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Investor Behaviour And Decision-Making: The Impact Of Behavioural Biases And The Moderating Role Of Financial Literacy

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Abstract: The primary objective of this study is to investigate the influence of behavioural biases on individual investment decisions during periods of financial crisis. While investors often rely on their knowledge and expertise to make informed financial choices, they may be unaware of the subconscious impact of behavioural biases that shape their decision-making processes, particularly during times of market volatility. This exploratory research specifically examines the effects of four widely recognized behavioural biases: overconfidence, mental accounting, availability bias, and herding behaviour, on investment decisions. The study employs primary data collected from investors active in the Indian capital market who have experienced at least one financial crisis. Data analysis was conducted using the Structural Equation Modeling (SEM) approach through SMART-PLS. To ensure the reliability and validity of the research instrument, Cronbach's alpha was used to assess internal consistency. Furthermore, convergent and discriminant validity tests were conducted to evaluate the measurement model, and path analysis was employed to test the hypothesised structural relationships among variables. An additional focus of the study is the moderating role of financial literacy in the relationship between behavioural biases and investment decision-making. The findings indicate that while each behavioural bias significantly influences investment decisions, the presence of financial literacy moderates and somewhat reduces the negative impact of these biases. These results are consistent with previous research, further validating the study's conclusions. By highlighting the psychological factors that affect investment behaviour, the study offers practical insights for investors, enabling them to make more rational and informed investment choices. Specifically, understanding and mitigating behavioural biases—supported by financial literacy—can enhance investors' ability to manage risk and improve decision-making, especially during periods of market uncertainty.

Keywords: Behavioural Biases; Investment Decision; Financial Literacy; Global Crisis; Smart-PLS

1. INTRODUCTION:

The field of behavioural finance has witnessed significant trends, including how cognitive and emotional biases influence investment decisions (Kahneman and Tversky 1979) and the rise of financial literacy programs led by governments, educational institutions, and financial institutions to mitigate these biases (Hastings et al. 2013). Technological advances, in particular AI and machine learning, have also addressed behavioural biases by providing personalized, data-driven insights.

Regulatory agencies are increasingly focusing on investor protection and education, introducing guidelines to protect investors from their biases (Mayer and Sprenger 2009). Investment firms are incorporating behavioural finance principles into strategies and products to better account for these biases. Several issues persist, such as the lack of standard measures to assess financial literacy and behavioural biases, the complexity of distinguishing specific biases, limited data availability, and the variability of biases across cultures and demographics.

Ethical considerations also arise in studying and mitigating these biases while ensuring autonomy and privacy (Thaler 1985). Challenges include methodological difficulties in capturing the moderating role of financial literacy, translating research findings into practical applications, and overcoming entrenched behavioral patterns (Lusardi and Mitchell 2014). Additionally, ensuring the effectiveness of financial literacy programs, measuring their impact, and navigating the dynamic nature of financial markets will remain key areas of focus. Addressing these factors can provide valuable insights to enhance an investor's decision and lead the field.

The relationship between investment decisions, behavioural biases, and the moderating function of financial literacy has been studied using traditional ideas. According to Kahneman and Tversky (1979), the prospect theory suggests that investors evaluate potential gains and losses asymmetrically, leading to risk-averse or risk-seeking behaviours. Behavioural finance theory suggested that mental factors and investment decisions are impacted by biases like overconfidence and herd mentality (Sewell, M. 2007). According to Pompeian M.M. (2006), cognitive dissonance theory proposed that investors rationalize decisions to reduce the mental discomfort caused by conflicting information. Planned behaviour theory emphasized that attitudes, subjective norms, and control of perceived behaviour influence decision-making, including financial investments, according to Ajzen, I. (1991). Additionally, the dual-process theory has highlighted the role of intuitive (System 1) and analytical (System 2) thinking in shaping investor behaviour, suggesting that financial literacy can potentially enhance analytical processing and

reduce the influence of biases (St BT Evans 2007). These theoretical perspectives collectively offer a comprehensive framework for analyzing the dynamics of behavioural biases and their implications for investment choice.

The choice of investment-making processes is often influenced by behavioural biases, such as overconfidence, herd behaviour, mental accounting, availability biases, settlement effect, and loss aversion, which can lead to suboptimal financial results. Despite the increasing recognition of these biases, their impact on investment decisions remains complex and multifaceted, varying across different investor profiles (Lusardi & Mitchell, 2014). Effective financial education programs can increase financial literacy, allowing people to navigate complex financial markets with more confidence (Huston, 2010). Financial literacy has been identified as a potential moderating factor that can mitigate the impact of such biases by giving investors the knowledge and skills, they need to make better-informed decisions (Hastings, Madrian, & Skimmyhorn, 2013). Limited research has systematically explored the interaction between financial literacy and behavioural biases with investment choices.

This study addresses this gap by examining how financial literacy can moderate the relationship between behavioural biases and investment decisions and offer insights to improve investor behaviour and make financial decisions in challenging economic conditions.

