CHAPTER – IV

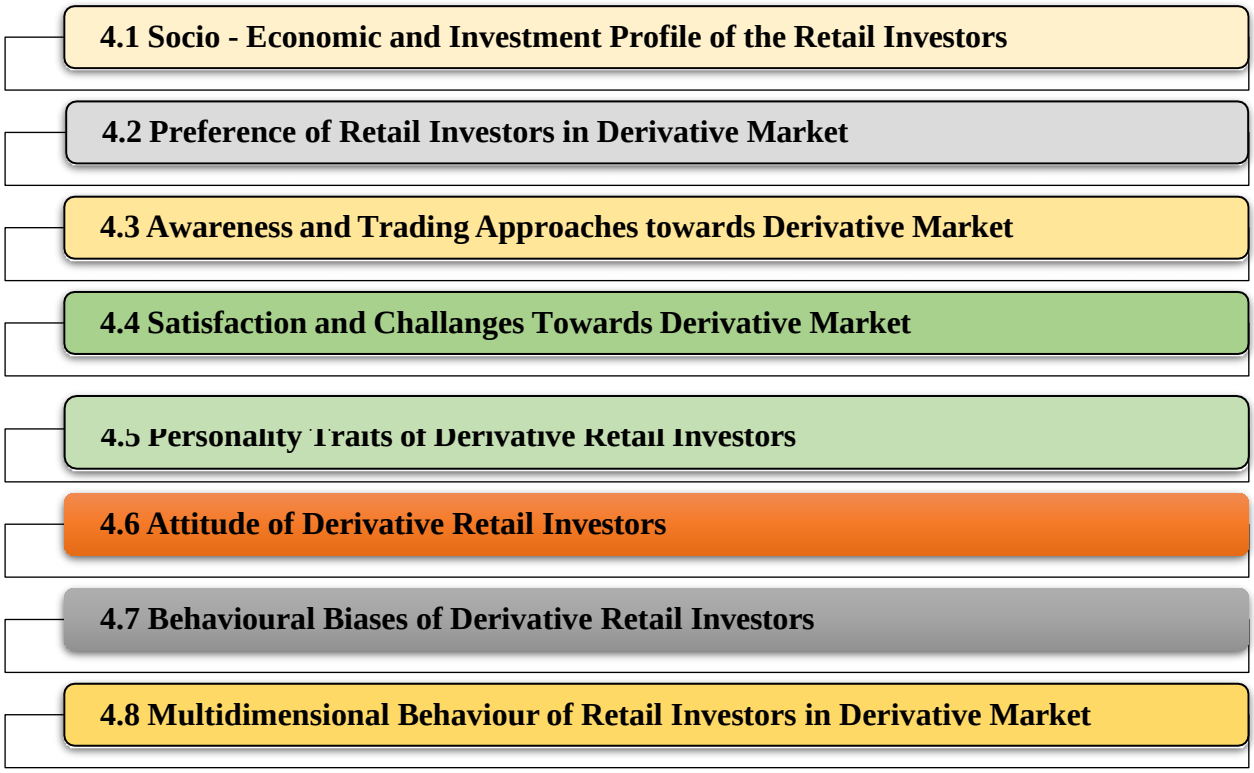
RESULTS AND DISCUSSION

Derivative market plays a crucial role in price discovery and risk transfer for assets like stocks, commodities, and currencies. Derivatives consist of both exchange-traded instruments, which are standardized, and customized contracts negotiated between brokers or dealers and clients with specific needs that cannot be addressed by standard products (Williams, 2011).

Retail investors in the derivative market often exhibit certain trading behaviours that distinguish them from institutional investors (Subburayan, B, 2023). Derivatives, such as futures and options, can be complex financial instruments, and retail investors approach them differently due to their risk tolerance, knowledge levels, and investment objectives (Toopalli and Kalyan, 2019). Retail investors exhibit multidimensional behaviour while trading in the derivative market. They do not possess the same behaviour all the time. They tend to reveal a combined behaviour based on the trends in the market. Thus, the study was conducted to analyse the multi-dimensional behaviour of retail investors in the derivative market, to achieve the following objectives:

- To know the preferences of retail investors in Derivative Market
- To analyse the awareness of retail investors in derivative trading
- To evaluate the satisfaction gained and challenges faced by retail investors in derivative trading
- To assess the Attitude, Personality Traits, Behavioural Biases, Financial Literacy and Self – Efficacy of the retail investors on the trading behaviour and
- To examine the effect of Attitude, Personality Traits and Behavioural Biases on the derivative trading of retail investors with the moderating role of Financial Literacy and Self-Efficacy

The collected data were analysed and was presented under the following sections:



4.1 SOCIO-ECONOMIC AND INVESTMENT PROFILE OF THE RETAIL INVESTORS

The socio-economic and investment profile of retail investors encompasses a diverse range of individuals who engage in the financial markets with varying backgrounds and motivations. These investors typically vary in age, gender, education, and income level. Socio-economically, retail investors often include middle to upper-middle-class individuals seeking to grow their wealth, plan for retirement, or achieve specific financial goals (Bhola and Zanvar, 2016).

4.1.1 Types of Investors

An investor will engage in multiple strategies over time based on changing market conditions and personal preferences. Additionally, the derivative market is dynamic, and new investors and strategies emerge as the market evolves (Toopalli and Kalyan, 2019). The market becomes rather static in the absence of these active investors, and it cannot bring in new potential investors (Wermers, 2019). The investors have been classified into four groups hedgers, speculators, arbitrageurs and margin buyers.

Table 4.1 Types of Investors

Classification	Frequency	Per centage
I always trade to protect against price fluctuations in commodities or financial instruments (Hedgers)	171	44.5
I often buy assets for a short period and use strategies to profit from changes in their price (Speculators).	114	29.6
I always try to make a profit from market inefficiencies (Arbitrageurs)	81	21.0
I always borrow money from a brokerage firm to make investments (Margin buyers)	18	4.68
Total	**384**	**100**

Source: Primary Data

Table 4.1 explains the type of investors based on their trading approaches. The largest segment, comprising 44.5 per cent (171 individuals), identifies as Hedgers, adopting a more risk-averse approach, utilising trading to safeguard against price fluctuations in commodities or financial instruments. 29.6 per cent (114 individuals) identify as Arbitrageurs, indicating a preference for purchasing assets for short durations and employing strategies to profit from price changes. This suggests a significant crowd of investors engaged in dynamic and short-term trading activities, likely driven by market trends and fluctuations. 21 per cent showing an interest in exploiting market inefficiencies to achieve profits. This group likely employs sophisticated strategies to capitalise on price differentials across markets. Lastly, a smaller subset, representing 4.68 per cent (18 individuals), are categorised as Margin Buyers, revealing a higher risk tolerance as they borrow funds from brokerage firms to make investments. The diversity in these classifications underscores the varied investment objectives, risk appetites, and trading strategies prevalent among investors, it reflects the active nature of the financial markets and the different preferences among the investor population surveyed.

