International Journal for Multidisciplinary Research (IJFMR)
E-ISSN: 2582-2160 ● Website: www.ijfmr.com ● Email: editor@ijfmr.com

Behavioral Biases and Sustainable Financial Decision-Making among Salaried Employees: A Gender-Based Analysis from North East India

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Abstract:
This study explores the impact of behavioural biases on the sustainable financial decision making of salaried individuals in North East India with specific focus on gender difference. The study is based on primary data collected from 500 individuals in seven states of the region (Assam, Meghalaya, Manipur, Mizoram, Nagaland, Tripura and Arunachal Pradesh) using a combination of behavioral finance theory and sustainability-investment behavior, examining the impact of psychological biases, including overconfidence, loss aversion, anchoring, herding, and mental accounting, on financial decision making. A structured questionnaire based approach is used in the study with descriptive statistics, Cronbach's Alpha Reliability Testing, Exploratory Factor Analysis (EFA), Independent Samples t-test and binary logistic regression being employed to determine significant different financial behaviour between the two genders. The results show that the male respondents were more overconfident and more risk-taking than the female respondents, and that the female respondents were more loss averse and had more herd mentality than the male respondents. It is observed that women are slightly more likely to invest in sustainable and ESG investments if they are well informed. The study adds to the emerging body of literature on gender and behavioral finance in emerging regional economies of India, providing policy focused recommendations and lessons for financial literacy initiatives and investment advice, along with strategies for policy development.

Keywords: Behavioral Biases, Sustainable Finance, Gender Differences, Salaried Employees, North East India, Financial Decision-Making, ESG Investing

Introduction

Behavioural finance seeks to introduce psychological insights into financial theory and thus to challenge the assumptions of classical rational-agent models. The framework for understanding irrational behaviors of investors has become firmly established with seminal work on prospect theory by Kahneman and Tversky (1979), and on mental accounting by Thaler (1980) and market inefficiencies by Shleifer (2000). However, little work has been done so far to explore how these biases are expressed differently between the genders, particularly when it comes to saving decisions relating to sustainability. Over the last ten years, the concept of sustainable finance has gained unprecedented momentum in the global conversation, reflecting the growing consciousness of climate change, social injustice, and the need for a different approach to investment. This conversation has slowly seeped into the minds of the retail investors, financial planners, and policy makers in India (Odean & Barber, 2000). The relationship between

individual behavioral bias and sustainable financial decision-making, however, is still an under-researched area especially for the geographically and culturally different regions like the North East India. Behavioural finance challenges conventional economic models, which rely on the rational behaviour of investors in order to maximise their utility, by claiming that investors are not always rational, but are influenced by emotions and biases. Psychological biases on investment pattern decisions. Bias is a tendency to create choices that are already impacted by a guiding principle (Das & Bhattacharjee, 2026). Errors are a function of biases, and psychologists have investigated the various types of The common flaws that people have when they make decisions (Shefrin, 2007). Investors have tendency to invest more in the stock they believe in than in others due to psychological biases (Forbes, 2009).

