

Exploring the Role of Financial Literacy in Mitigating Selective Behavioral Biases in Investment Decisions

Dr. Parul Gaba

Assistant Professor Tecnia Institute of Advanced Studies

Dr. Ramveer

Assistant Professor PGDAV College, DU

Dr Pratima Sharma

Assistant professor School of Business, Galgotias University, Greater Noida

Abstract:

Purpose –This research paper explores the effect of Financial Literacy in mitigating selected behavioral biases and to know differences in biases of financially literate and financially illiterate.

Design/methodology/approach- A preliminary survey of people residing in Delhi NCR are explored to see how financial literacy impacts decision making power of the investors. A PLS-SEM was used to test the hypothesis constructed and to know the differences between the biases of financially Literate and Financially illiterate, SPSS is used to conduct Independent t- sample test

Findings-The research highlights the significance of financial education in improving rational investment decisions and reducing the adverse effects of behavioral biases. Policymakers, Educators, and Institutions must give top priority to programs that promote financial literacy among diverse demographic segments, especially in emerging markets where financial education is still evolving.

Originality/value –Examining general population of Delhi NCR contributes to research to improve the understanding of the financial literacy and its impact on selective behavioral biases on investment decisions. Also the quantitative research towards the biases of financially literate and financially illiterate is very less explored. By empowering investors with the right financial knowledge, it is possible to reduce the inefficiencies caused by irrational decision-making and foster better financial outcomes for individuals.

Keywords Financial Literacy, Behavioral biases, Behavioral Finance

Paper type Research paper

Introduction

Within the realm of investments, individuals frequently make judgments that can be categorized as either rational or irrational, depending on their level of comprehension which is broadly talked

over in traditional finance and behavioral finance. According to conventional finance theory, investors are logical and make wise choices. Investors aim to optimize their financial returns by carefully choosing the most favorable investment option. The stock market is perfect and appropriately represents all pertinent information regarding stock prices, according to the efficient market theory (Fama, 1970). But Behavioral finance challenges the notion of traditional finance that investors consistently make rational investment decisions. Behavioral finance, on the other hand, specifically examines the behavioral aspects of irrationality in decision-making displayed by individual investors (Semenov, 2009). So individuals can take rational or irrational decisions. According to behavioral finance, previously investors lacked the knowledge to investigate the fundamental aspects of the company, industry, and economy at large. But now days, Large number of resources are available to upgrade their financial knowledge. Both financial knowledge and behavioral biases influence the investment decisions made by distinct investors. Monetary literacy empowers investors to get a deeper understanding of the financial landscape, while behavioral biases offer convenient and uncomplicated strategies for decision-making. The majority of the studies focused on examining the influence of financial literacy and behavioral biases on investment decision-making. The impact of financial literacy on selective behavioral biases has not been investigated. Hence, the actual impetus behind conducting empirical research lies in examining the influence of financial literacy on behavioral biases. This study aims to measure the inclination of individuals in making investment decisions by examining the effect of financial literacy on selective behavioral biases. Also this study examines whether there is difference in biases of financially literate and financially illiterate or not.

Financial Literacy

Financial literacy means the proper use of monetary skills for investing, budgeting, and personal financial management. It promotes the culture of caution and reasoning to take the sound decisions regarding investment against the constraints imposed by the cognitive biases. When a person is financial literate then a strong relationship is developed with money. Financial Literacy through education creates awareness and instills confidence in handling finances and fosters resilience against the risk of making decisions based on emotions. It enables the individuals to comprehend the intricate financial products using rational thinking and sound judgment making. Investment choices are the union of buying power, drive and interpersonal communication. Based on a complete review of the literature review, three standards were selected to measure financial literacy for this paper: financial awareness, financial competency and financial attitude. Financial literacy is the ability of one to apply knowledge and convey it effectively for informed decision-making (Hilgert et al., 2003) while Financial awareness implies an individual's knowledge of his/her own financial status and ability to control their finances in order to avoid financial problems. Syarif and Putri (2022) define financial awareness as "the knowledge of one's own finances and the ability to manage their money wisely to prevent financial issues. Financial attitude is associated with a person's mind, opinions, and judgments on personal finances. It shows the way one judges and handles financial management practices and makes investment choices. Klontz et al. (2011) term financial attitude as "a state of mind, opinion, and assessment of finances."