Conceptual Framework

The central theme in financial literacy serves as a moderating factor in the relationship between behavioural biases and investment choices. This means that the degree to which bias influences investment outcomes differs based on an individual's level of financial literacy.

Figure: 1 The interaction between Financial Literacy and Behaviour Biases on Investment Decisions.

Figure 1: The framework suggests that increasing financial literacy plays a critical role in mitigating the negative impact of behavioural biases on investment outcomes, leading to improved decision-making and potentially better financial outcomes.

Research Questions:

1. How do overconfidence and availability biases affect the investment decisions of individual investors in the Indian capital market during a financial crisis?
2. What role does herd behaviour and psychological accounting play in influencing investors' risk perception and decision-making amid market volatility?
3. How does financial literacy influence an investor's vulnerability to behavioural biases such as overconfidence and herd behaviour in the Indian capital market during an economic crisis?
4. To what extent does financial literacy enhance the quality of investors' decision-making, helping them deal with the negative effects of mental accounting and availability bias in volatile market conditions?

Research Objective:

1. To examine the impact of behavioural biases, including overconfidence, availability bias, mental accounting, and herd behaviour, on investor decision-making processes.
2. To assess the moderating effect of financial literacy in mitigating the effects of behavioural biases and enhancing the quality of investment decisions.

Scope of the Study:

The research explores the impact of behavioural biases on investor decision-making within the Indian capital market during the economic crisis, with a particular focus on how financial literacy moderates these effects. This study is important because it addresses gaps in understanding how behavioural factors influence investment behaviour during periods of economic stress, offering insights that inform theoretical frameworks and practical interventions in financial literacy education. By examining these dynamics in the context of the Indian capital market, the research aims to provide different perspectives that contribute to a broader discourse on investor behaviour and market stability in emerging economies.

2. LITERATURE REVIEW:

Behavioural Biases in the Indian Context

In the Indian securities market, biases such as cognitive and emotional biases significantly influence investment decisions. Financial literacy can help investors understand and mitigate these biases, leading to more rational investment behaviour. A systematic review emphasizes the importance of financial literacy as a middle variable influencing risk perceptions and investment decisions, pointing to its critical role in managing behavioural.

Overconfidence Bias

An overconfidence bias causes investors to overestimate their knowledge and predictive abilities, often leading to over-trading and risk-taking. Research suggests that overconfident investors ignore critical market signals, which can lead to significant financial losses during crises (Rahmawati & Santhi, 2023). This bias is particularly pronounced in the Indian context, where cultural factors can lead to overconfidence among retail investors.

The overconfidence bias is the most researched psychological bias in investment decision-making. Overconfidence significantly impacts individual investors in the Indian stock market, leading to overestimation of their knowledge and abilities, which often leads to over-trading and substandard investment options. Similarly, Trehan (2018) highlighted that overconfidence, including subtypes such as self-attribute, optimism, and miscalibration, affects investors in Lucknow, influencing their decision-making process and leading to higher risk-taking behaviour. These findings are consistent with the study conducted by Madan et al. (2019) identifies overconfidence in the decision-making of individual investors at the National Stock Exchange of India (NSE).

Rajasekharan at el. (2023) examined the overconfidence bias using advanced econometric techniques such as the Vector Autoregression (VAR) model. Their study confirmed that overconfidence bias has a persistent effect on investment decisions, lasting for more than 110 days. The persistence of this bias emphasizes its significant role in shaping investor behaviour over extended periods.

Influence on Overconfidence Bias

Overconfidence is a prevalent bias that affects investment decisions, often leading to excessive risk-taking. Financial literacy can moderate this bias by providing a realistic assessment of market conditions and individual investment capabilities. Bibliometric analysis suggests that financial literacy, along with experience and risk tolerance, can be explored further to understand its impact on overconfidence, especially in the context of post-pandemic market dynamics.

Availability Bias

Availability bias occurs when investors rely on readily available information instead of aggregate data that is influenced by recent events or media coverage. Empirical studies show that this bias significantly affects investment decisions, leading investors to make choices based on recent market trends rather than long-term fundamentals. In the event of a financial crisis, availability bias can lead to herd behaviour, where investors follow the herd, further destabilizing the market.

Availability bias refers to the tendency of investors to make decisions based on readily available information rather than objective data. Explores how this heuristic-driven bias affects investment decisions in the Indian stock market. Their study found that availability bias leads to irrational decision-making, where investors give undue weight to recent events or more accessible information, thus distorting their investment choices.

Interplay of Biases

The interplay between overconfidence and availability bias can create a feedback loop where overconfident investors misinterpret available information, leading to poor decision-making. This interaction is particularly critical in the Indian capital market, where emotional and cognitive biases can significantly distort rational investment behaviour during crises. While these biases can lead to harmful investment decisions, some researchers argue that awareness and education can help mitigate their effects. By better understanding these biases, investors can make more informed decisions, ultimately leading to a more stable market environment.

