

# Analysing Financial Literacy and Behavioural Biases in Investment Decisions: A Study of Retail Investors in Dehradun, India

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## Abstract:

This study shows the awareness of financial literacy and the effect of behavioural biases on investment decision among retail investors of Dehradun City in India. The research study investigates the effects of demographic variables (gender, age, education, and income) on investor behaviour with the help of factor analysis using primary survey data. The major biases covered in the study are of three types- Behavioural, Cognitive, and Emotional and they impact the financial decision making. This paper investigates to the regional behavioural financing literature by analysing tendencies of investors in the sample and serves as a basis for the design of further financial education programs and policies.

**Keywords:** Financial Literacy, Behavioural Bias, Cognitive Bias, Emotional Bias, Investment Decision-Making, Retail Investors, Behavioural Finance.

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## Introduction

Financial literacy is a critical determinant of an individual's ability to make informed investment decision. It encompasses understanding financial principles, risk management and investment approaches, allowing individuals to allocate their funds efficiently (Lusardi & Mitchell, 2014). The dynamic growth of financial markets along with the rise in retail investor participation in the Indian context has an imperative to further understand investor behaviour. But often, investors are guilty of behavioural biases (Kahneman & Tversky, 1979) that would take them away from the norms of rational financial theories. Behavioural, cognitive and

emotional biases can result in ineffective investment strategies.

According to behavioural finance research, individual investors are affected by cognitive biases such as overconfidence and mental accounting, as well as biases inherited from society that lead to most investors either being too averse to risk or taking excessive risk (Barberis & Thaler, 2003). Furthermore, demographic variables such as age, gender, education levels, and income brackets play a crucial role in influencing investment behaviours and risk perception. Ultimately, these biases might be fundamental in designing bespoke financial literacy programs and investor awareness campaigns to facilitate rational behaviour.

Towards this end, the present study investigates financial literacy awareness and behavioural biases of retail investors in Dehradun City, India. The research contributes to the growing field of behavioural finance through its exploration of how demographic variables affect investment decisions and emotional biases. The findings will aid policymakers, financial institutions, and educators to devise strategic financial education programs to reduce investment biases and improve financial decision-making.

## Literature Review

Over the past couple of decades, there have been leaps forward in the world of behavioural finance, which has resulted in a wealth of literature addressing the many different psychological biases that affect our financial choices. Much of this research uses secondary data, providing deep dives into surveys and analyses of investor behaviour. Researchers have made several notable contributions in understanding behavioural biases around which this section provides insights. Much of the literature is on emotional and cognitive biases that determine investor psychology as well as what causes them to deviate from rational decision-making.

In this part, we will provide an extra presentation on some major contributions from the studies of behavioural biases. The literature includes a variety of emotional and psychological biases such as Loss Aversion Bias, Overconfidence Bias, Mental Accounting Bias, and Herd Behaviour Bias.

(Hersh Shefrin et al., 1977) presented their groundbreaking research paper, “An Economic Theory of Self-Control”, which examined the intricacies of intertemporal choice and the ramifications for self-control in economic decisions. A formal model of self-control was presented, showing how to formalize the idea and the role it plays in intertemporal choice (the challenge people face when balancing immediate desires with the long-term future). In their framework, they model a human agent as a micro-corporation, with the mind serving as its planner/scheduler and the doers as a horde of

agents. In this context, the planner symbolizes rational forward-thinking, considering the greater good — and future, long-term, dividends — even if planning now, effectively means a trade-off between now and later, while the doers represent impulsive, short-term thinking, tending to act now for short-term gain, often at the expense of delayed gratification. The doers are short sighted and self-serving, concerned with the quick reward at the cost of long term benefit and so a key problem emerges

At the same time, (Daniel Kahneman et al., 1979) proposed Prospect Theory as a critique of the Expected Utility Theory (EUT), which assumed decisions made under certainty were always rational. They argued that a number of psychological biases have an impact on investors behaviour, leading to systematic deviations from rationality. Such biases are called behavioural biases that impact how people see potential gains and losses, causing them to make suboptimal investing choices. There are two major biases, loss aversion, which is an investor’s inclination to lose more than value gain of equal amount and distortion of probability, a tendency of one to overestimate odd events while underestimating more natural events. Cognitive biases lead to runaway suboptimal economic behaviour such as—seeking too little risk, mispricing of assets and sub-optimal trading—depressing aggregate investment returns.