Behavioral Finance

Behavioral finance is a subfield of behavioral economics that blends conventional economic and financial concepts with behavioral, cognitive, and psychological concepts. Its purpose is to explain the reasons behind investors' irrational decision-making. The behavioral approach in finance acknowledges the presence of limitations on arbitrage leverage and recognizes that not all investors exhibit rational behavior, distinguishing it from classical finance. Emotion and excess information have a huge impact on the investment decision-making process of retail investors (Banerjee, 2011). Behavioral finance involves the utilization of psychological principles in the process of making financial decisions and analyzing financial markets (Shefrin, 2010). Due to their overconfidence in their ability to make wise decisions and lack of technical knowledge, investors display behavioral biases. Behavioral biases like the framing effect, heuristics, herd mentality, and cognitive illusions affect rational decision-making. Behavioral biases have the potential to lead to a departure from the inherent value and result in inefficiencies in the market (Babajide & Adetiloye, 2012). The following are prevalent selective biases that are examined for the study:

1. **Overconfidence Bias:** It is the inclination of individuals to overrate their own capabilities or the precision of their assessments (Trivers, 1991). Agrawal (2012) observed that overconfidence leads individuals to overestimate their level of expertise, underestimate potential hazards, and overestimate their capacity to influence outcomes.
2. **Mental Accounting:** According to Chandra (2008), the process of making investment decisions is influenced by a bias known as mental accounting. According to Lee et al. (2004), male investors are more susceptible to the effects of mental accounting compared to female investors.
3. **Anchoring Bias:** It is the tendency of individuals to excessively rely on a particular piece of information while making judgments. For instance investors can become anchored by the initial buying price of a stock and never sell it, even in the case of a fall in fundamental factors.
4. **Confirmation Bias:** Confirmation bias is search for information confirming current views or attitudes while ignoring opposite data. Investors highlight news or research that aligns with their investing thesis leading to below-par decision-making.

Objectives

1. To examine the influence of financial literacy on selective behavioral biases.
2. To study the difference in biases of financially literate and financially illiterate.

Hypotheses

- H1: There is a significant impact of Financial Awareness on Financial Literacy
H2: There is a significant impact of Financial Proficiency on Financial Literacy
H3: There is a significant impact of Financial Attitude on Financial Literacy
H4: There is a significant impact of Financial Literacy on behavioral biases.
H5: There is a significant difference in biases of financially literate and financially illiterate.