Herd Behaviour

Herd behaviour refers to the tendency of individuals to mimic the actions of a larger group, often leading to irrational market movements (Viga and Ozcan, 2019). During periods of volatility, herding amplifies price fluctuations as investors respond to perceived trends rather than fundamental values (Rizani et al., 2023). Empirical evidence suggests that investors often engage in herding, particularly in volatile markets, leading to cascading effects and further volatility ("Herd Behaviour and Cascading in Capital Markets: A Review and Synthesis," 2023).

Herding behaviour, where individuals follow the actions of others, is another behavioural bias that influences investment decisions. Madan et al. (2019) found that the Herding bias has a significant positive influence on the investment decisions of individual investors in India, especially during periods of market volatility. This bias often leads to bubbles or excessive price movements, as investors tend to imitate the group's behaviour rather than make independent, rational decisions.

Mental Accounting

Mental accounting involves classifying and evaluating financial results based on subjective criteria rather than objective analysis (Viga & Ozcan, 2019). Investors perceive risks differently based on how they mentally allocate their investments, which can lead to suboptimal decision-making (Rizani et al., 2023). This cognitive bias can lead to an unwillingness to sell losing investments, as individuals may irrationally segregate their mental accounts. Conversely, some researchers argue that understanding these biases can lead to better investment strategies and educational initiatives that can mitigate their adverse effects. By identifying the influence of herd behaviour and mental accounting, investors can develop more rational decision-making frameworks, potentially stabilizing market dynamics.

Counteracting Mental Accounting and Availability Bias

Financial literacy can help investors identify and correct mental accounting errors that treat money differently based on arbitrary categories than on its overall value. By understanding the principles of financial management, investors can avoid such compartmentalization and make more holistic financial decisions. Availability bias, where investors rely on readily available information rather than a comprehensive data analysis, can be mitigated through financial literacy. Educated investors are more likely to seek out and evaluate a wide range of information before making decisions, reducing the impact of this bias.

Financial Literacy and Investment Decision

Financial literacy significantly reduces herd behaviour by empowering investors to rely on their analysis rather than imitating the transactions of others. Self-reflection strengthened by financial literacy can help investors identify and reduce herd bias, especially those with low financial literacy levels. Adaptive marketing theory and transformative learning theory suggest that financial literacy enhances self-directed learning, which is crucial in reducing herd behaviour in volatile markets.

Financial Literacy on Investment Decisions

Financial literacy positively influences investment decisions by allowing investors to make informed choices based on rational analysis rather than emotional responses. Studies have shown that higher financial literacy levels are correlated with better investment management and decision-making abilities. In emerging markets, financial literacy is associated with a higher probability of making informed investment decisions, highlighting its importance in diverse economic contexts.

Role of Financial Technology

The integration of financial technology (FinTech) with financial literacy will further enhance decision-making by providing real-time data and analytical tools. This combination allows investors to make more accurate and timely decisions, especially in volatile markets. Behavioural biases are deeply rooted and can still influence decisions despite high financial literacy levels. Therefore, continuous education and awareness, combined with technological tools, are essential to fully combat these biases and improve investment results.

Behavioural biases, Investment decision, during Financial Crisis.

Investors often exhibit cognitive biases, such as overconfidence, which leads to over-trading and misjudgement of risks, especially during crises. Emotional biases, including fear and loss aversion, drive panic selling during downturns, further destabilizing markets. "The Impact of Behavioural Bias in Investment Decision-Making," 2023). Additionally, herding behavior becomes important in times of crisis, when investors tend to follow the group, contributing to market bubbles or dips by responding to the collective sentiment rather than conducting an independent analysis (Hii & Li, 2023). The consequences of this behavior are far-reaching. They contribute significantly to market volatility, as irrational decisions can trigger sharp price fluctuations. Understanding these biases is crucial for investors, as it allows them to develop strategies to mitigate their effects, such as diversifying portfolios and implementing risk management strategies.