According to (Michael M. Pompian et al., 2006) Behavioural biases in investing can be divided into two groups: Cognitive Bias and Emotional Bias.

Cognitive bias is a term referring to systematic mistakes in the processing of information, interpreting the data we see, and evaluating or making decisions based on that information. It happens when investors misread data or facts, resulting in irrational financial decisions. The most common cognitive bias examples are representativeness bias, anchoring and adjustment bias, availability bias, self-attribution bias, illusion of control bias, conservatism bias, confirmation bias (selection bias), hindsight bias, mental accounting, herding bias, and the disposition effect. Such biases can lead investors to make flawed

decisions based on data that is either not comprehensive or twisted.

Emotional bias, on the contrary, is based on emotions and impulsive responses instead of a logical evaluation of facts and figures. Investment decisions and financial performance often fall prey to emotional biases, which tempt investors to make emotion driven switches instead of rational responses. (Michael M. Pompian et al., 2006).

(H. Kent Baker et al., 2019) articulated four elements of behavioural bias: (1) overconfidence; (2) disposition effect; (3) herding, and (4) mental accounting. (H. Kent Baker et al., 2019) found that female investors tend to be less confident than men. This discovery is consistent with other studies, including (Nada R. Sanders & Sanders, 2003), (Gokul Bhandari et al., 2006), which showed that male investors have a tendency to be more confident than women. Women investors are more risk averse, which impacts the confidence they have about their investment decisions.

The disposition effect, as defined by (Markku Kaustia & Kaustia, 2010), is the name of the concept that explains that investors like to cash out their winners but hold onto losers. Research conducted by (H. Kent Baker et al., 2019) is more pronounced for female investors than for male investors. In addition, females are also more likely to ramp up investment if they see financial decisions working out for them less often than females.

There have been studies that find a gender difference in investment behaviour, particularly herding bias. research by (Malini Nair et al., 2017), herding bias among female investors was greater than that observed in male investors. (Hwei-Jen Lin & Lin, 2011) confirms this finding who noted as well that women are more susceptible to herding bias compared with men. However, men are also more decisive in their investment decisions. Women investors, in contrast, are relatively more likely to be influenced by those in their same social circle (Alan Feingold & Feingold, 1994).

Mental accounting — Thaler (1999) mentions it as a cognitive bias which impacts on how investors manage, evaluate and monitor financial transactions. According to Thaler (1999) mental accounting consists of three major parts: (a) framing decisions, (b) analyzing the different activities in separate accounts, and (c) the frequency of account management.

Research by (H. Kent Baker et al., 2019) insisted that men are more prone to mental accounting than women investors are less likely to exhibit behaviour associated with mental accounting in the reference category.

Furnham (1984) highlighted attitudes towards money between men and women, men tend to overthink about money, while women are more afraid of how to manage the way we spend money.

(Michael M. Pompian et al., 2006) imply that this bias is a consequence of investors acting on overconfidence with respect to their predictions and information. These investors are overconfident about their abilities and skills. Findings from (Jaya Mamta Prosad et al., 2015) show that investors between the ages of 51-60 or older are more confident investors than those in the lower age groupings. Investors aged 51-60 are believed to be wiser than any other group when it comes to investments.

## Identified Research Gap

### 1. Narrow Pursuit of specific Demographics

Although previous studies provide thorough analysis of behaviours influencing investment decisions, they mostly categorize investors in broad segments (for example based on gender or age). While financial system variables, among others, have been thoroughly explored globally, regional specifics and demographic details, such as those in Dehradun City — that is potentially distinct in terms of its cultural, economic, and sociological influences on investment behaviour have not been so widely discussed.

### 2. No Primary Data from Local Investors

Since most of this previous research use secondary resource data, it may not reflect live investors sentiments & biases related to respective markets. Empirical study with primary data shall help in knowing how investors from Dehradun perceive and respond through various biases in their investment decisions.

### 3. Under-analysis of emotional biases in comparison with the demographic ones

While existing literature classifies behavioural biases as cognitive and emotional biases, less attention is paid to how emotional biases (e.g., fear, regret, overconfidence) differ across demographic groups. Knowledge of these relationships may assist in designing targeted financial educational programs.

#### Research Objectives

1. To analyse the awareness about financial literacy in Indian Market.
2. To study the demographics variables of retail investors on investment.
3. To study the factors contributing towards the investor's behaviour in Dehradun City.