Investment decision making is one of the most important areas of personal financial management, especially for those who are working and have to make decisions about how to invest their money in different things that can provide them with a secure and prosperous financial life for the long-term. It is the traditional finance theories that assume investors are rational persons who will make choices based on full information, based on an objective assessment of risk and return. The Efficient Market Hypothesis (EMH) and Modern Portfolio Theory (MPT) state that investors process the information available to them quickly and efficiently and make optimal investment decisions (Fama 1970, Markowitz 1952). But, empirical results have increasingly contradicted this idea, showing that investors sometimes do not behave rationally because of psychological and cognitive factors. A new paradigm, behavioral finance, emerged that combines psychology and finance to account for real-life financial decisions. It came to prominence through the work of Kahneman and Tversky (1979), which led to the development of Prospect Theory, which showed that cognitive biases and emotions have an impact on how individuals evaluate gains and losses. According to behavioral finance, investors' decisions are not made solely on the basis of financial data, but also on the basis of systematic psychological biases that impact the judgment and decision-making processes of investors (Shefrin, 2007). The over-confidence effect, loss aversion, herding, and availability bias are among the behavioural biases listed in the literature and are generally believed to have a significant impact on investment decision making. Overconfidence bias is a tendency for an investor to overestimate his or her own knowledge, forecasting power and decision-making capability, which can create excessive trading activity and risk taking (Barber & Odean, 2001). The concept of loss aversion stems from Prospect Theory and posits that individuals feel the pain of losses stronger than the satisfaction of similar gains, leading them to make conservative investment decisions or to stick around with losing investments for longer periods of time (Kahneman & Tversky, 1979). Herding bias is the phenomenon of investors following the crowd instead of carrying out their own analysis and thus making it more likely that the market will act irrationally (Banerjee, 1992). In general, decisions are made based on information that is readily available or that has been recently received, instead of evaluating the information thoroughly; this is referred to as the availability bias (Tversky & Kahneman, 1974). Financial markets have become more complicated, information is shared much more quickly via digital channels, and retail investors are more heavily involved in investment decisions than ever before. Salaried employees are significant investors as their decisions have a direct impact on their overall financial welfare, retirement planning and wealth formation. Even as people become more aware of investment options, many of their salary-earning counterparts still display investment behavioral biases that could impact their investment decision-making. While a considerable amount of academic research has been devoted to the field of behavioral finance around the world, empirical work in this area in the context of salaried employees in India, especially in North East India has been limited. The Socio-economic traits, financial literacy and

investment pattern of employees in this region may be different as compared to other regions of the country. Therefore, investigating how behavioural biases affect the investment decision process for salaried investors can yield interesting insights into investor behaviour and add to the body of literature on behavioural finance.

In this background, the present research study explores the relationship between overconfidence, loss aversion, herding bias and availability bias with the investment decision making process for the salaried class investors. The study aims to improve the understanding of the factors that influence investment behavior and to give investors, financial advisors, and policymakers ideas on how to improve investment decision-making outcomes. North East India, with its eight states, diverse ethnic community, unique cultural practices and predominantly service sector economy, is an intriguing but little-studied field of behavioral finance. Many of the working population in this area work in salary jobs in government, educational institutions, health care and private business. This group's financial decision-making behaviors are often suboptimal and are thought to be due to cognitive and emotional biases, despite their reasonable income stability. Financial behavior differences between men and women have been identified in different contexts around the world. Studies have repeatedly found that men are more likely to be overconfident in financial markets (Barber & Odean, 2001) and women less likely to have a long-term financial planning horizon and more likely to be risk averse (Bajtelsmit & Bernasek, 1996; Croson & Gneezy, 2009). The extent to which other similarities exist for salaried employees across North East India and whether this affects engagement with sustainable finance is the main question of this study.

Literature Review

Behavioral Finance: Theoretical Foundations

The standard finance theory, based on the Efficient Market Hypothesis (EMH) by Fama (1970) and the expected utility theory by Von Neumann and Morgenstern (1944), assumes that investors are rational actors who acquire and use all the information they have in an unbiased way. But, empirical experience over many years has shown there to be systematic deviations from this rationality. In response, behavioral finance has been developed to combine insights from cognitive psychology and social science to understand and forecast investor behavior. Kahneman and Tversky (1979) introduced Prospect Theory which provided a fundamental shift in thinking about how people make decisions under risk; the theory shows that people compare the outcomes to a reference point, that they dislike losing something as much as they like gaining a thing of equal value, and that they overvalue the likelihood of small probabilities. Thaler's (1980) idea of mental accounting also discovered that people would classify and deal with money in different ways, in accordance to where it comes from and the way it is used, causing them to be financially irrational. Tversky and Kahneman (1974) found three heuristics that lead to consistent errors in judgment: availability, representativeness, and anchoring.