3. RESEARCH DESIGN:
Trend Analysis

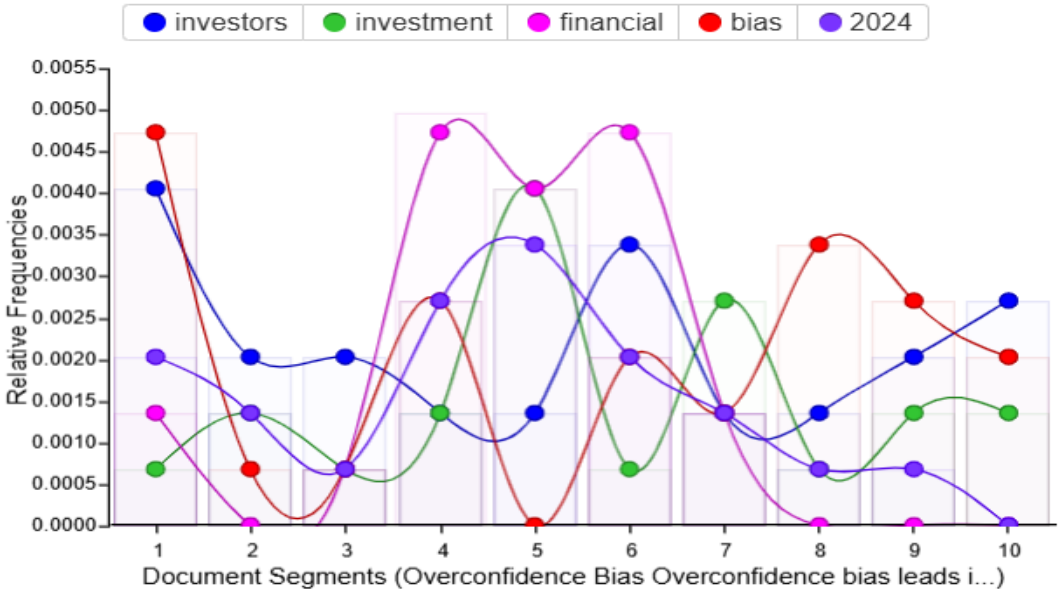
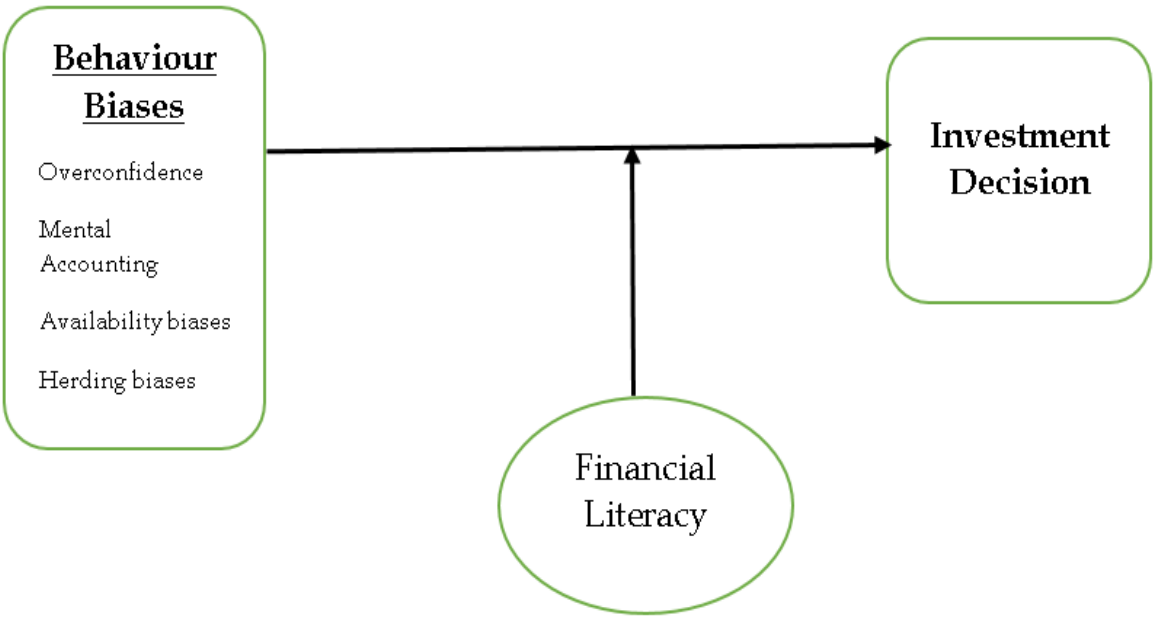


Figure 2: Trend analysis for the variable in the study

Figure 2 represents a trend analysis, which reveals a clear relationship between the terms "investors," "investment" and "finance," suggesting a focus on the financial domain. The prominent presence of the term "bias" highlights the central theme of behavioral biases that influence investment decisions. The provisional marker indicated a contemporary context for research. Notably, the relative frequencies of these terms fluctuate throughout document sections, with varying degrees of emphasis on these concepts throughout the text. This fluctuation is defined as reflecting progress in the discussion, moving from a broad introduction to an in-depth analysis of specific biases and their impact on investor decisions.

Research Model
The research model describes the structural framework of the research used in the study to conduct and analyze the data. The focus is on understanding the relationship between behavioural biases with investment decisions, moderating the role of financial literacy.



RESEARCH METHODOLOGY:

This research aims to investigate the impact of behavioural biases on investors' investment decisions, with a focus on financial literacy as a moderator (Barron & Kenney, 1986). The methodology includes several key elements: determination of sample size, sampling strategy, questionnaire design, and use of Smart PLS for data analysis.

The research is an empirical study and investigates the relationship between behavioural biases and investment decisions through the moderating role of financial literacy in the city of Bangalore, India. Respondents must have experienced at least one financial crisis. The research used a snowball sampling technique to collect the data. The snowball model is important for identifying investors who have experienced financial crises, especially when access to the target group is challenging. The strategy involves referrals from early participants to find more respondents and effectively access people with some experience in crisis-related investment decisions Kumar & Goyal, 2016). The study respondents were individuals who had experienced any financial crisis, Data was collected from 385 respondents (some responses were removed due to improper data collection). Hair at el. (2014) recommends the "10-times rule" for the PLS-SEM model size, indicating at least 10 times the maximum number of links that can be pointed to any latent variable. While 100 responders may be sufficient in simple samples, larger samples are usually needed for more complex samples.