Hedger investors are more prevalent in this dataset likely due to the primary motivation behind hedging, which is to mitigate risk and protect against price fluctuations in commodities or financial instruments. This cautious and defensive strategy is especially appealing to entities like corporations, financial institutions, and individual investors who seek stability and predictability in their investments. Unlike speculators, who aim for short-term profits, or arbitrageurs, who exploit market inefficiencies, hedgers prioritize safeguarding their portfolios from adverse price movements, making their approach less risky and more aligned with long-

term financial planning. Additionally, in volatile markets, the reassurance provided by hedging can be particularly attractive, leading to a higher number of investors adopting this strategy.

4.1.2 Socio-economic Landscape of Retail Investors

The socio-economic profile of investors provides valuable insights into their trading behaviour in the derivative market. The socioeconomic characteristics of respondents encompass a range of factors that can influence financial decisions, risk tolerance, and investment strategies (Prasad et al, 2021). Socio-economic aspects such as age, gender, educational qualification and monthly income provide a base for studying the trading behaviour of retail investors in the derivative market (Rawal and Chowdhury, 2018)

- **Gender**

Table 4.2 shows that out of 384 investors, 240 (62.3%) are male, 132 (34.6%) are female, and 12 (3.1%) are transgender. Among male investors, 104 (43.3% of males) are hedgers, 71 (29.6%) are speculators, 33 (13.8%) are arbitrageurs, and 32 (13.3%) are margin buyers. From female investors, 61 (46.2% of females) are hedgers, 43 (32.6%) are speculators, 10 (7.6%) are arbitrageurs, and 18 (13.6%) are margin buyers. 3% of the investors are Transgender which reveals that they also are coming into derivative trading, with 6 (50%) as hedgers, 2 (16.7%) as speculators, 3 (25%) as arbitrageurs, and 1 (8.3%) as margin buyers.

The persistence of gender difference be attributed to several variables, including cultural expectations, historical biases, and, most crucially, the innate risk-taking trait that has been present in men since ancient times (Stake and Eisele, 2009). Males have historically assumed the roles of hunters and risk-takers. Societal expectations also play a part in the gender gap in the financial markets (Almenberg and Dreber, 2012). The belief that males are more equipped for risky, expansive endeavours while women should take a more cautious approach to money has been supported by traditional gender conventions (Fisher and Yao, 2017). This discourages women from venturing into the intricate landscape of derivative trading. Hence, Gender is considered an important factor in studying the trading behaviour of retail investors (Sashikala and Girish, 2015).

Table 4.2 Socio-economic Profile of the Retail Investors

Variables	Classification	Type of Investors				Frequency	Per centage
		Hedgers	Speculators	Arbitrageurs	Margin Buyers		
Gender	Male	104	71	33	32	240	62.3
	Female	61	43	10	18	132	34.6
	Transgender	6	2	3	1	12	3.1
	Total	**171**	**116**	**46**	**51**	**384**	**100**
Age	Below 30 years	18	9	3	3	33	8.4
	30-39 years	33	16	29	12	90	23.9
	40-49 years	74	51	23	25	173	44.0
	50-59 years	33	20	10	7	70	19.1
	60 years and above	9	5	2	2	18	4.6
	Total	**167**	**101**	**67**	**49**	**384**	**100**
Educational Qualification	School	19	7	5	2	33	8.4
	Diploma	30	18	12	10	70	18.8
	Graduate	86	80	22	12	200	52.2
	PG	24	20	8	6	58	14.8
	Professional Degree	12	9	1	1	23	5.9
	Total	**171**	**134**	**48**	**31**	**384**	**100**
Marital Status	Single	23	22	4	1	50	14.8
	Married	209	91	20	10	330	84.2
	Separated	1	1	1	1	4	1.0
	Total	**233**	**114**	**25**	**12**	**384**	**100**
Annual Income (INR)	Below 200000	43	32	9	6	90	24.2
	200000-400000	73	53	15	9	150	39.2
	400000-600000	47	43	15	7	112	28.5
	Above 600000	17	12	2	1	32	8.1
	Total	**180**	**140**	**41**	**23**	**384**	**100**

Source: Computed Data

- **Age**

The age distribution of investors ranges from below 30 years to 60 and above. The largest group is aged 40-49 years, comprising 173 investors (44% of total). Within this age group, 74 (42.8%) are hedgers, 51 (29.5%) are speculators, 23 (13.3%) are arbitrageurs, and 25 (14.5%) are margin buyers. The smallest group is aged 60 and above, with 18 investors (4.6% of total), of which 9 (50%) are hedgers, 5 (27.8%) are speculators, 2 (11.1%) are arbitrageurs, and 2 (11.1%) are margin buyers. The willingness of individuals in the low and middle-age groups to invest in high and moderate-risk financial assets is commonly observed in investment (Chandra and Sharma, 2019). The attitude of investors towards financial decisions tends to change with age. One of the key aspects that often changes is the level of risk tolerance (Davies and Brooks, 2014). Generally, aged investors tend to have a lower level of risk tolerance compared to younger people. Some aged investors maintain a higher risk tolerance based on their unique circumstances, financial goals, and experiences (Corter and Chen, 2005).

- **Educational Qualification**

Investors are classified based on their educational qualifications, with graduates constituting the largest segment at 52.2% (200 investors). Among graduates, 86 (43%) are hedgers, 80 (40%) are speculators, 22 (11%) are arbitrageurs, and 12 (6%) are margin buyers. The smallest group is holders of professional degrees, comprising 23 investors (5.9% of the total). Within this group, 12 (52.2%) are hedgers, 9 (39.1%) are speculators, 1 (4.3%) is an arbitrageur, and 1 (4.3%) is a margin buyer. Level of education can indeed influence the trading behaviour of retail investors. The educational Qualification of an individual determines their level of awareness towards various investment avenues. The educative people would like to construct a portfolio which offers high returns in the long run. The study also reveals that 2/3rd of the investors in the derivative market have higher educational qualifications.