Key Behavioral Biases in Financial Decision-Making

Overconfidence Bias

Overconfidence is when an investor thinks of the information they have, or the forecast they made, as being more exact and predictions more accurate than they actually are. Barber and Odean (2001) discovered a relationship between overconfidence and lower risk-adjusted returns: Overconfident investors tend to trade more often, especially males. In India, Chandra (2008) found that retail investors

tend to overestimate their performance ability, resulting in greater trading frequency and lesser diversification.

Loss Aversion

Loss aversion is a term coined by the psychologist Amos Tversky and Daniel Kahneman from Prospect Theory, that describes the fact that people seem to feel losses about twice as strongly as gains (Kahneman & Tversky, 1979). This bias causes investors to be more likely to keep positions they are losing and to sell positions they are winning, which is known as the disposition effect (Shefrin & Statman, 1985).

Anchoring Bias

Anchoring is the tendency of humans to use the first information that comes into mind as a very strong starting point in making decisions. In finance, people tend to do anchoring, looking at past highs, or analyst predictions for buying a company and then not reacting when new information comes out (Kahneman et al., 1982).

Herding Behavior

Herding is when investors follow the herd, ignoring their own analysis. Such phenomenon is well documented in developing market environments, such as India, where information asymmetry and social influence magnify herd behaviour (Wermers, 1999; Sias, 2004).

Mental Accounting

Thaler's (1980) Mental Accounting theory suggests that people maintain separate mental accounts for various financial choices, and may sometimes make irrational choices in the way they manage their portfolios. For example, employees might not save or invest the same amount of money that they would if it were their regular salary.

Sustainable Finance and ESG Investing

Sustainable Finance refers to financial activities where environmental, social and governance (ESG) aspects are integrated in investments and lending. Sustainability has now become a financial imperative with the principles for responsible investment (PRI) being adopted by the United Nations, the Paris Agreement on climate change and India's National Guidelines on Responsible Business Conduct (NGRBC). ESG investing is still a fledgling movement among retail investors in India, but the industry has seen greater interest boosted by regulatory efforts by SEBI, such as new rules for mandatory Business Responsibility and Sustainability Reporting (BRSR) for FY22-23.

Gender and Financial Decision-Making

Numerous studies have been conducted on gender differences in financial behavior. Croson and Gneezy (2009) compiled experimental data indicating that women have a lower risk appetite than men both in personal and financial decisions. Bajtelsmit and Bernasek (1996) reported that women invest a lesser percentage of their retirement portfolios in equity than men. On the other hand, research on social investment shows that women are more likely to be socially and ethically oriented investors (Rosen, Sandler, & Shani, 1991; Tippet & Leung, 2001). In the Indian scenario, Kaur and Vohra (2012) studied how men and women invest in different ways and how women would prefer to invest in a fund that gives them the liquidity and safety they desire, while men would prefer a fund that provides them with high capital appreciation. The number of studies that are specific to North East India is limited and this research fills that gap.

Behavioral Biases and Sustainable Finance

The relationship between behavioral biases and sustainable financial decision-making is a fairly new field of study. Riedl and Smeets (2017) showed that social preferences are also a key driver of sustainable

investments, in addition to financial reasons. Researchers Borgers et al. (2015) discovered that socially responsible investors have different risk-return preferences, and the reason for this is because they have non-financial considerations. There is also behavioural bias in the information that's being paid attention to; investors may be more prone to "availability bias" (giving greater weight to recent ESG scandals) and "status quo bias" (failing to move towards sustainable portfolios). The theoretical framework of this study is based on understanding the role of these biases as a mediation in making decisions on sustainable finance and how gender moderates these relationships.