#### Scope of the study

This paper contributes to regional behavioural finance literature and aims to explore the role of demographic factors on emotional biases among investors in Dehradun City. The study uses primary data to analyse a major bias, namely House Money Effect, Snake Bite Effect, Endowment Effect and Familiarity Effect in different demographic variables including age, gender, education, income, and profession. The study aims to uncover regional distinctiveness by

comparing the investor behaviour in Dehradun in the context of national and global tendencies. These findings will contribute to the literature on behavioural finance and inform future targeted financial education programs that may help abate emotional biases in investment decision-making.

#### METHODOLOGY

The study employed individual-level data using a survey approach. A descriptive research design was used to collect a more detailed snapshot of the structure through structured surveys. The study utilized a stratified snowballing approach, going after a relatively high of around 150 individual investors to reach the target population. The respondents should have experience in making investments in financial products with savings in their finances. The study was carried out in the Dehradun city area.

Regular questionnaire was prepared for the purpose of analysing effect of demographic variables on emotional behavioural biases of individual investors. Nominal, Ordinal, and Interval scales were used in the study. Specifically, they used the Nominal scale for grouping attributes such as age, gender, marital status, and investment experience. On the other hand, the Ordinal scale and Likert's five-point scale were used to assess emotional behavioural biases.

**Statistical test used in the study:** Descriptive test is used to examine the demographic variable of the study.

#### Reliability test:

The Cronbach's Alpha Coefficient for Demographic variables is as given below:

Table 1.1

#### Reliability Statistics

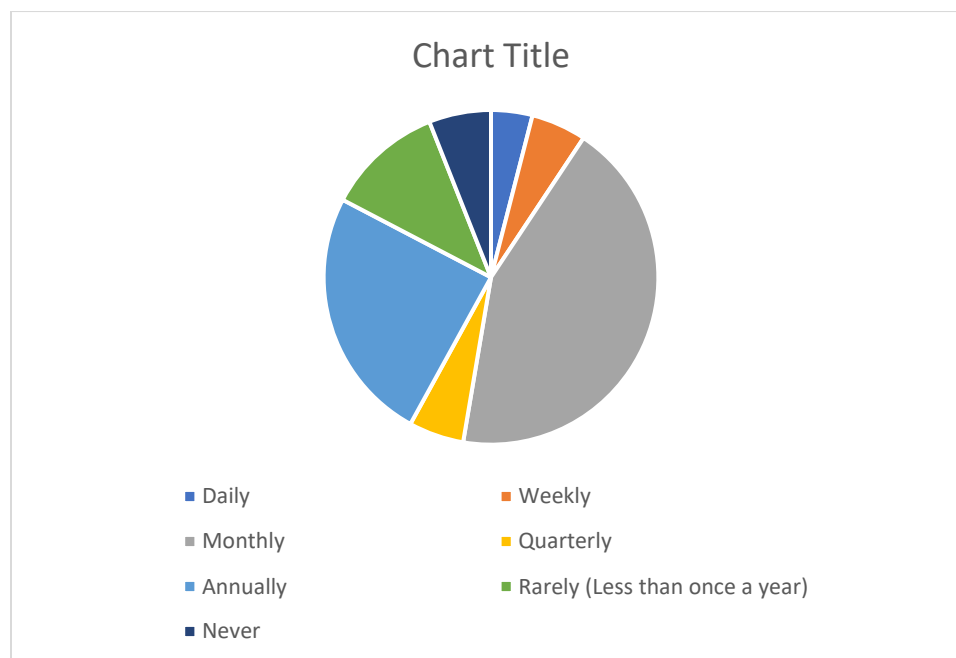
Cronbach's Alpha	Cronbach's Alpha Based on Standardized Items	N of Items
.940	.940	18

Cronbach's Alpha was used to evaluate the reliability of the measurement scale, which for the 18 items of the used questionnaire was determined to be 0.940. For excellent internal consistency, a value would be above 0.90, and this confirms that the items correlate strongly enough that they are representing the embodiment of the construct one had in mind (Nunnally 1978). Such high reliability increases validity, helping accumulate data that are reliable and are needed in explaining sentiment-led behavioural biases of individual investors. Second, it rationalizes the strength of the scale for other statistical tests, thus fortifying the validity of the study.

### Results and Interpretation

The study calculates the outcomes based on the decisions of individual investors when faced with different scenarios shown in the questionnaire. These options serve to get out what emotional behavioural biases are affecting their investment decisions. The following is a comprehensive summary of the demographic variables and the associated emotional behavioural biases related to each item, which contributes to a better understanding of the correlation between the individual characteristics of investors and their emotional tendencies.

