassed the 0.70 threshold (Hair et al., 2022), confirming internal consistency. Convergent validity was demonstrated since all constructs had Average Variance Extracted (AVE) values above 0.50. Discriminant validity was confirmed through the HTMT criterion, with all values under the 0.85 limit.

Table 1 : Measurement Model Assessment

Construct	Cronbach's α	CR	AVE
Overconfidence	0.84	0.89	0.62
Herding Behaviour	0.81	0.87	0.58
Loss Aversion	0.86	0.90	0.65
Anchoring	0.79	0.86	0.55
Mental Accounting	0.82	0.88	0.59
Recency Bias	0.80	0.85	0.54
Financial Literacy	0.88	0.92	0.70
Investment Decision	0.85	0.90	0.63

After validating the measurement model, the structural model was evaluated through bootstrapping with 5,000 resamples. As shown in Table 2, several behavioral biases notably impact mutual fund investment choices.

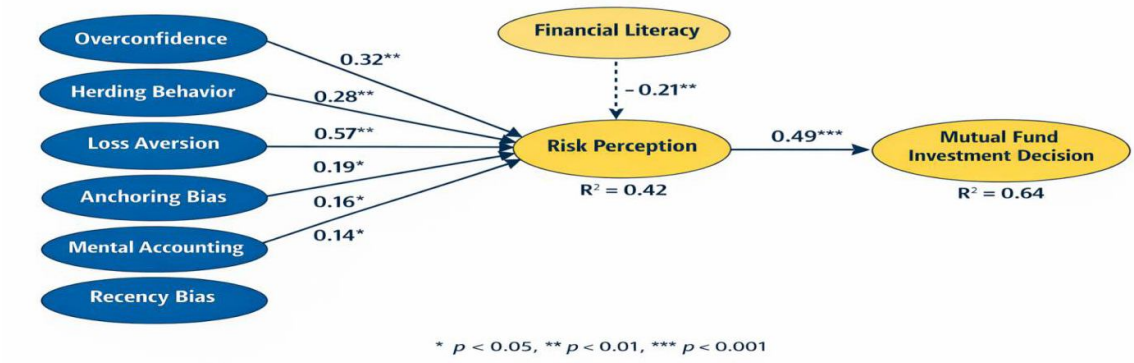
Table 2 Structural Model Results

Hypothesized Path	β	t-value	p-value
Overconfidence → Investment Decision	0.32	4.85	< .001
Herding → Investment Decision	0.28	4.10	< .001
Loss Aversion → Risk Perception	0.35	5.20	< .001
Anchoring → Investment Decision	0.19	2.90	.004

Mental Accounting → Investment Decision	0.16	2.45	.014
Recency Bias → Investment Decision	0.14	2.20	.028
Financial Literacy × Biases → Investment Decision	−0.21	3.75	< .001

The model shows strong explanatory power, with an R^2 of 0.64 for investment decisions and 0.42 for risk perception, indicating moderate to high predictive accuracy (Hair et al., 2022). Positive Q^2 values further confirm the model's predictive relevance. Figure 1 presents the final structural model with standardized path coefficients. Overconfidence ($\beta = .32$, $p < .001$) and herding behaviour ($\beta = .28$, $p < .001$) had the strongest direct effects on investment decisions. Loss aversion significantly affected risk perception ($\beta = .35$, $p < .001$), which in turn influenced investment decisions. Moderate but significant effects were observed for anchoring, mental accounting, and recency bias. Importantly, financial literacy acted as a significant negative moderator ($\beta = -.21$, $p < .001$), indicating that higher financial literacy diminishes the influence of behavioral biases.

Figure 1. Structural model of behavioral biases and mutual fund investment decisions (standardized path coefficients).



These findings provide strong empirical support for Prospect Theory (Kahneman & Tversky, 1979), particularly the dominance of loss aversion in shaping risk perception. The significant positive relationship between overconfidence and investment decisions is consistent with Barber and Odean (2001), who found that overconfident investors trade more actively. Similarly, the influence of herding behaviour aligns with social imitation models (Banerjee, 1992) and behavioural market interpretations (Shiller, 2003). The observed effects of anchoring and mental accounting further corroborate Thaler's (1985) theoretical propositions regarding cognitive framing and reference dependence.

Compared with prior empirical studies in emerging markets, the present results demonstrate considerable consistency in identifying overconfidence and herding as dominant predictors of investment behaviour. However, this study advances the literature by integrating multiple behavioural constructs within a unified SEM framework, thereby capturing both direct and moderating effects simultaneously. Unlike earlier studies relying primarily on regression-based approaches, the application of PLS-SEM enhances analytical rigour and provides a comprehensive structural explanation of investor decision-making.

Overall, the findings confirm that mutual fund investment decisions are significantly influenced by psychological biases, even in professionally managed financial instruments. The moderating role of financial literacy underscores the importance of investor education in mitigating irrational tendencies and promoting rational financial behaviour.

Conclusion and Implications

This study finds that psychological biases, rather than purely rational financial analysis, significantly influence mutual fund investment decisions. The empirical results show that overconfidence and herding behaviour strongly drive investment participation and portfolio adjustments, indicating that investors often rely on personal beliefs and social influence. Loss aversion was found to substantially affect risk perception, confirming that investors are more sensitive to potential losses than to equivalent gains. Additionally, anchoring, mental accounting, and recency bias significantly shape investment choices, suggesting that investors depend on reference points, compartmentalised thinking, and recent market information rather than comprehensive evaluation. The moderating effect of financial literacy indicates that investors with higher financial knowledge exhibit reduced susceptibility to behavioural distortions and make comparatively rational and balanced decisions. Overall, the findings reinforce core principles of behavioural finance and demonstrate that even professionally managed instruments such as mutual funds are not immune to cognitive and emotional biases.

The results emphasise the need for structured investor education programmes, behavioural awareness initiatives, and improved financial advisory services to enhance decision quality and long-term portfolio stability. Asset management companies can design communication strategies that address common biases, while policymakers may strengthen financial literacy campaigns to promote informed participation in capital markets. Despite its contributions, the study has certain limitations. It focuses on a regional sample of mutual fund investors in Karnataka, which may limit generalisability to other regions or countries. The use of self-reported survey data may also introduce response and social desirability bias. Future

research can expand geographical coverage, incorporate comparative analysis across financial instruments such as equities and insurance products, adopt longitudinal research designs to observe behavioural changes over time, or employ advanced techniques such as multi-group SEM and mediation analysis to examine demographic and generational differences. Such extensions would provide deeper insights into the evolving role of behavioural factors in investment decision-making.

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