- **Marital Status**

Marital status is an important factor in understanding the financial behaviour and decision-making of individuals (Lyons et al, 2008). It provides insights into the broader context of an individual's financial situation and responsibilities. Married investors dominate the survey, accounting for 330 (84.2% of the total). Among married individuals, 209 (63.3%) are hedgers, 91 (27.6%) are speculators, 20 (6.1%) are arbitrageurs, and 10 (3%) are margin buyers. Single investors represent the next largest group with 50 individuals (14.8% of the total), followed by separated investors with 4 (1% of the total). The marital status of an investor influences their investment habit. The marital status boosts responsibilities which push them to have additional

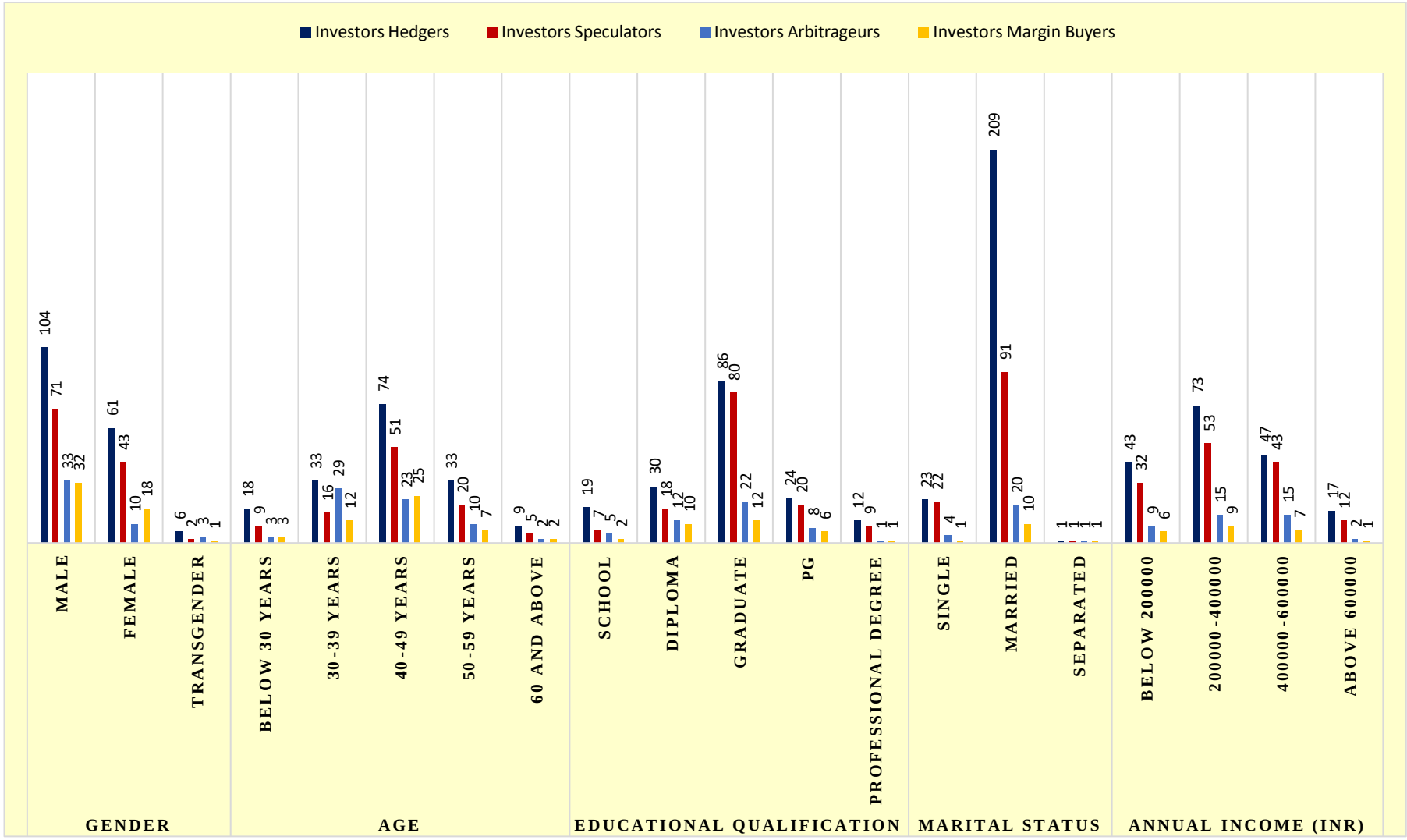
revenues. They tend to invest in new opportunities available in the market. The study also reveals that the majority of the investors are married and exhibiting hedging behaviour in the derivative market.

- **Annual Income**

The income of the respondents indicates how much they can spend. The income distribution shows that the majority of investors fall within the income of ₹ 2,00,000-₹4,00,000, comprising 39.2% (150 investors). 48.7% are hedgers, 53 (35.3%) are speculators, 15 (10%) are arbitrageurs, and 9 (6%) are margin buyers. The highest income bracket (above ₹ 6,00,000) has the fewest investors at 8.1% (32 individuals), with 17 (53.1%) as hedgers, 12 (37.5%) as speculators, 2 (6.3%) as arbitrageurs, and 1 (3.1%) as a margin buyer.

A comprehensive overview of the demographics and investment preferences of 384 investors categorized as Hedgers, Speculators, Arbitrageurs, and Margin Buyers. The majority of investors are male (62.3%), aged 40-49 years (44%), and married (84.2%). Educationally, most have a graduate degree (52.2%), and the predominant annual income range is between ₹ 2,00,000 - ₹ 4,00,000 (39.2%).

Hedgers are the largest group across all categories. Males and married individuals dominate the investment landscape, with a significant portion having graduate-level education. Income distribution indicates a higher concentration of investors in the middle-income groups, reflecting a diverse but skewed demographic inclination towards hedging as an investment strategy.



Source: Computed Data

Figure 4.1 Socio-economic Profile of the Retail Investors

4.1.3 Proportion of Savings from Income

Allotting a percentage of income for savings is a proactive financial strategy that promotes financial security, helps achieve goals, and provides a buffer against unexpected expenses. It is a key component of sound financial planning, responsible money management and building a foundation for long-term financial well-being.