**Table 1.2 analysing the awareness about financial literacy in Indian Market**



Analyse Indian market financial literacy through the pie chart depicting the investor investment observation frequency. A tiny group of well-read investors track their portfolios daily and weekly, while most do so monthly or quarterly, demonstrating a middle-of-the-road mentality. Yet many investors rarely or never interact with their investments,

revealing a lack of financial education. It indicates that while a risk-prone investor engages in active management of their finances, the rest stick to passive investment strategies, or are ill-equipped to make active decisions. Since this needs to be addressed, financial literacy initiatives, investor awareness programs and advisory services need to be scaled

enough to promote periodic tracking of investments and making informed choices.

**Table 1.3 Demographic Characteristics of the Respondents**

CATEGORY		COUNT	PERCENTAGE
AGE	Under 25	70	46.7
	25-34	56	37.3
	35-44	18	12
	45-54	6	4
	Total	150	100
GENDER	Male	103	68.7
	Female	47	31.3
	Total	150	100
EDUCATION LEVEL	High School	1	0.7
	Bachelor's Degree	33	22
	Master's Degree	100	66.7
	Doctorate	16	10.7
	Total	150	100
MONTHLY INCOME	No Income	1	0.7
	Below Rs.10000	55	36.7
	Rs.10000- Rs.15000	4	2.7
	Rs.15000- Rs. 20000	10	6.7
	Rs.20000- Rs. 25000	11	7.3
	Above 25000	69	46
	Total	150	100
EMPLOYMENT STATUS	Full-time	73	48.7
	Part-time	12	8
	Self-employed	18	12
	Unemployed	47	31.3
	Total	150	100

Analysis of the demographics that make up the sample shows that most respondents are between the ages of 18-24 (46.7%) and 25-34 (37.3%), meaning we are largely dealing with younger investors. There is a male-dominant gender distribution (68.7%), which may indicate that the results may be more characteristic of male investment behaviour. For education, the sample is well-educated, with most having a Master's Degree (66.7%), which is likely to drive financial literacy levels. The income distribution reveals that 46% of the people earn well

above the Rs. 25000 mark, while there is a decent 36.7% earning less than Rs. 10000, leading to the analysis of the influence of financial stability on an investment decision. 47.4% of responses are in full-time employment, alongside 27.9% unemployed, which may prompt certain emotional behavioural biases such as risk aversion and loss aversion. Such a diverse demographic profile forms a solid basis for investigating the links between demographic characteristics and emotional behavioural biases among individual investors.

**Table 1.4 Factors contributing towards the investor's behaviour in Dehradun City.**

**Factor analysis**

		1	2	3	Total Load
<b>Behavioural Bias</b>	I prioritize historical returns when choosing a mutual fund	0.809			4.99
	I consider the reputation of the fund manager or company when making investment decisions.	0.787			
	I prefer mutual funds with consistent past performance, even if new funds show potential.	0.752			
	I regularly review and adjust my mutual fund portfolio based on market trends.	0.807			
	I am open to investing in new mutual funds if presented with logical evidence of growth potential.	0.674			
	Loss Aversion: I find myself making safer choices when I fear potential losses, even if the potential gains are significant.	0.522			
	I actively educate myself on financial planning and investment options.]"	0.639			
<b>Cognitive Bias</b>	Overconfidence Bias: I believe I have better financial knowledge than most of my peers.		0.801		3.301
	Mental Accounting: I am more likely to spend money freely if it comes from unexpected sources (e.g., lottery winnings, gifts).		0.707		
	Cognitive Biases [Representativeness Bias: I tend to believe that if a stock or investment has performed well in the past, it will continue to perform well in the future.]"		0.655		
	Cognitive Biases [Disposition Bias: I tend to hold on to losing investments for too long, hoping they will recover.]"		0.679		
	Emotional Biases [Snake Bite Effect: After a financial loss, I become overly cautious and avoid similar investments.]		0.459		
<b>Emotional Bias</b>	Emotional Biases [Emotional Bias: I tend to make financial decisions based on emotions rather than logical analysis.]			0.728	3.755
	Emotional Biases [House Money Effect: If I have extra income or unexpected money, I take higher financial risks.]			0.521	
	Emotional Biases [Familiarity Bias: I prefer to invest in companies or industries that I am familiar with, even if other investments offer better returns.]			0.562	