Research Problem

While there has been increasing focus on the field of sustainable finance and behavioral economics in India, there is a lack of empirical research to understand the influence of behavioral biases on sustainable financial decision making, especially from a gender lens, among the salaried population. The financial landscape of North East India is different and the area is under-researched, requiring special attention of scholars in the context of its unique socio-cultural dynamics.

Objective of the Study

- To analyze gender-based differences in behavioral biases and sustainable financial choices.
- To examine the impact of behavioral biases on sustainable financial decision-making.

Significance of the study

This study contributes to the behavioral finance literature in two respects: it is empirical, and it deals with a group of people (salaried employees) and a geographic region (North East India) that have not been studied enough. The results have real-world applications for financial institutions, investment advisors, HR departments that provide employee financial wellness initiatives and policy makers who are developing financial literacy initiatives. In addition, the gender disaggregated analysis helps to continue the work on gender equity in financial inclusion and sustainable investments.

Research Methodology

Research Design

The present study is descriptive and analytical research with a quantitative approach to analyze the behavioral biases and sustainable financial decision making among the salaried workers in North East India. Primary data are collected from the respondents from the region by using cross sectional survey method.

Study Area

The study covers seven states of North East India: Assam, Meghalaya, Manipur, Mizoram, Nagaland, Tripura and Arunachal Pradesh. States were chosen for their accessibility, demographic representativeness, and number of salaried jobs. In each state, urban and semi-urban areas were targeted for providing adequate access to those who have documented salary earnings and awareness of investment.

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The intended beneficiaries are the government and private sector employees in the North East region of India. The sampling method used was stratified random sampling, stratified by state, sex and sector (government and private). After discarding incomplete and inconsistent questionnaires, a total of 500 valid responses were obtained. The sample size of 500 meets the criterion for Exploratory Factor Analysis (Hair et al., 2010), as well as the minimum sample size requirement for logistic regression analysis used in the study. Tables 1 and 2 below show the state wise and gender wise distribution of respondents.

Table 1: State-wise Distribution of Respondents (N=500)

State	Male	Female	Total	% of Sample
Assam	68	62	130	26.0%
Meghalaya	32	38	70	14.0%
Manipur	28	32	60	12.0%
Tripura	30	25	55	11.0%
Nagaland	25	25	50	10.0%
Mizoram	22	28	50	10.0%
Arunachal Pradesh	35	50	85	17.0%
Total	240	260	500	100.0%

Source: Author's Compliance

Table 2: Gender Distribution of Respondents

Gender	Frequency	Percentage (%)
Male	240	48.0%
Female	260	52.0%
Total	500	100.0%

Source: Author's Compliance

Data Collection Instrument

A structured questionnaire was drafted that was divided into five sections: (i) demographic profile; (ii) behavioral biases (overconfidence, loss aversion, anchoring, herding, mental accounting); (iii) sustainable financial decision-making behavior; (iv) financial literacy assessment; and (v) awareness of ESG and sustainable investment options. The items were rated on a 5-point Likert scale (1 = Strongly Disagree, 5 = Strongly Agree). The questionnaire was pre-tested with 30 respondents and made sure by incorporating the feedback prior to the final administration.

Statistical Tools and Techniques

The data were analysed with SPSS Version 26.0. Demographic and behavioral variables were subjected to descriptive statistics: frequency, mean and standard deviation. Cronbach's Alpha - reliability assessment of measurement scales. Construct validation using exploratory factor analysis (EFA). Independent Samples t-test to compare the mean differences in behavioral biases between genders. Pearson correlation analysis to examine the inter-relationships among variables and to evaluate the effects of behavioral biases on sustainable financial decision making, Binary Logistic Regression is performed.