Table 4.3 Proportion of Savings from Income

Proportion	Frequency	Per centage
Less than 5%	33	8.5
6%-10%	53	13.8
11%-15%	64	16.6
16%-20%	174	45.3
More than 20%	60	15.6
Total	**384**	**100**

Source: Primary Data

Table 4.3 provides insights into the savings habits of the investors based on the proportion of income allocated to savings. The maximum number of respondents, accounting for 45.3 per cent (174 individuals), falls within the 16% - 20% savings range. This suggests a prevalent and balanced approach to financial management, where individuals allocate a substantial yet reasonable portion of their income towards savings. This group prioritize both current spending and future financial security, indicating a judicious and mindful approach to wealth accumulation. The distribution across other categories, such as those saving less than per cent, between 6% - 10%, between 11% - 15%, and more than 20%, reflects a diverse range of savings habits within the surveyed population. The 8.5 per cent of individuals saving less than 5% include those with lower disposable incomes or those focusing on other financial priorities. Conversely, the 15.6 per cent saving of more than 20% might represent a financially conservative segment prioritising a substantial safety net or long-term investments.

A 16% to 20% proportion could be indicative of a balanced approach to financial planning among investors (Lee et al., 2019), striking a compromise between conservative savings and allowing for a reasonable allocation towards other expenses or investments. The percentage is notably higher than other ranges, indicating a prevalent trend among investors to allocate a significant, yet manageable, portion of their income towards savings. This balanced approach reflects a mindset that considers both short-term financial goals and long-term wealth accumulation, illustrating a judicious financial strategy within the surveyed population.

4.1.4 Percentage of Savings Invested in Derivative Market

Investing in a derivative market helps to save more money, minimise taxes and inflation, and increase the income from the assets. Derivatives can be a vital component of any investment portfolio.

Table 4.4 Percentage of Savings Invested in Derivative Market

Allocation	Frequency	Percentage
Less than 5%	71	18.4
6%-10%	190	49.4
11%-15%	62	16.1
16%-20%	47	12.2
More than 20%	14	3.64
Total	**384**	**100**

Source: Primary Data

Table 4.4 shows that the maximum number of investors, 49.4 per cent invest 6% to 10% in the Derivative Market. 18.4 per cent of the investors allot less than 5 per cent in the derivative market from their savings. 16.1 per cent of the investors invest 11% to 15% of their savings in the derivative market. 16% to 20% allocation of savings in the derivative market is done by 12.2 per cent of the investors and only 3.64 per cent of investors invest more than 20% in the derivative market.

4.1.5 Objectives for Investing in the Derivative Market

In the Derivative Market, different objectives play a combined role and, thereby, influence the decision of market participants. The diverse risk tolerance, preferences, and investment philosophies that drive market participants will need to shape the investment decision in the Derivative Market. Whether the market is driven by risk management, speculation, portfolio diversification, enhanced returns, or arbitrage opportunities, investors navigate the complex landscape of derivatives with a mix of caution and optimism. Ultimately, the level of importance assigned to these objectives is subjective and contingent upon the unique financial goals and risk appetite of each investor.

Table 4.5 Objectives to Invest in the Derivative Market

Objectives	Type of Investors				Mean	Std. Deviation
	Hedgers	Speculator	Arbitrageurs	Margin Buyers		
Potential for higher return	4.08	4.05	3.93	4.22	4.07	0.87
Risk Management	4.99	4.91	3.83	4.28	4.50	0.95
Enhancing Planning and Budgeting	4.20	3.37	3.18	3.11	3.46	1.02
Market Efficiency	3.64	4.27	4.39	3.22	3.88	1.05
Speculative Profit	3.53	4.38	3.37	3.28	3.64	1.16
Diversification of Strategies	3.13	2.96	3.17	2.50	2.94	1.11
Market Access and Flexibility	3.48	3.68	3.31	3.22	3.42	1.24
Investment Leverage	3.78	3.85	3.80	3.22	3.66	0.91
Diversification and Arbitrage	3.87	4.96	4.14	3.11	4.02	0.95
Cost Efficiency	4.47	3.22	3.68	3.28	3.67	1.06
Increased Purchasing power	3.26	3.19	3.09	3.89	3.37	1.02
Improve creditworthiness	3.94	3.30	3.07	2.56	3.21	1.13
Maintaining Competitive Advantage	3.91	2.92	3.04	3.06	3.23	1.12
Short term Trading opportunities	2.92	3.03	2.86	3.06	2.96	1.17

Source: Computed Data

Table 4.5 presents a comprehensive view of investment objectives considered by four distinct investor types: Hedgers, Speculators, Arbitrageurs, and Margin Buyers, accompanied by their respective mean ratings and standard deviations.

Across all investor types, the objective of *potential for higher returns* is highly valued. Margin buyers consider it the highest, with a mean score of 4.22, reflecting their primary focus on maximizing returns through leveraging strategies. Speculators also place significant emphasis on this objective, with a mean score of 4.05, aligning with their goal of capitalizing on profit opportunities in volatile markets. Hedgers and arbitrageurs consider it slightly lower but still above average, with mean scores of 4.08 and 3.93, respectively, indicating a balanced approach that combines return-seeking with risk management. *Risk management* emerges as a top priority for hedgers, who assign it the highest mean score of 4.99, underlining their focus on mitigating market volatility and ensuring financial stability. Speculators follow closely, with a mean score of 4.91, recognizing the importance of managing risks even in speculative activities. Arbitrageurs and margin buyers consider this objective slightly lower, with mean scores of 3.83 and 4.28, respectively, reflecting their varying levels of risk awareness aligned with their specific investment strategies.

Hedgers prioritize the objective of *Enhancing Planning and Budgeting* with the highest mean score of 4.20, reflecting their focus on meticulous financial planning and budget control to navigate uncertainties effectively. Speculators and arbitrageurs assign lower mean scores of 3.37 and 3.18, respectively, indicating a lesser emphasis on detailed planning as their strategies lean more toward risk-taking and profit-seeking activities. Margin buyers consider this objective the lowest at 3.11, aligning with their preference for immediate market access and flexibility over long-term planning. For *Market Efficiency*, arbitrageurs assign the highest mean score of 4.39, highlighting their reliance on efficient markets to capitalize on price differentials for profit. Speculators also value this objective highly, with a mean of 4.27, reflecting their preference for active and dynamic markets that offer frequent trading opportunities. Hedgers and margin buyers assign lower mean scores of 3.64 and 3.22, respectively, reflecting their inclination toward stability over market dynamism. Speculators consider *Speculative Profit* the highest, with a mean of 4.38, underscoring their focus on achieving short-term gains through speculative trading strategies. Hedgers, arbitrageurs, and margin buyers consider it moderately at 3.53, 3.37, and 3.28, respectively, indicating a more cautious approach to speculative activities while balancing them with other investment priorities.