A qualitative technique was used in the study, and logical statistical techniques were used in the data analysis. Smart PLS is used for route analysis, Outer loading, Cronbach's alpha, Combined Reliability (CR), and the Average Variance Extracted (AVE), which is used to find the correlation between each item within the array. The convergent validity and discriminant validity were tested to test the correlation between itself and another structure. The bootstrapping test was used to produce a result to test the hypothesis using the path coefficient (beta value) t-test and p-value. If the T-statistic is > 1.96, then the hypothesis test is significant, and if the T-statistic is < 1.96, then the hypothesis test is non-significant. Ghozali I, (2016) tested the hypothesis that other studies have used factor analysis in similar data collections.

4. DATA ANALYSIS

The study involves the influence of behavioral biases such as overconfidence, availability biases, herding biases, and psychological accounting on investment decisions with financial literacy serving as the middle variable. The analysis begins with factor analysis to ensure the validity and reliability of structures such as behavioral biases, financial literacy, and investment decisions using measures such as Cronbach's alpha, Composite Reliability, and Average Variable Extraction. Smart-PLS is used to test direct relationships between biases and investment decisions when assessing the moderating effect of financial literacy, while the same software is used to interpret results for hypothesis testing and to draw actionable insights. By combining these approaches, the study aims to provide a comprehensive understanding of how financial literacy influences the relationship between behavioural biases and investment decisions.

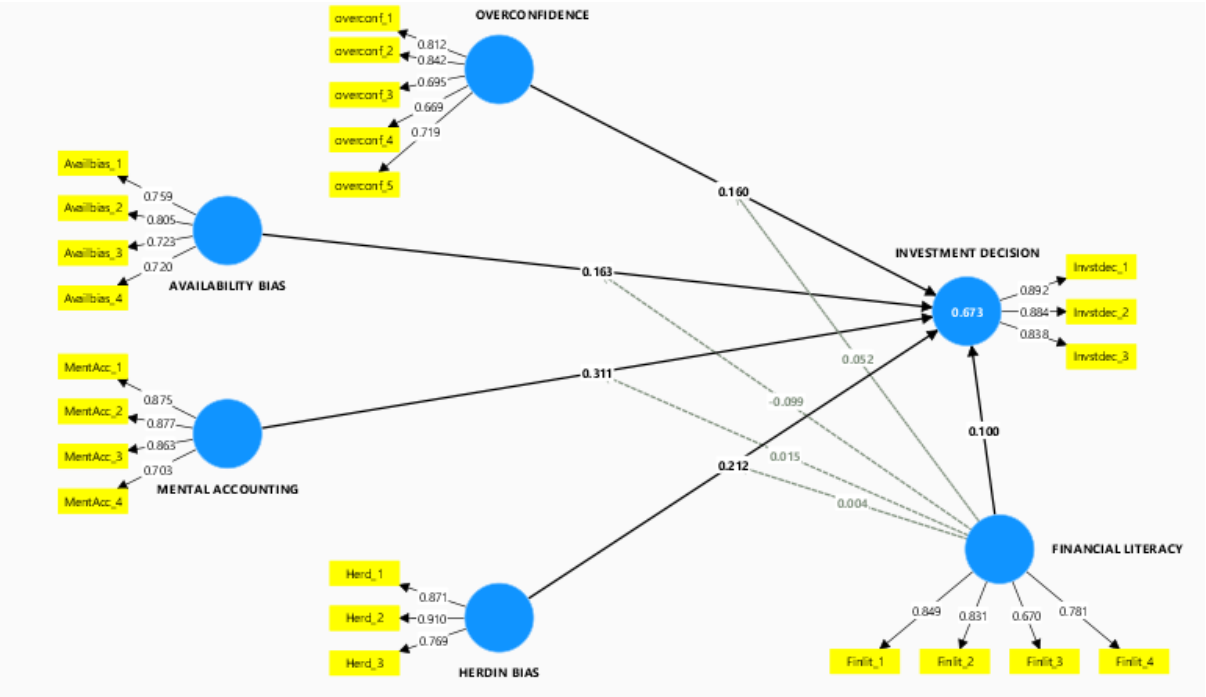


Figure: 3 Measurement Model for CFA

Figure 3 presents the element loading of each item created using the Smart-PLS software. In general, the loading of each item should be > 0.6 (Hare et al. 2013). 2017) although the research in this study used the > 0.6 criterion recommended by social science researchers. The results found that the loading value of all recommended items increased by a value of 0.6.

Table 1: Outer Loading, Cronbach's alpha, Composite Reliability, and Average Variance Extracted.
These four measures are crucial for assessing the quality of a measurement model in a research study. By examining outward loadings, Cronbach's Alpha (CA) Combined Reliability (CR), and Mean Variable Extracted (AVE) study can ensure that structures are measured reliably and validly, which is needed to draw meaningful conclusions from the study.