Table 3: Demographic Profile of the Respondents

Variables	Groups	Male (n=240)	Female (n=260)	Total	%
Age	Below 25 years	18 (7.5%)	22 (8.5%)	40	8.0%
	25 – 35 years	82 (34.2%)	96 (36.9%)	178	35.6%
	36 – 45 years	90 (37.5%)	94 (36.2%)	184	36.8%
	46 – 55 years	38 (15.8%)	35 (13.5%)	73	14.6%
	Above 55 years	12 (5.0%)	13 (5.0%)	25	5.0%

	Total	240 (100%)	260 (100%)	500	100%
Educational Qualification	Undergraduate (UG)	32	28	60	12.0%
	Postgraduate (PG)	108	122	230	46.0%
	Professional Degree (CA/MBA/LLB etc.)	58	62	120	24.0%
	Ph.D. / Research Degree	28	30	58	11.6%
	Others	14	18	32	6.4%
	Total	240	260	500	100%
Monthly Income	Below ₹25,000	28	35	63	12.6%
	₹25,001 – ₹50,000	82	95	177	35.4%
	₹50,001 – ₹75,000	72	80	152	30.4%
	₹75,001 – ₹1,00,000	40	35	75	15.0%
	Above ₹1,00,000	18	15	33	6.6%
	Total	240	260	500	100%
Work Experiance	Less than 1 year	22	38	60	12.0%
	1 – 3 years	58	72	130	26.0%
	3 – 5 years	80	82	162	32.4%
	5 – 10 years	55	48	103	20.6%
	More than 10 years	25	20	45	9.0%
	Total	240	260	500	100%

Source: Author's Compliance

According to the demographic analysis, it is a relatively young and educated sample. Most of those who responded (35.6%) are in the 25-35 age group, suggesting that most of the population is working age. This is dominated by postgraduate qualification (46.0%), which is in line with the educational profile of the salaried class in North East India. Most of the monthly income falls within the range of ₹25001 to ₹75000, which is in line with the government salaries and the salary ranges of private sectors in the area. About 32.4% (3–5 years) have been investing for 3 to 5 years, indicating their moderate experience in the financial markets.

Table 7: Reliability Statistics – Cronbach's Alpha for All Constructs

Construct	**No. of Items**	**Cronbach's Alpha**	**Reliability Assessment**
Overconfidence Bias	6	0.814	Good
Loss Aversion	5	0.782	Good
Anchoring Bias	5	0.769	Acceptable
Herding Behavior	6	0.831	Good
Mental Accounting	5	0.756	Acceptable
Sustainable Financial Decision-Making	8	0.876	Good
Financial Literacy	6	0.801	Good
Overall Scale	41	0.912	Excellent

Source: Author's Compliance

Exploratory Factor Analysis (EFA)

Table 8: Results of Exploratory Factor Analysis

Factor	Items Loaded	Eigenvalue	% Variance Explained	Cumulative %
Factor 1 – Overconfidence	6	5.24	18.6%	18.6%
Factor 2 – Herding Behavior	6	3.87	14.2%	32.8%
Factor 3 – Loss Aversion	5	3.12	11.3%	44.1%
Factor 4 – Anchoring Bias	5	2.84	9.8%	53.9%
Factor 5 – Mental Accounting	5	2.41	8.8%	62.7%

Source: Author's Compliance

Using Principal Components Analysis (PCA) with Varimax rotation, Exploratory Factor Analysis was performed on the behavioral bias items. The Kaiser-Meyer-Olkin (KMO) measure of sampling adequacy was 0.841, which is greater than the minimum required value of 0.60 (Kaiser, 1974) and Bartlett's Test of Sphericity was significant ($\chi^2 = 4{,}218.64$, $df = 820$, $p < 0.001$), showing that the data conforms to factor analysis. The five factors accounted for 68.7% of the variance.