For the objective of *Diversification of Strategies*, hedgers assign the highest mean score of 3.13, reflecting their focus on spreading risks across various investments to ensure stability. Speculators, with the lowest mean score of 2.96, lean toward concentrated investments aimed at maximizing returns through targeted strategies. Arbitrageurs and margin buyers consider it moderately at 3.17 and 2.50, respectively, demonstrating varying emphasis on diversification based on their market approaches. *Market Access and Flexibility* are rated highest by speculators, with a mean score of 3.68, underscoring their need for agility and rapid market entry to seize trading opportunities. Hedgers and arbitrageurs follow with slightly lower mean scores of 3.48 and 3.31, focusing on operational stability and efficiency over immediate flexibility. Margin buyers, with a mean of 3.22, strike a balance between flexibility and leveraging strategies to maximize exposure.

For *Investment Leverage*, hedgers, speculators, and arbitrageurs show similar ratings, ranging between 3.78 and 3.85, highlighting their recognition of leverage as a tool to enhance returns or manage positions effectively. Margin buyers, however, consider this lower at 3.22, reflecting a more cautious stance on leveraging. *Diversification and Arbitrage* are most highly considered by speculators, with a mean score of 4.96, signifying their focus on exploiting arbitrage opportunities and diversifying strategies across markets. Arbitrageurs follow closely at 4.14, aligning with their core emphasis on arbitrage. Hedgers and margin buyers consider it lower but still notable at 3.87 and 3.11, balancing arbitrage strategies with risk management priorities. Hedgers prioritize *Cost Efficiency* with the highest mean of 4.47, reflecting their emphasis on minimizing transaction costs to support hedging strategies. Speculators, with the lowest mean of 3.22, focus more on profit potential than cost considerations. Arbitrageurs and margin buyers consider it moderately at 3.68 and 3.28, indicating a balance between cost efficiency and profit objectives. Finally, for *Increased Purchasing Power*, margin buyers rate it the highest at 3.89, showcasing their reliance on leverage to amplify investment positions and returns. Hedgers, speculators, and arbitrageurs assign lower scores of 3.26, 3.19, and 3.09, respectively, reflecting a more cautious approach to leveraging relative to their emphasis on managing risk and achieving balanced returns.

Improve Creditworthiness is considered highest by hedgers, with a mean score of 3.94, reflecting their strong emphasis on maintaining robust credit profiles and ensuring financial stability. Speculators and arbitrageurs consider this objective lower, with mean scores of 3.30 and 3.07, respectively, prioritizing profit-driven activities over creditworthiness considerations. Margin buyers assign the lowest mean of 2.56, suggesting that their leveraging

strategies may result in less emphasis on credit stability compared to other investor types. For *Maintaining Competitive Advantage*, hedgers once again assign the highest mean score of 3.91, demonstrating their commitment to sustainable strategies and market stability. Speculators, with the lowest mean of 2.92, focus more on short-term profits than on maintaining long-term competitive advantages. Arbitrageurs and margin buyers consider this moderately, at 3.04 and 3.06, indicating varied attention to competitive positioning based on their investment priorities. *Short-term Trading Opportunities* receive the highest rating from speculators, at a mean score of 3.03, emphasizing their objective to capitalize on rapid market movements for profit. Hedgers, arbitrageurs, and margin buyers rate this objective similarly, between 2.86 and 3.06, reflecting a more measured approach that prioritizes long-term stability and effective risk management over immediate trading gains.

In summary, the mean reveals distinct investment preferences and strategies among Hedgers, Speculators, Arbitrageurs, and Margin Buyers, reflecting their varying risk appetites, profit objectives, and approaches to financial planning and market engagement.

4.1.6 Techniques Applied to Invest in Derivative Market

Investors in the derivative market are very careful before investing. They undergo deep analysis of investment. There are many ways to analyse a particular stock or company either on their own or with the help of the advisor. The methods adopted to trade in the derivative market are presented in Table 4.6.

Table 4.6 Techniques Applied to Invest in Derivative Market

Method	Frequency	Per centage
Fundamental Analysis	30	7.81
Technical Analysis	82	21.3
Both A & B	40	10.4
Expert's Advice	95	24.7
All the above	137	35.6
Total	**384**	**100**

Source: Primary Data

From Table 4.6 it is understood that 35.6 per cent of the investors undergo a deep analysis by considering all the methods before investing. 24.7 per cent of the investors get the help of an expert before investing. 21.3 per cent of the investors adopt technical analysis while investing. 10.4 per cent undergo both technical and fundamental analysis for their investment and 7.81 per cent of the investors use fundamental analysis. While investing in the derivative

market an investor must carefully undergo all these analyses to make a fruitful investment which leads to a profitable return.

4.1.7 Features Influencing the Investors in Derivative Trading

Many features affect the trading behaviour in the Derivative Market.

Table 4.7 Features Influencing the Investors in Derivative Trading

Factors	Mean Score	Mean Rank
Flexibility	4.95	IX
Ease of use	5.81	IV
Underlying assets	5.45	V
Affordable lot price	5.40	VI
Safety	5.17	VIII
Hedging risk	6.09	I
Return rate	4.83	X
More reliable	6.04	II
Transparency	5.89	III
Convenience	5.36	VII

Source: Computed Data

The features influencing investors in derivative trading are presented in Table 4.7. Among these factors, hedging risk stands out as the most important, with the highest mean score of 6.09, indicating that it is viewed as the most significant factor by investors. This highlights the paramount importance placed on mitigating potential financial losses or volatility. This is closely followed by *More reliable* with a mean score of 6.04 indicating that investors highly prioritize consistency and dependability in their investment choices. *Ease of use* and T*ransparency* also hold significant sway, ranked IV and III respectively, with means of 5.81 and 5.89, highlighting the preference for accessible and understandable investment vehicles. *Underlying assets* and *Affordable lot prices* rank fifth and sixth, with mean scores of 5.45 and 5.40. *Convenience* and *Safety* are relatively less critical, with ranks of seventh and eighth and mean scores of 5.36 and 5.17. *Flexibility* and *Return rate* are deemed the least important, with mean scores of 4.95 and 4.83, occupying the ninth and tenth ranks, suggesting that while they are considered, they not be the primary determinants of investment decisions. This hierarchy indicates a prioritization of factors that mitigate risk and enhance reliability and transparency, over those related to flexibility and potential returns.