Table 1: Outer Loading, CA, CR, and AVE

Construct	Item	Outer Loading	Cronbach's Alpha	Composite Reliability	Average Variance Extracted
Availability Biases	Availbias_1	0.759	0.746	0.754	0.566
	Availbias_2	0.805			
	Availbias_3	0.723			
	Availbias_4	0.720			
Herding Biases	Herd_1	0.871	0.808	0.814	0.726
	Herd_2	0.910			
	Herd_3	0.769			
Mental Accounting	MentAcc_1	0.875	0.851	0.869	0.694
	MentAcc_2	0.877			
	MentAcc_3	0.863			
	MentAcc_4	0.703			
Overconfidence	overconf_1	0.812	0.804	0.813	0.563
	overconf_2	0.842			
	overconf_3	0.695			
	overconf_4	0.669			
	overconf_5	0.719			
Financial Literacy	Finlit_1	0.849	0.791	0.754	0.617
	Finlit_2	0.831			
	Finlit_3	0.670			
	Finlit_4	0.781			
Investment Decision	Invstdec_1	0.892	0.842	0.847	0.759
	Invstdec_2	0.884			
	Invstdec_3	0.838			

Table 1: Outer loading values represent the correlation between each item and its associated latent structure, high loading (close to 1) indicates a strong correlation, and a load greater than 0.6 is considered acceptable Wong, K. K. K. (2013) The study found that the outer loading ranges from 0.69 to 0.910, which is acceptable. Cronbach's alpha assesses the reliability of the internal stability of materials within a structure with a general limit to acceptable reliability of 0.7 (Bagozzi and Yi, 1988; Hair et al. 2012).

Composite Reliability (CR) measures the intrinsic stability of the scale, with a value above 0.7 generally considered acceptable (Bagozzi and Yi, 1988). Cronbach's alpha and CR values are above 0.7 for all structures, indicating good internal stability. Average Variable Extracted (AVE) refers to the ratio of the variance in the items described by the latent structure. A value greater than 0.5 is generally considered acceptable (Bagozzi and Yi, 1988). AVE values greater than 0.5 indicate acceptable convergent exposure.

Table 2 ***Discriminant Validity using the Fornell-Larcker criterion***
This criterion implies that the square root of AVE for each structure must be greater than its correlations with other structures. By comparing diagonal values (the square root of AVE) with off-diagonal values (correlations), the study can assess whether this criterion meets the requirements. Fornell and Larker (1981) suggest that the "square root" of the AVE of each latent variable should be greater than the correlation between the latent variables.

	1	2	3	4	5	6
Availability Bias	0.752					
Financial Literacy	0.584	0.786				
Herding Bias	0.624	0.606	0.852			
Investment Decision	0.679	0.623	0.706	0.871		
Mental Accounting Bias	0.616	0.610	0.699	0.730	0.833	
Overconfidence Bias	0.741	0.661	0.671	0.702	0.668	0.750

Table 2 presents the interrelationships between different latent variables (constructs) in a research study. It seems that the Fornell-Larker criterion is generally met for all structures. The square root of AVE for each structure was typically larger than its correlations with other structures.

Table 3 ***Discriminant Validity through HTMT (Heterotrait-Monotrait Ratio)***

HTMT is a measure of the similarity between latent variables. If the HTMT is smaller than one, discriminant exposure can be considered established. In many practical cases, a threshold of 0.85 will reliably distinguish between those pairs of latent variables where discrimination is valid and those that are not. Monte Carlo simulations provide evidence for the favorable classification performance of HTMT (Frank & Sarstedt, 2019; Voorhees et al. (2015). The HTMT is relatively easy to compute; it only requires the correlations of the observed variables as input.

	1	2	3	4	5	6
Availability bias						
Financial Literacy	0.754					
Herding bias	0.796	0.760				
Investment Decision	0.845	0.756	0.841			
Mental Accounting	0.771	0.734	0.840	0.841		
Overconfidence	0.825	0.810	0.826	0.840	0.790	

Table 3 presents the HTMT ratio data, HTMT < 0.9 (Henseler et al. 2013) indicates acceptable discriminatory validity. The interrelationship between a structure and itself is considerably stronger than its interrelationships with other structures. The observations regarding the validity of the potential discriminant met the conditions of the HTMT ratio of less than 0.9.

4.1 Evaluation of the Structural Model

In this section, the relationship between the independent variable and the dependent variable is analyzed using SMART-PLS to understand the significance of the variable. Research has also studied the direct effect to test the moderating variable.

Table 4 ***Decision coefficient R square***

	R-square	R-square adjusted
Investment Decision	0.673	0.666

Table 4 presents the predictive accuracy of the model, the R-square for calculating R^2 was 0.673, indicating that 67.3 percent of the variance in investment decisions was explained by the predictors of the model.

Table 5 ***Model Fit***

Model fit provides a comparison of fit indices between a saturated sample and an approximate sample. Saturated model: A model that fits the data perfectly and has a parameter for every possible relationship between the variables. It serves as a criterion for comparison and approximate modeling.