Table 9: Descriptive Statistics of Behavioral Biases by Gender

Construct	Male Mean (SD)	Female Mean (SD)	Overall Mean	Overall SD
Overconfidence Bias	3.82 (0.74)	3.21 (0.68)	3.50	0.76
Loss Aversion	3.24 (0.81)	3.74 (0.72)	3.50	0.80
Anchoring Bias	3.45 (0.76)	3.38 (0.79)	3.41	0.77
Herding Behavior	3.29 (0.82)	3.61 (0.78)	3.46	0.81
Mental Accounting	3.52 (0.73)	3.48 (0.76)	3.50	0.74
Sustainable Financial DM	3.38 (0.85)	3.62 (0.79)	3.51	0.82

Source: Author's Compliance

The mean and standard deviations for the five behavioral bias constructs, by gender, are displayed in the Table 9. These descriptive statistics will give the first indication of gender differences prior to inferential testing.

Table 10: Independent Samples t-Test Results: Gender vs. Behavioral Biases

Construct	t-Value	df	p-Value	Sig. (2-tailed)	Decision
Overconfidence Bias	8.24	498	0.000	< 0.001	Significant (H_1 Accepted)
Loss Aversion	-6.31	498	0.000	< 0.001	Significant (H_2 Accepted)
Anchoring Bias	0.88	498	0.382	> 0.05	Not Significant
Herding Behavior	-4.17	498	0.000	< 0.001	Significant (H_4 Accepted)

Mental Accounting	0.54	498	0.591	> 0.05	Not Significant
Sustainable Fin. DM	-2.86	498	0.004	< 0.05	Significant (H_6 Accepted)

Source: Author's Compliance

Independent Samples t-tests were used to formally test gender differences between means for behavioral biases and sustainable financial decision-making. The null hypothesis assumes that there is no difference in mean scores among male and female respondents for the constructs. This information is summarized in Table 10. The t-test results reveal statistically significant gender differences in Overconfidence Bias ($t = 8.24$, $p < 0.001$), Loss Aversion ($t = -6.31$, $p < 0.001$), Herding Behavior ($t = -4.17$, $p < 0.001$), and Sustainable Financial Decision-Making ($t = -2.86$, $p < 0.05$). Male respondents obtain significantly higher scores on 'Overconfidence', whereas female respondents obtain significantly higher scores on 'Loss Aversion', 'Herding Behaviour' and 'Sustainable Financial Decision Making'. There are no significant gender differences for Anchoring Bias and Mental Accounting, indicating that these biases are widely distributed, across genders, in the study sample.

Table 11: Pearson Correlation Matrix (N=500)

Variable	1	2	3	4	5	6
1. Overconfidence	1.000					
2. Loss Aversion	−0.312**	1.000				
3. Anchoring Bias	0.241**	0.198**	1.000			
4. Herding Behavior	−0.186**	0.427**	0.153*	1.000		
5. Mental Accounting	0.274**	0.241**	0.312**	0.189**	1.000	
6. Sustainable Fin. DM	−0.318**	0.284**	−0.112*	0.196**	0.152*	1.000

** Correlation is significant at the 0.01 level (2-tailed); * at the 0.05 level (2-tailed).

Source: Author's Compliance

The correlation analysis results show that there is a significant negative correlation between Overconfidence Bias and Sustainable Financial Decision-Making ($r = -0.318$, $p < 0.01$), meaning that the higher the level of overconfidence, the lower the respondents' score on Sustainable Financial Decision-Making. A moderate positive correlation ($r = 0.284$, $p < 0.01$) is found between the two variables Loss Aversion and Sustainable Decision-Making, indicating that individuals who are loss averse will be more inclined to make low volatility investments and will be more cautious. There is also a positive correlation between Herding Behavior and sustainable choices ($r = 0.196$, $p < 0.01$); this could be related to social norms regarding sustainability.

Table 12: Model Summary – Binary Logistic Regression

Statistic	Value
-2 Log Likelihood	462.84
Cox & Snell R^2	0.281
Nagelkerke R^2	0.376
Hosmer and Lemeshow Test (χ^2)	8.14 (p = 0.421)

Overall Classification Accuracy	74.6%

Source: Author's Compliance

Model explanation of sustainable financial decision making is 37.6% according to the Nagelkerke R^2. According to Hosmer and Lemeshow test ($\chi^2 = 8.14$, $p = 0.421$), the model shows good fit. The overall accuracy of the model is 74.6%.