Literature review

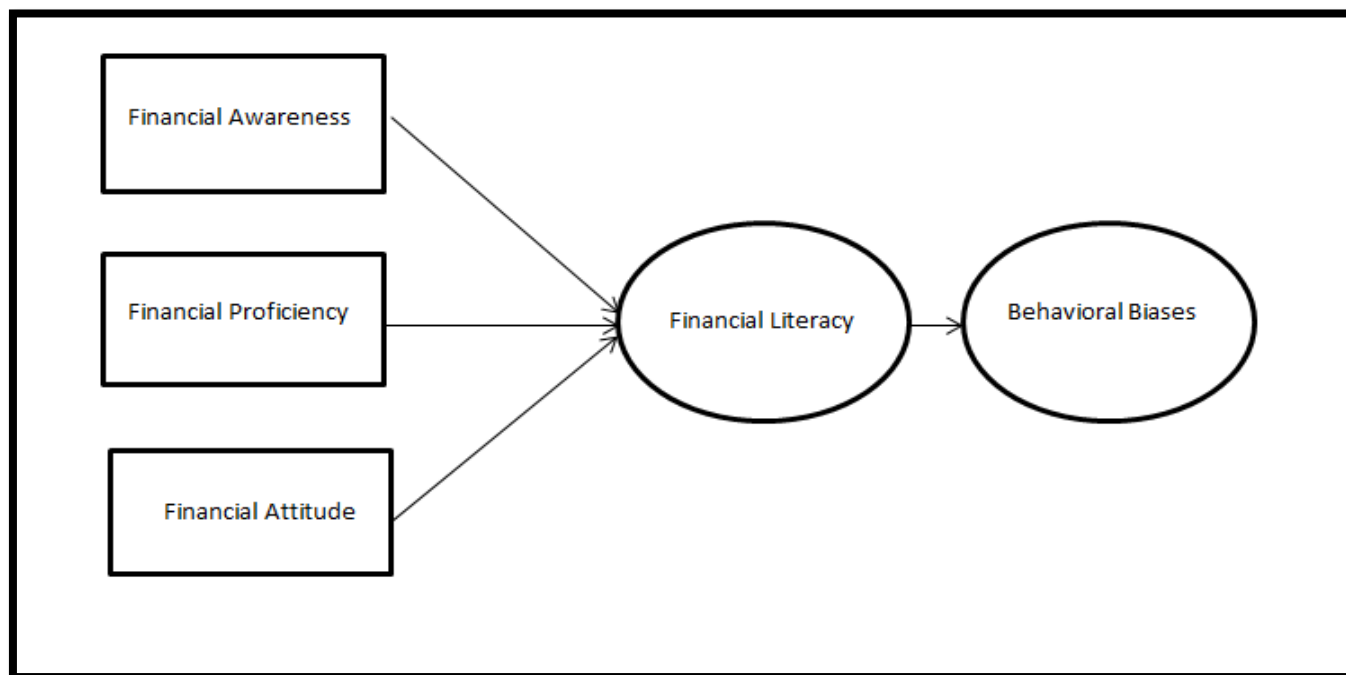
Lusardi and Mitchell (2007) believed that with rising financial product complexity and the rising prominence of family-level financial decision-making, the relevance of financial literacy rose many times. As (Calvet et al., 2004) states, over the past few years investors have been actively participating in financial markets because of new and innovative financial products. Complexity in these financial products requires that investors be financially literate in order to make the best investment decisions. Lusardi and Mitchell in 2014 pointed out that efforts globally are necessary to improve financial literacy and awareness with the increased access to financial education. As stated by Clark et al. (2017), financial literacy is the ability and understanding of financial services, managing financial investments, and essential concepts that an investor needs in order to be able to do without any trouble involving interest rates and inflation. Zucchi (2018) contended that financial literacy issues are not only related to poor nations, even investors in highly developed financial markets have experienced financial losses due to the failure to recognize market uncertainties and associated risks. According to the research conducted by Awais et al. (2016), certain households were found to lack essential and easily noticeable information when making important financial decisions for their welfare. Reich and Berman (2015) study enquired on the degree to which financial education impacts and enhance financial literacy. In their study, Sayinzoga et al. (2016) explored the significance of financial literacy in attaining financial well-being, especially with reference to retirement planning. Bernheim and Garrett (2003) asserted through their research conducted that an increase in financial literacy has a beneficial impact on retirement planning among the people. The study conducted by Clark et al. (2019) examines the presence of foreign and domestic bias in bond market portfolios. It was found that Foreign investors enjoy a favorable return policy in comparison to domestic investors.

Foreign investors possess sufficient strategies to evade the unpredictability and regulated fluctuations present in the bond market. This article offers valuable insights to monitor the behavior of foreign investors and make informed judgments. Pradhan (2021) and Kishor (2020) examined how behavioral biases, including heuristic bias, herd mentality, framing effect, and cognitive illusion, and financial literacy affect investment decisions. Their study demonstrated that heuristic bias and investment decisions are positively correlated. It also found that investing decisions, cognitive illusions, the herd mentality, and the framing effect were negatively correlated. Financial knowledge has been found to be crucial, especially when it comes to the stock market. Both traditional and behavioral theories of finance were studied in a recent study by Bhatia et al. (2021a, b). With this study, the author hopes to educate investors about the emotional factors and how they affect logical decision-making.

The studies by Dangi and Kohli (2018) and Sharma et al. (2021) examined the investment decisions made by female entrepreneurs with the goal of determining how women's behavior affects these decisions, particularly in the stock market. The impact of behavioral biases, including the disposition effect, herding effect, and overconfidence bias, on investment decisions was examined by Kappal and Rastogi (2020). They also investigated how these biases are moderated by various investor types. It was discovered that when making investment decisions, the moderating role has a negative effect on the herding effect and a positive effect on

overconfidence bias. The impact of specific prejudices on the investment choices of both male and female investors is investigated in the study by Lather et al. (2020). The study found that gender had a substantial influence on overconfidence bias, self-attribution bias, and regret avoidance bias. In Sahi's (2017) study, the investment decisions of both individual and professional investors were examined and compared utilizing various approaches and instruments. It was found that long-term investment decisions have more impact than short-term ones.