	Emotional Biases [Endowment Effect: I tend to overvalue my possessions and resist selling them, even when it is financially beneficial.]			0.52	
	Behavioural Finance in Investment Decisions [Investment Preferences: I prefer traditional investments (gold, real estate, fixed deposits) over modern investments (mutual funds, stocks, cryptocurrency).]"			0.702	
	Behavioural Finance in Investment Decisions [Influence of Social Norms: My family's and society's views influence my financial decisions.]"			0.722	

## Discussion Section: Interpretation of Variables

### Factor 1: Behavioural Bias

Behavioural Bias: Factor loadings ranging between 0.522-0.809. This point indicates that historical performance, reputation, and market trends play an important role in making investment decisions. The most loaded component, *"I prioritize historical returns when choosing a mutual fund"* (0.809), reveals the importance of previous performance in decision making. Also, financial literacy (0.639) denotes that educated investors are likely to make more systematic financial decisions.

**Implication:** Investors with behavioural bias tend to favor low-risk, historically strong investments and oppose loss aversion, fearing to make risky decisions even when large possible gains are presented.

### Factor 2: Cognitive Bias

Cognitive Bias, whose factor loadings are between 0.459 and 0.801, consists of overconfidence, mental accounting, representativeness bias and disposition effect. The highest loading statement, *"I believe I have better financial knowledge than most of my peers"* (0.801), indicates overconfidence as a major factor influencing investment behaviour. Mental accounting (0.707) suggests a phenomenon where investors waste or recklessly allocate unexpected income. The representativeness bias (0.655) and disposition bias (0.679) show that investors hang onto losing

investments for too long because of emotional attachment.

Implication: Cognitive bias can lead the way investors make heuristic-based decisions, leading to poor investment behaviour resulting in holding on to unprofitable assets for too long or presuming past trends will continue.

### Factor 3: Emotional Bias

Emotional Bias encompasses decision-making based on emotions, taking risks, and social influence, with factor loadings from 0.521 to 0.728. The highest loading *"I make financial decisions based on emotions rather than logical analysis"* (0.728), indicates that many investors are feeling rather than fact-driven. The factor of house money effect (0.521) suggests that when investors own unexpected additional money, they tend to take more risks. Moreover, the effect of social norms (0.722) indicates that family and societal expectations shape financial decision-making.

Implication: Investors with emotional bias are risk-averse particularly in their investments, they tend to avoid new investment opportunities, follow social cues, and time and again reject modern alternatives like cryptocurrency and stock trading.

### Limitations of the Study

As any research methodology, the present study has limitations as well. Owing to constraints of time and availability of resources only a sample of individual



investors, residing in Dehradun city has been taken for the study. This may limit the extent to which the findings can be extrapolated to other regions as investment patterns and emotional bias may differ between regions. Also, the research is only limited to emotional behavioural biases, which means, we neglect any other biases that may affect investment choices. These constraints are relevant to the interpretation of the findings and their generalizability.

## Findings and Conclusion of the Study

The research presents a good perception over bit of knowledge of investor behaviour & financial literacy awareness the scenario of an Indian market specifically in Dehradun City. The research results show that behavioural, cognitive, and emotional biases significantly affect the decisions of investors. Most investors attach importance to historical returns, reputation, and market trends, acting on behavioural bias to make conservative investments. Cognitive biases including overconfidence, mental accounting and representativeness bias can lead to suboptimal decision-making and a tendency for investors to hold on to losing assets for too long. Notable emotional patterns, such as the house money effect, the influence of their social environment on their investment decisions, and their tendency towards risk aversion, also play transformative roles, causing the majority of investors to prefer traditional investment choices than modern ones, such as stocks and mutual funds.

"This indicates a gap in financial literacy, and many investors either seldom or never take an active role in the management of their investments, underscoring the need for improved financial education initiatives," the research took note of. Additionally, the study also finds that there are demographic factors, like age, education, income, and employment status which directly relate to the investment behaviour over their lifetime where younger and educated investors tend towards making structured financial decisions.

Although the study aids in understanding the psychology behind investment behaviour, it is limited

to the city of Dehradun and emotional biases, opening doors for future research to look for other psychological and regional factors. These results emphasise the importance of financial literacy programmes, educational resources for potential investors, and personalised advisement services that can ensure informed investment choices while diminishing the influence of biases in financial decision-making.

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