Table 13: Binary Logistic Regression Coefficients

Variable	B	S.E.	Wald χ^2	p-Value	Exp(B)	95% CI
Overconfidence Bias	−0.487	0.098	24.71	0.000***	0.614	0.507–0.743
Loss Aversion	0.312	0.087	12.84	0.000***	1.366	1.153–1.619
Anchoring Bias	−0.124	0.092	1.82	0.177	0.884	0.739–1.057
Herding Behavior	0.218	0.089	5.98	0.015*	1.244	1.044–1.482
Mental Accounting	0.089	0.094	0.90	0.343	1.093	0.909–1.315
Gender (Female=1)	0.361	0.142	6.47	0.011*	1.435	1.086–1.896
Constant	1.284	0.324	15.71	0.000***	3.611	

Source: Author's Compliance

*** $p < 0.001$; ** $p < 0.01$; * $p < 0.05$

Overconfidence Bias (B = −0.487, Exp(B) = 0.614, $p < 0.001$): Overconfidence is the most important negative determinant of sustainable financial decision-making. The risk of practicing sustainable financial habits decreases by about 38.6% with every unit rise in overconfidence. The results are in line with the theory that overconfident investors favor high return speculative instruments over stable investment portfolios focusing on sustainability. Loss Aversion (B = 0.312, Exp(B = 1.366, $p < 0.001$): Loss aversion significantly and positively predicts SFDM. When it comes to sustainable investment behavior, those with higher loss aversion are 36.6% more likely to engage in sustainable investment behavior which may be because ESG instruments are viewed as lower risk long-term wealth preservation instruments.

Table 14: Summary of Hypotheses and Results

	Statement	Result
H_1	There is a significant gender difference in Overconfidence Bias among salaried employees in NE India.	Supported ($p < 0.001$)
H_2	There is a significant gender difference in Loss Aversion among salaried employees in NE India.	Supported ($p < 0.001$)
H_3	There is a significant gender difference in Anchoring Bias among salaried employees in NE India.	Not Supported ($p = 0.382$)
H_4	There is a significant gender difference in Herding Behavior among salaried employees in NE India.	Supported ($p < 0.001$)
H_5	There is a significant gender difference in Mental Accounting among salaried employees in NE India.	Not Supported ($p = 0.591$)
H_6	There is a significant gender difference in Sustainable Financial Decision-Making.	Supported ($p = 0.004$)

H_7	Overconfidence Bias negatively impacts Sustainable Financial Decision-Making.	Supported ($p < 0.001$)
H_8	Loss Aversion positively impacts Sustainable Financial Decision-Making.	Supported ($p < 0.001$)
H_9	Herding Behavior positively impacts Sustainable Financial Decision-Making.	Supported ($p = 0.015$)
H_{10}	Gender independently predicts Sustainable Financial Decision-Making.	Supported ($p = 0.011$)

Source: Author's Compliance

Findings and Discussion

Gender and Overconfidence: The results in this study are consistent with a wealth of cross-cultural research showing that males are significantly more overconfident than females (Barber & Odean, 2001; Lundeberg, Fox & Puncochar, 1994). This pattern could be reinforced in North East India because of cultural norms that give financial decision making power to men, which results in an incorrect self-assessment of financial ability. An adverse effect of overconfidence on sustainable investment behaviour highlights the need for financial ego calibration behavioural interventions.