Figure 1 Conceptual Model



Research Methodology:

Sample and Measures: This study is a cross-sectional study where data was collected only once from the respondents. A total of 300 respondents from Delhi NCR participated for this research, measuring the influence of Financial Literacy in mitigating the selected behavioral biases. (Table 1). The method used for research is quantitative and an online questionnaire was employed to collect the data. The questionnaire was circulated to the respondents through a Google Form. The questionnaire consists of eight parts: Part A consists of demographic information of respondents, Part B consists of statements related to financial Awareness, Part C comprises of statements for Financial Proficiency, Part D has statements to measure Financial Attitude, Part E for Overconfidence Bias, Part F for Herding Bias, Part H for Anchoring Bias and Part I for Mental Accounting. A 5-point Likert scale ranging from "1 = strongly disagree" to "5 = strongly agree" was used to record the responses from the respondents. The behavioral scale for measurement has been adapted and the scale to measure the Financial Literacy was self-constructed for which EFA test was done through SPSS.

Table 1. Demographics of Respondents

Demographics	Sub Categories	Frequency %	
Gender	Male	132	44.0 %
	Female	168	56.0 %
Age Group	18 to 30 years	88	29.3 %
	31 to 45 years	85	28.3 %
	46 to 60 years	69	23.0 %
	Above 60 years	58	19.3 %
Education	Undergraduate	29	9.7 %
	Graduate	50	16.7 %
	Post Graduate	94	31.3 %
	Professionally Qualified	83	27.7 %
	Others	44	14.7 %
Occupation	Private Sector employee	77	25.7 %
	Government employee	52	17.3 %
	Self Employed	68	22.7 %
	Business	55	18.3 %
	others	48	16.0 %
Annual Income	Less than 5 Lakhs	21	7.0 %
	5 to 10 lakhs	91	30.3 %
	10 to 20 lakhs	100	33.3 %
	Above 20 lakhs	88	29.3 %

Table 2. Reliability and Validity

	Cronbach's alpha	Composite reliability (rho_a)	Composite reliability (rho_c)	Average variance extracted (AVE)
Anchoring Bias	0.889	0.889	0.919	0.693
Financial Attitude	0.820	0.838	0.879	0.646
Financial Awareness	0.883	0.886	0.915	0.683
Financial Proficiency	0.891	0.902	0.924	0.753
Herding Bias	0.891	0.908	0.924	0.752
Mental Accounting	0.857	0.864	0.903	0.699
Overconfidence Bias	0.869	0.871	0.911	0.720

Table 3. Discriminant Validity - Heterotrait-Monotrait (HTMT)

	Anchoring Bias	Financial Attitude	Financial Awareness	Financial Proficiency	Herding Bias	Mental Accounting	Overconfidence Bias
Anchoring Bias							
Financial Attitude	0.563						
Financial Awareness	0.612	0.577					
Financial Proficiency	0.452	0.503	0.558				
Herding Bias	0.378	0.451	0.299	0.547			
Mental Accounting	0.703	0.561	0.639	0.559	0.363		
Overconfidence Bias	0.558	0.586	0.494	0.542	0.615	0.621	

Table 4. Discriminant Validity (Fornell & Larcker)

	Anchoring Bias	Financial Attitude	Financial Awareness	Financial Proficiency	Herding Bias	Mental Accounting	Overconfidence Bias
Anchoring Bias	0.833						
Financial Attitude	0.486	0.804					
Financial Awareness	0.547	0.501	0.826				
Financial Proficiency	0.409	0.445	0.506	0.868			
Herding Bias	0.349	0.400	0.281	0.495	0.867		
Mental Accounting	0.621	0.474	0.558	0.493	0.330	0.836	
Overconfidence Bias	0.490	0.505	0.435	0.482	0.549	0.541	0.848

The measurement model and structural model are used in the PLS-SEM technique to evaluate all of the hypothesised relationships in the research model. A measurement model is used at the beginning of the analysis to evaluate the constructs' quality, including validity and reliability. Indicator reliability, internal consistency, convergent validity, discriminant validity, and outer loadings were all evaluated. To get a value equal to 0.50 through the squared loading (0.708), the outer loading of the indicator for each variable should be 0.708 or more. The AVE value should be 0.50 or higher for the indicators to meet convergent validity, which is satisfied according to Table 2, even though all loadings were greater than .708. The discriminant validity of the study model was assessed using the heterotrait-monotrait ratio (HTMT). Based on the HTMT.85, the HTMT values acquired for the measurement model's constructs are less than 0.85, as indicated in Table 3. In addition to representing their construct, this shows that the indicators are distinct from the other constructions. Overall, the model's constructs' validity and reliability were acceptable.