4.2 PREFERENCE OF RETAIL INVESTORS IN DERIVATIVE MARKET

Retail investors in the derivative market often prefer instruments that offer a balance between potential returns and risk mitigation (Pasha, 2013). They tend to favour derivative products such as options and futures, attracted by their flexibility, leverage, and potential for profit. However, retail investors also prioritize transparency, liquidity, and simplicity in derivative contracts to manage their risk exposure effectively (Pallathadka et al., 2022). Additionally, they show a preference for derivative products that align with their investment goals and risk tolerance. Overall, retail investors in the derivative market seek opportunities that offer a favourable risk-reward profile while aligning with their investment strategies and preferences (Abideen et al., 2023).

4.2.1 Preferred Products by the Investors

Investors have access to a diverse range of derivative products in the derivative market, offering them various options to manage risk, speculate, and enhance returns. The diverse array of derivative instruments allows investors to engage in various strategies, including hedging, speculation, and risk management.

Table 4.8 Preference towards Equity Products in Derivative Market

Equity Derivatives	Types of Investors				Frequency
	Hedgers	Speculator	Arbitrageurs	Margin Buyers	
Stock Futures	33	10	11	6	60
Stock Options	25	48	8	3	84
Index Futures	49	6	50	3	118
Index Options	28	10	5	3	46
Option writing	1	11	3	1	16
Call option	6	20	2	2	20
Put option	20	17	1	2	40
Total	**162**	**122**	**80**	**20**	**384**

Source: Computed Data

Table 4.8 presents the preferences for various equity derivatives among different types of market participants: Hedgers, Speculators, Arbitrageurs, and Margin Buyers. Futures are most popular among Hedgers with a frequency of 33 (20.37% of the total for Hedgers), followed by Speculators (8.20%), Arbitrageurs (13.75%), and Margin Buyers (30.00%). *Stock Options* are highly favoured by Speculators, accounting for 48 out of 122 (39.34%), and by Margin Buyers, representing 84 out of 384 total instances (21.88%). Index Futures are predominantly used by Arbitrageurs with a frequency of 50 (62.50%), while Hedgers use them 49 times (30.25%), and

they are also significant for Margin Buyers (30.73%). Index Options are relatively less preferred across the board but are more used by Hedgers (17.28%) and Margin Buyers (11.98%). Option Writing sees minimal usage, primarily by Speculators (9.02%) and Arbitrageurs (3.75%). Call Options are preferred by Speculators (16.39%) and less so by Hedgers and Arbitrageurs. Put Options are moderately used by Hedgers (12.35%) and Speculators (13.93%), but minimally by Arbitrageurs and Margin Buyers. Overall, the total frequencies indicate that Margin Buyers have the highest engagement with equity derivatives (31.25%), followed by Hedgers (42.19%), Speculators (31.77%) and Arbitrageurs (20.83%).

Table 4.9 Preference towards Commodity Products in Derivative Market

Commodity Derivatives	Types of Investors				Frequency
	Hedgers	Speculator	Arbitrageurs	Margin Buyers	
Gold	10	40	31	5	86
Silver	8	17	18	5	48
Crude oil	56	74	47	5	182
Natural gas	16	31	18	3	68
Total	**90**	**162**	**114**	**18**	**384**

Source: Computed Data

Table 4.9 presents data on the usage of various commodity derivatives Gold, Silver, Crude Oil, and Natural Gas—by different types of market participants: Hedgers, Speculators, Arbitrageurs, and Margin Buyers. Crude Oil derivatives are the most frequently used, with a total of 182 occurrences, particularly favoured by Speculators (74, 45.7%) and Hedgers (56, 62.2%), reflecting their high volatility and liquidity. Gold derivatives follow, with 86 occurrences, predominantly used by Speculators (40, 24.7%) and Arbitrageurs (31, 27.2%), indicating its popularity for trading and arbitrage opportunities. Natural Gas derivatives are also utilized significantly, totalling 68, mainly by Speculators (31, 19.1%) and Hedgers (16, 17.8%), due to their price volatility and hedging needs. Silver derivatives are the least used, with 48 occurrences, but still see substantial use by Arbitrageurs (18, 15.8%) and Speculators (17, 10.5%). Overall, Speculators dominate the usage across all commodities (162, 42.2%), followed by Arbitrageurs (114, 29.7%) and Hedgers (90, 23.4%), with Margin Buyers having the least involvement (18, 4.7%). This distribution highlights the varying strategic interests and risk management needs in the commodity derivative market.

Table 4.10 Preference towards Currency Products in Derivative Market

Currency Derivatives	Types of Investors				Frequency
	Hedgers	Speculator	Arbitrageurs	Margin Buyers	
USD-JNR	6	37	22	12	230
USD-JPY	68	84	66	4	83
USD-GBP	16	41	26	2	71
Total	**90**	**162**	**114**	**18**	**384**

Source: Computed Data

Table 4.10 presents the frequency of various investor types (hedgers, speculators, arbitrageurs, and margin buyers) involved in different currency derivatives. The USD-JNR (US Dollar to Japanese Yen) derivative is the most frequently traded, with a total frequency of 230, heavily invested by speculators (84), followed by hedgers (68) and arbitrageurs (66). The USD-JPY (US Dollar to Japanese Yen) and USD-GBP (US Dollar to British Pound) derivatives have significantly lower trading frequencies, with totals of 83 and 71 respectively. Speculators remain the most active across all currency derivatives, especially in USD-JPY (41) and USD-GBP (37). Hedgers show substantial activity in USD-JNR (68) but are less involved in USD-JPY (16) and USD-GBP (6). Arbitrageurs are prominently active in USD-JNR (66) and also engage in USD-GBP (26) and USD-JPY (22). Margin buyers, while the least active overall, participate most in USD-JNR (12). The table underscores the dominance of speculative trading in the currency derivative market, with a particular emphasis on the USD-JNR pair, while highlighting the relatively lower but notable involvement of hedgers and arbitrageurs in managing currency risk and exploiting price discrepancies.

4.2.2 Preferred Exchange for Derivative Trading

Different types of investors have different preferences based on their investment goals and risk tolerance. When selecting an exchange, it's important to consider factors such as fees, ease of use, security measures, available trading instruments, and the reputation of the exchange.