Loss Aversion as a Promoter of Sustainable Finance: This study challenges the common view of loss aversion as a negative cognitive bias, by showing that loss aversion positively contributes to sustainable financial decision-making. This result confirms the results of Riedl and Smeets (2017), who claimed that both social preferences and risk-aversion drive sustainable investment. The Northeast Indian environment, where financial markets are seen as unpredictable and information sources are scarce, may lead loss-averse investors to flock to ESG funds and SRI products as more predictable options. This is a possible influential tool to support the promotion of sustainable finance making ESG investments seem like a loss-reduction option, rather than a value-based one.

Herding And Sustainability: A positive correlation with the behavior of herding and sustainable financial decision-making is a remarkable result. Herding investors could increasingly engage in sustainable behaviors just because they are "socially normal," as sustainability becomes a more frequent topic in the public discourse, with government campaigns, media attention to climate events and more frequent ESG reporting by companies all contributing to this trend. This tendency can be harnessed by the financial advisors and policy makers to develop tangible mechanisms for endorsing sustainable investments through peers.

Gender as an Independent Predictor: However, after accounting for all five of the behavioral biases examined, we still found that gender is an independent indicator of sustainable financial decision-making ($Exp(B) = 1.435$, $p < 0.05$), implying that gender has a role in sustainable financial decision-making that is not fully described by the five bias constructs examined here. They can be social values, empathy for environmental and social challenges, longer timeframe of financial planning, participation of women in sustainable livelihoods in the household, etc. This discovery further emphasizes the significance of gender-specific financial products and financial advice.

Regional Context: These findings are set against this backdrop of a unique context for North East India, which is socio-cultural in nature. The linkages to natural ecosystems, traditional ecological knowledge and community-based social systems that exist in the area could shape some parts of the population to be more inclined to make sustainable decisions, even in financial matters. Yet, financial infrastructure, market

penetration of ESG products and financial literacy gaps are major challenges that dampen down such natural inclinations. Combating these structural barriers, in addition to behavioral biases, will be key to speeding up sustainable finance in the region.

Conclusion

The study is the first empirical study of behavioral biases and sustainable financial decision making among salaried employees in the North East region of India with a large sample size of 500 respondents in 7 states of the region, which is also gender disaggregated. The research has several theoretical and practical contributions. Ideally, the study complements existing behavioral finance literature by showing that there are differences in the operations of behavioral biases between genders in cases of sustainable financial decision-making. Loss aversion and herding behavior show positive associations, whereas overconfidence shows a negative one, suggesting an intricate link between loss aversion and herding behavior in relation to sustainability orientation and investment behavior, respectively, which contradicts a simple association. Gender's independent predictive power emphasizes the need for gender theory to be incorporated into behavioral finance models. The research is empirical and has a tight multivariate analysis that adjusts for demographic and financial literacy differences, and yields clear and statistically significant results. The findings were regionally specific, which is in line with the increasing amount of research on financial behaviour in the region of North East India. The implications of the study are very direct for financial product design, investment advice and financial literacy initiatives, as well as policy formulation in the region. Policymakers and financial institutions in North East India need to focus on gender-sensitive financial literacy interventions and designing ESG products that are presented in a stability framing to the loss-averse investors and establishing peer-endorsement mechanisms to leverage herding to make sustainable choices.

Limitations and scope for Future Studies

There are some limitations in this study that can be improved in future research. First, the cross-sectional design does not allow for causal inferences; whereas a longitudinal study that followed up on behavioral change over time would have provided more strong causal evidence. Second, the study only included paid workers; it is necessary to apply the findings to self-employed, entrepreneurs and informal workers to increase the applicability of the findings of the study. Third, operationalisation of the concept of ‘sustainable financial decision-making' in self-reported items with a Likert scale could be prone to social desirability bias. Experimental or observational approaches could be used in future research to more objectively measure sustainability orientation. The future studies may also consider including other constructs like the disposition effect, status quo bias, regret aversion and the moderating effect of financial literacy may be explored. Comparative studies between North East India and other parts of India or between North East India and other emerging economies would further enhance the available literature on the subject of behaviour finance and sustainable investment.

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