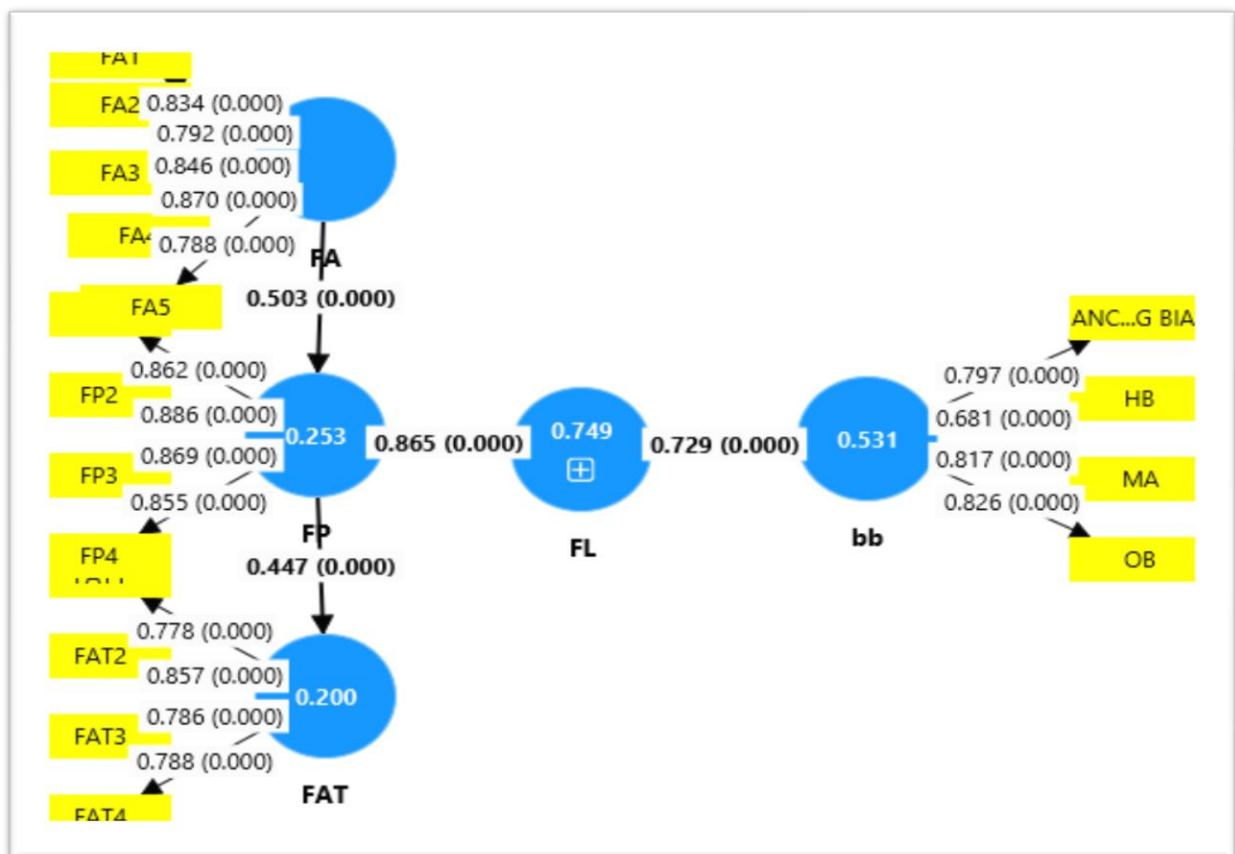


Table 5- t statistics and P values

	Original sample (O)	Sample mean (M)	Standard deviation	T statistics (O/STDEV)	P values
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			(STDEV)		
Financial Attitude - > Financial Literacy	0.339	0.339	0.018	18.759	0.000
Financial Awareness -> Financial Literacy	0.487	0.488	0.026	18.753	0.000
Financial Literacy - > Behavioral Biases	0.734	0.737	0.049	14.981	0.000
Financial Proficiency -> Financial Literacy	0.405	0.404	0.018	23.127	0.000

In the structural model assessment, the validity of the structural model is assessed using the path coefficients and coefficient of determination R². The R² number indicates how much of the variance in dependent variables can be explained by independent factors. The R² value for this inquiry was .531. This demonstrates the diversity of behavioural constructs that were explained by financial literacy.