	Saturated model	Estimated model
SRMR	0.071	0.071
d_ULS	1.407	1.403
d_G	0.583	0.580
Chi-square	1296.652	1289.254
NFI	0.761	0.762

Table 5**:** Overall Fit indices (SRMR, d_ULS, d_G, NFI) suggest a good fit (Henseler and Sarstedt, 2013)

4.2 Hypothesis Testing

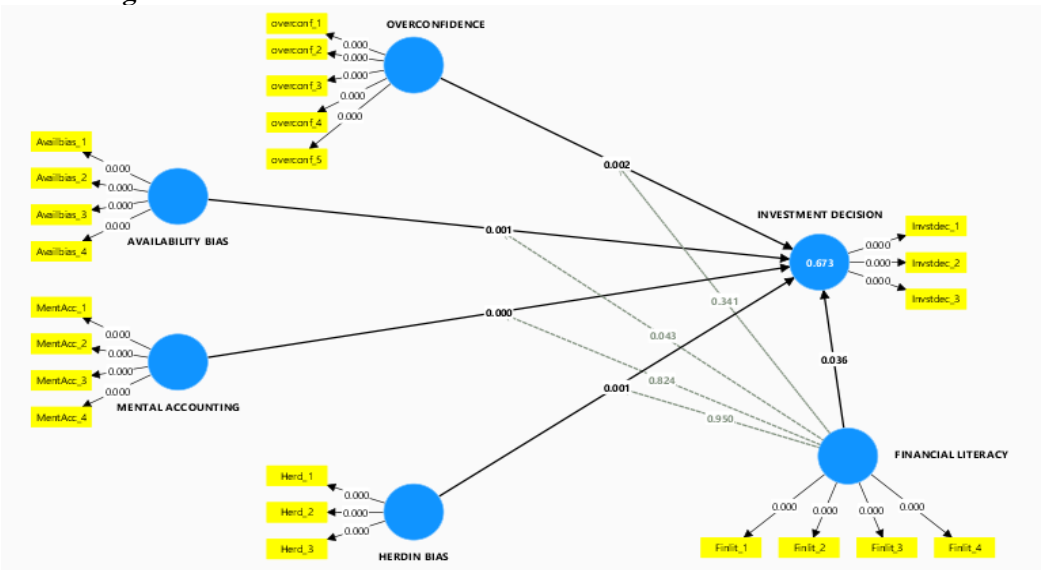


Figure:4 Path coefficient & Moderating variable p-values.

Figure: 4 shows data on path coefficient and moderate variable p values, which are generated using bootstrapping of 5000 sub-models (Hair et al. 2011).

Table 6 *Path Coefficient (Direct effect)*
Path coefficient analysis, also known as path analysis or structural equation model (SEM), is a statistical method used to test relationships between variables in a casual model. It evaluates the direct and indirect effects of independent variables on the dependent variables.

H_0: Behavioural biases including overconfidence, availability bias, mental accounting, and herd behaviour, have no significant impact on investor decision-making processes.

	Original Sample (O)	Standard deviation (STDEV)	T statistics (|O/STDEV|)	p-value	Result
Availability Bias -> Investment Decision	0.163	0.050	3.234	0.001	Significant
Herding Bias Investment Decision	0.212	0.063	3.378	0.001	Significant
9Mental Accounting -> Investment Decision	0.311	0.066	4.744	0.000	Significant
Overconfidence -> Investment Decision	0.160	0.051	3.134	0.002	Significant
Financial Literacy -> Investment Decision	0.100	0.048	2.095	0.036	Significant

Table 5 presents data on the direct effect of behavioural biases on investment decisions, and the study found that availability bias, psychological accounting, overconfidence, and herding biases have a significant positive influence on investment decisions. This suggests that individuals who are more susceptible to these biases are likely to make less appropriate investment choices.

Financial literacy may have a positive impact on investment decisions, but the evidence is not conclusive at the 0.05 level of importance. H_0 is rejected with the availability, mental accounting, overconfidence biases, and herding biases.

Table 7: *Moderating Variable Result*
The regression analyses examine the interaction terms between Financial Literacy and each of the behavioural biases (Herding Bias, Overconfidence, Availability Bias, and Mental Accounting) in predicting Investment Decisions.

H_0: Moderating effect of financial literacy may not mitigate the effects of behavioural biases and enhance the quality of investment decisions.

	Beta Value	T-statistics	p-value	Decision(H_0)
Financial Literacy x Herding bias -> Investment Decision	0.004	0.063	0.950	Rejected
Financial Literacy x Overconfidence -> Investment Decision	0.052	0.953	0.341	Rejected
Financial Literacy x Availability bias -> investment decision	-0.099	2.023	0.043	Accepted
Financial Literacy x Mental Accounting -> Investment Decision	0.015	0.223	0.824	Rejected

Table 7 presents the statistically *significant results***:** Financial Literacy x Availability Bias: The p-value is less than 0.05, rejecting the H_0, this indicates that the moderating effect of financial literacy does mitigate the effects of availability bias and enhances the quality of investment decision. This refers to when individuals with high financial literacy are affected by an availability bias (overweighting easily recalled information), their investment decisions tend to be less favorable.