Table 4.11 Preferred Exchange for Derivative Trading

Source	Types of Investors				Frequency	Percentage
	Hedgers	Speculator	Arbitrageurs	Margin Buyers		
National Stock Exchange	70	58	31	28	187	48.6
Bombay Stock Exchange	63	41	23	26	153	39.8
Multi Commodity Exchange	17	19	6	2	44	11.4
Total	**150**	**118**	**60**	**56**	**384**	**100**

Source: Computed Data

The distribution of individuals' preferences for different stock exchanges is presented in Table 4.11. The National Stock Exchange (NSE) stands out as the most preferred choice among investors, capturing 48.6 per cent of respondents (187 individuals), signifying a substantial inclination towards this exchange for trading or investment activities. The Bombay Stock Exchange (BSE) follows closely behind, with 38.9 per cent (153 individuals) favouring this historic stock market. The Multi Commodity Exchange – Stock Exchange (MCX-SX) holds a notable but smaller share, with 11.2 per cent (44 individuals) expressing a preference for this alternative exchange platform. The data reflects the diverse choices individuals while selecting stock exchanges, with the majority prefer the NSE, likely due to its prominence and market influence.

Investors mainly prefer the National Stock Exchange (NSE) primarily due to its robust liquidity, diverse listing of stocks, and advanced technological infrastructure. The NSE's high liquidity and trading volume provide efficient execution of orders, while its diverse stock listing allows investors to build well-rounded portfolios. The exchange's commitment to technological innovation, market reputation, and regulatory compliance further instils confidence among investors. NSE's role as a pioneer in introducing financial products, its widespread accessibility, and the dominance of its indices, contribute to its status as the go-to platform for investors seeking reliability, liquidity, and a dynamic trading environment.

4.2.3 Reason to Trade through Particular Exchange

The choice between the stock exchanges depends on individual preferences, trading strategies, and specific requirements of the investors. It is common to use any or all exchanges based on their needs and the opportunities available on each platform for the investors.

Table 4.12 Reason to Trade through Particular Exchange

Reason	Exchange			Frequency	Percentage
	NSE	BSE	MCX		
The trading volume is higher, which means there are more buyers and sellers on the exchange	51	35	5	91	23.6
Offers a legacy of high-speed	68	39	11	118	30.7
The bullion and energy futures markets benefit from high earnings visibility and a lack of competition.	35	51	8	94	24.4
Fair and orderly trading, along with the efficient dissemination of price information, ensures transparency in the trading of securities.	40	40	1	81	21.0
Total	**194**	**165**	**25**	**384**	**100**

Source: Computed Data

Table 4.12 highlights the factors influencing trade in specific exchanges. Among the respondents, the highest frequency (30.7 per cent, 118 individuals) is attributed to the factor of offering a legacy of high-speed trading. This suggests a substantial interest among investors in platforms that prioritize swift and efficient trading processes. Following closely, the aspect of high trading volume emerges as a significant consideration, with 23.6 per cent (91 individuals) emphasizing the importance of a bustling market, indicative of more active buyer-seller interactions. Moreover, the high earnings visibility and lack of competition in the bullion and energy futures market contribute to its attractiveness for investors is noted by 24.4 per cent (94 individuals), highlighting the attractiveness of markets with clear profit potential and limited competition. Furthermore, 21 per cent (81 individuals) value fair and orderly trading practices, along with efficient price information dissemination, reinforcing the significance of a well-regulated and transparent trading environment.

The preferences are driven by the desire for quick order fulfilment, reduced latency, and the ability to capitalize on market opportunities in real time. Overall, the emphasis on the legacy of high-speed trading reflects investors' priority for exchanges that offer a rapid and reliable trading experience, ultimately influencing their choice of a particular trading platform.

4.2.4 Preferred Sectors by the Retail Investors in the Derivative Market

In the Derivative Market, retail investors often navigate towards different sectors as part of their investment strategy. These preferences are shaped by factors such as risk tolerance, market trends, and individual financial goals. Some investors lean towards sectors known for stability, while others might seek growth opportunities in dynamic industries. The choice of preferred sectors in the derivative market underscores the nuanced decision-making process of retail participants, as they aim to optimize their portfolios in line with their unique investment objectives and market outlooks. Table 4.13 exhibits the preferred sectors for investment in the Derivative Market.

Table 4.13 Preferred Sectors by the Retail Investors in the Derivative Market

Sectors	Types of Investors				Mean	Median	Std. Deviation
	Hedgers	Speculators	Arbitrageurs	Margin Buyers			
Agricultural sector	3.90	3.94	3.77	3.28	3.85	4.00	0.87
Banking sector	4.36	4.08	4.12	3.28	4.12	4.00	0.97
Automobile sector	3.63	3.40	3.42	3.22	3.45	4.00	1.01
Pharma sector	3.36	3.27	2.91	2.67	3.16	3.00	1.16
FMCG sector	3.82	3.36	3.49	2.67	3.47	4.00	1.33
IT sector	3.94	3.42	3.66	2.72	3.58	4.00	1.32
Service sector	3.60	3.35	3.43	3.67	3.45	4.00	1.16
Energy sector	3.27	3.39	3.38	3.56	3.36	3.00	1.03
Real estate sector	3.22	3.44	3.25	2.83	3.31	3.00	1.10
Healthcare sector	3.40	3.29	3.05	2.72	3.22	3.00	1.11
Manufacturing sector	3.29	3.36	3.15	3.39	3.28	3.00	1.15

Source: Computed Data

Table 4.13 provides a comprehensive analysis of the sectors preferred across different sectors in the Derivative Market, classified by participant types – Hedgers, Speculators, Arbitrageurs, and Margin Buyers.

In the A*gricultural sector*, hedgers display a mean preference of 3.90, indicating moderate engagement, with a SDof 0.87 reflecting closely clustered values around the mean. Speculators show a slightly higher mean of 3.94, but with greater variability, as reflected by a higher SD of 0.97. Arbitrageurs and margin buyers show distinct trading activity levels, with means of 3.77 and 3.28, respectively. Overall, the agricultural sector showcases varied preferences, with hedgers and speculators significantly contributing to the diversity and displaying skewed distributions leaning toward lower preference.

For the *Banking sector*, hedgers display the highest mean preference at 4.36, followed by speculators at 4.08 and arbitrageurs at 4.12, suggesting a relatively higher level of preference, with hedgers showing the most significant involvement. The standard deviations indicate moderate variability in preference, with speculators having a notable SD of 0.97, pointing to a wider range of activity. Overall, the results highlight a diverse landscape of preference in the banking sector, with speculators contributing to the variability and exhibiting a skewed distribution toward lower preference, reflecting the nuanced dynamics of the market.