Using the bootstrapping approach, the path coefficients' significance was estimated (Chin 1998). Figure 2 displayed the structural model assessment, while Table 5 lists the path coefficients, t-values, and hypothesis results for every path relationship. According to the results of the bootstrap, the financial literacy path coefficients (β) have a value of 0.729

Table 6-Independent Sample t- test

	Financial _Literacy	N	Mean	Std. Deviation	Std. Error Mean
AB	>= 3.50	262	3.9836	.70658	.04365
	< 3.50	38	2.9309	.87123	.14133
Behavioural _Bias	>= 3.50	262	4.0726	.42101	.02601
	< 3.50	38	3.0371	.76326	.12382
HB	>= 3.50	262	4.0459	.52100	.03219
	< 3.50	38	3.1692	.93267	.15130
MA	>= 3.50	262	4.0401	.66396	.04102
	< 3.50	38	2.9260	.86771	.14076
OB	>= 3.50	262	4.2233	.58199	.03596
	< 3.50	38	3.1265	.99436	.16131

Table 7 – Levene’s Test

		Levene's Test for Equality of Variances		t-test for Equality of Means						
		F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	95% Confidence Interval of the Difference	
									Lower	Upper
AB	Equal variances assumed	1.702	.193	8.318	298	.000		.12655	.80363	1.30173
	Equal variances not assumed			7.117	44.339	.000		.14792	.75463	1.35073
Behavioural Bias	Equal variances assumed	56.969	.000	12.505	298	.000		.08281	.87256	1.19849
	Equal variances not assumed			8.185	40.326	.000		.12652	.77988	1.29116
HB	Equal variances assumed	51.377	.000	8.589	298	.000		.10207	.67584	1.07757
	Equal variances not assumed			5.668	40.413	.000		.15469	.56417	1.18924
MA	Equal variances assumed	1.848	.175	9.268	298	.000		.12021	.87758	1.35073
	Equal variances not assumed			7.599	43.507	.000		.14662	.81857	1.40974
OB	Equal variances assumed	46.609	.000	9.756	298	.000		.11242	.87554	1.31802
	Equal variances not assumed			6.636	40.754	.000		.16527	.76296	1.43060

Conclusion

The outcomes of the study give compelling proof for the proposed relationships between attitude, literacy, financial awareness, behavioral biases, and proficiency. Through the analysis it was found that standardized path coefficient is 0.487 ($p < 0.001$), the results demonstrate a strong positive correlation between financial literacy and financial awareness (H1). The strong positive impact of financial proficiency on financial literacy is indicated by the path coefficient of 0.405 ($p < 0.001$) (H2). This demonstrates the value of financial literacy-promoting abilities and knowledge. With a path coefficient of 0.339 ($p < 0.001$), financial attitude also has a positive impact on financial literacy (H3), suggesting that a positive financial mentality leads to better financial comprehension. Crucially, a path value of 0.734 ($p < 0.001$) indicates that financial

knowledge significantly influences behavioral biases (H4). This emphasizes how important financial literacy is for reducing behavioral biases in financial judgment. The hypothesized associations are well supported by high t-values and the statistical significance of all path coefficients ($p < 0.001$). All of these studies point to the significance of developing financial literacy, which is essential for lowering behavioral biases, by promoting financial knowledge, competence, and positive attitudes. Based on the idea that those who are financially literate and those who are not have different biases, Table 7 and the findings of Levene's Test offer important information. Each category is classified as either financially educated (those with a score of 3.50 or above) or financially illiterate (those with a score below 3.50). Because they comprehend financial concepts, those who are more financially literate are projected to display less behavioral biases, whereas people who are financially illiterate are projected to show greater biases in their decision-making. The results demonstrate that financial literacy considerably lessens specific behavioral biases in investment decision making. The people who are financially literate are likely to be less biased than those who are not, which might have significant implications, is supported by this.

Implications: The study emphasizes the prominence of financial education in improving logical investment choices and reducing the negative impacts of behavioral biases. Initiatives to increase financial literacy among the common people across a range of demographic groups should be given top priority by policymakers, financial educators, and institutions, especially in emerging economies where financial education is still in nascent stage. These inefficiencies brought on by irrational decision-making can be lessen and improved financial results can be promoted for people by equipping investors with the necessary financial knowledge.

Limitations and Future Research: Although this study offers insightful information about the connection between behavioral biases and financial literacy, further research could build on these findings by examining how financial literacy affects investing outcomes over the long run. Further research can include other elements such emotional intelligence or social influences, affect investing choices. The causal relationship between behavioral biases and financial literacy may also be better understood through the application of experimental research techniques.

In Conclusion, the study adds empirical support for the idea that improving financial literacy can lessen the prevalence of behavioral biases and encourages more logical investment behavior, so contributing to the expanding body of research on behavioral finance and financial literacy.

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