*Non-Significant Interactions***:** Financial Literacy x Herding Bias have no significant relationship, there has been a distinction between financial literacy and herding bias on investment decisions. Financial Literacy x Overconfidence: Similarly, the interaction between financial literacy and overconfidence did not significantly affect investment decisions. Financial Literacy x Mental Accounting: The interaction between financial literacy and mental accounting did not show a significant effect on investment decisions. The result shows all hypotheses are rejected in the case of availability biases and accepted with herding, mental accounting, and overconfident biases.

Interpretation of the Hypothesis

Direct effects: The analysis found that availability bias, psychological accounting, and overconfidence have significant positive direct effects on investment decisions. This indicates that these biases have a direct impact on investment outcomes.

Effects of moderation: The analysis showed that no interaction terms between financial literacy and behavioral biases were statistically significant, except for a slightly significant effect on the interaction between financial literacy and mental accounting.

5. RESULT & DISCUSSION:

The study provides a comprehensive analysis of the structures that influence investment decisions, using established statistical methods to validate the reliability and validity of the model. The outer loadings, which represent the correlation between individual materials and their respective latent structures, range from 0.69 to 0.910, strongly indicating relationships and meeting the acceptable limit of 0.7 (Wong, 2013) reliability assessments, including Cronbach's alpha and conjugate reliability (CR) 0.7 confirming robust internal consistency (Bagozzi & Yi, 1988; Hair et al. 2012).

Similarly, the average variance extracted (AVE) values exceed 0.5, which demonstrates acceptable convergent validity for all structures. Notably, items with a factor loading of less than 0.4 have been removed to ensure the validity of the structure due to overconfidence and availability bias. The correlations between the latent variables, as presented in Table 2, adhere to the Fornell-Larker criterion that the square root of AVE for each structure exceeds its correlations with other structures, indicating satisfactory discriminant validity. Furthermore, an HTMT ratio of less than 0.9 confirms the validity of acceptable discrimination across all structures (Henseler et al. 2014). These findings collectively validate the reliability and validity of the measurement model

The predictive accuracy of the model was evaluated using R-square, calculated at 0.673. This means that approximately 67.3 percent of the variance in investment decisions can be accounted for by the predictors involved in the model, indicating strong interpretive potential. Additional fit indices such as SRMR, d _ ULS, d _ G, and NFI ensure that the model fits the model well, further confirming its effectiveness.

Individual investors are more like to purchase stocks that are readily available or easily recalled rather than seeking the relevant data on making the investment choice, investors' tendency to overestimate their knowledge, abilities, and predictions is significant in investment decisions, the findings suggest that investors treat money differently based on the subjective metal accounts they assign to rather evaluating it rationally and they follow the decision on investment of a large group, often disregarding their analysis the findings are similar with Zaidi and Tauni, 2012; Rehmat et al. 2023. The financial literacy with a direct effect on investment decisions may be positive in investment choices, The statistical evidence presents that the relationship is negative at the direct relationship at 0.05 level of significance.

This analysis examined the interaction between financial literacy and behavioural biases like herding bias, overconfidence, availability bias, and mental accounting. Although financial literacy has the potential to increase investment outcomes, research suggests that its effectiveness can be significantly hampered by specific biases. Significantly, the interaction between financial literacy and availability bias suggests that financial literacy significantly moderates the impact of availability bias, thereby enhancing the quality of investment decisions. This finding from Table 7 is consistent with previous research highlighting the detrimental effects of availability bias on decision-making (Tversky and Kahneman, 1974; Rehmat et al., 2023)

CONCLUSION

This study concludes the significant influence of behavioural biases, such as availability bias, mental accounting, overconfidence, and herding, on investment decisions, emphasizing their role in driving smart choices. While financial literacy is often considered a critical factor in enhancing investment outcomes, the findings reveal a more complex relationship. In particular, while financial literacy affects investment decisions individually, its interaction with certain biases, financial literacy moderates the impact of availability biases and enhances the quality of investment choices. It emphasizes the subtle ways in which cognitive biases can undermine the benefits of financial literacy, aligning with previous research on the detrimental effects of availability bias on decision-making processes.

The study recognizes that the mitigating role of financial literacy on behavioural biases is not uniform across all dimensions. While financial literacy does not significantly moderate the effects of herding, overconfidence, and mental accounting on investment decisions, financial literacy is considered the moderating variable between the availability bias and investment decisions, which means that there is a statistically significant interaction between financial literacy and the availability bias in influencing investment decisions. These findings contribute to a deeper understanding of the interplay between financial literacy and behavioural biases, with valuable implications for economic education programs and policy interventions aimed at fostering more rational investment behaviours.

FURTHER RESEARCH

Future research may explore the moderating effects of other socio-demographic factors. longitudinal studies can be conducted to better understand the causal relationships between variables. In addition, empirical studies can be designed to isolate and examine the influence of specific biases on investment decisions.

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