In the *Automobile sector*, Hedgers, with a mean of 3.63, exhibit a moderate level of preference, and the SD of 1.01 suggests a relatively dispersed distribution of values. Speculators, with a mean of 3.40 and a SD of 1.01, exhibit a similar degree of variability. Arbitrageurs, with a mean of 3.42, and Margin Buyers, with a mean of 3.22, showcase distinct levels of preference within the sector. Overall, the Automobile sector presents a diverse landscape of preference, with Hedgers and Speculators contributing to variability and exhibiting distributions skewed towards lower preference. The standardized error (SE) values provide precision estimates for the mean estimates, aiding in the assessment of the reliability of the descriptive statistics.

For the *Pharma sector*, Hedgers, with a mean of 3.36, show a moderate preference, while the SD of 1.16 indicates an expansion in the distribution of values around the mean. Similarly, speculators, with a mean of 3.27 and a SD of 1.16, exhibit a comparable degree of variability. Arbitrageurs, with a mean of 2.91, and Margin Buyers, with a mean of 2.67, showcase distinct levels of preferences within the sector. The standardized error (SE) values provide precision estimates for the mean estimates, aiding in the assessment of the reliability of the descriptive statistics. Overall, the Pharma sector presents a diverse landscape of preference, with Hedgers

and Speculators contributing to variability and exhibiting distributions skewed towards lower preference towards the sector.

For the *FMCG (Fast-Moving Consumer Goods) sector*, the mean preference varies across investors, with Hedgers having a mean of 3.82, indicating a relatively high level of trading activity. Speculators, with a mean of 3.36, display a moderate level, while Arbitrageurs and Margin Buyers have a mean of 3.49 and 2.67, respectively, indicating distinct levels of preferences within the sector. The SD values highlight the variability in preferences, with Speculators having a relatively high SD of 1.33, indicating a wider dispersion of values around the mean. The standardized error (SE) values provide precision estimates for the mean estimates, aiding in the assessment of the reliability of the descriptive statistics. Overall, the FMCG sector exhibits diverse preferences, with Hedgers and Speculators contributing to variability and exhibiting distributions skewed towards lower preference, reflecting the specific dynamics of this industry in the financial market.

In the *Information Technology (IT) sector*, the mean preferences across different categories vary, with Hedgers having a mean of 3.94, indicating a relatively high level of preference. Speculators, with a mean of 3.42, display a moderate level, while Arbitrageurs and Margin Buyers have a mean of 3.66 and 2.72, respectively, indicating distinct levels of preferences within the sector. The SD values highlight the variability in preferences, with Speculators having a relatively high SD of 1.32, indicating a wider dispersion of values around the mean. The standardized error (SE) values provide precision estimates for the mean estimates, aiding in the assessment of the reliability of the descriptive statistics. Overall, the IT sector exhibits diverse preferences, with Hedgers and Speculators contributing to variability and exhibiting distributions skewed towards lower preferences. This reflects the specific dynamics of the IT industry in the financial market, where certain investor groups are more conservative in their preferences.

In the *Service sector*, the mean preferences vary across categories, with Hedgers having a mean of 3.60, indicating a moderate level of preference. Speculators, with a mean of 3.35, display a comparable level, while Arbitrageurs and Margin Buyers have means of 3.43 and 3.67, respectively, indicating distinct levels of preference within the sector. The SD values highlight the variability in preference, with Speculators having a moderate SD of 1.16, indicating a moderate dispersion of values around the mean. The standardized error (SE) values provide precision estimates for the mean estimates, aiding in the assessment of the reliability of the descriptive statistics. Overall, the Service sector exhibits diverse preferences, with

Hedgers and Speculators contributing to variability and exhibiting distributions towards lower preferences. The specific dynamics of the service industry in the financial market contribute to this pattern, where certain investor groups demonstrate a more conservative approach to preference.

In the *Energy sector*, the mean preferences vary across categories, with Hedgers having a mean of 3.27, indicating a moderate level of preference. Speculators, with a mean of 3.39, display a comparable level, while Arbitrageurs and Margin Buyers have means of 3.38 and 3.56, respectively, indicating distinct levels of preference within the sector. The SD values highlight the variability in preference, with Speculators having a moderate SD of 1.03, indicating a moderate dispersion of values around the mean. The standardized error (SE) values provide precision estimates for the mean estimates, aiding in the assessment of the reliability of the descriptive statistics. Overall, the Energy sector exhibits diverse preferences, with Hedgers and Speculators contributing to variability and exhibiting distributions skewed towards lower preferences. The specific dynamics of the energy industry in the financial market contribute to this pattern, where certain investor groups demonstrate a more cautious approach to preferences.

In the *Real Estate* sector, the mean preferences vary across categories, with Hedgers having a mean of 3.22, indicating a moderate level of preference. Speculators, with a mean of 3.44, display a slightly higher level, while Arbitrageurs and Margin Buyers have means of 3.25 and 2.83, respectively, indicating distinct levels of preferences within the sector. The SD values reveal the variability in preferences, with Speculators having a SD of 1.10, indicating a moderate dispersion of values around the mean. The standardized error (SE) values provide precision estimates for the mean estimates, aiding in the assessment of the reliability of the descriptive statistics. Overall, the Real Estate sector exhibits diverse preferences, with Speculators contributing to variability and exhibiting distributions skewed towards lower preferences activities. The specific dynamics of the real estate industry in the financial market contribute to this pattern, where certain investor groups demonstrate a more conservative approach to preferences within this sector.

Thus, the majority of investors prefer the banking sector because they feel that banking stocks are more stable than other derivatives, they offer a kind of security and there is a way for a regular yield. Banking derivatives are closely tied with economic indicators which are easily predictable and analysed by retail investors who do not have extensive financial expertise. Overall, the perceived stability, income potential, predictability and liquidity make

the banking sector a favoured choice for retail investors in the derivative market. There is less preference towards the pharma sector because this industry is characterised by high volatility. It requires a deep understanding of the industry. High fluctuations based on regulatory policies create an uncertain environment. This leads them to prefer towards pharma sector.

4.3 AWARENESS TOWARDS DERIVATIVE MARKET

Retail investor's understanding of the derivative market is becoming more significant. Comprehending these instruments is essential for individual investors. Investors safeguard their portfolios from market volatility by using effective hedging instruments that derivatives offer. They provide opportunities for speculative gains by capitalising on fluctuations in the market but at a higher risk.

4.3.1 Sources of Awareness about the Derivative Market

The source of awareness about derivative markets is presented in Table 4.14

Table 4.14 Sources of Awareness about the Derivative Market

Sources	Frequency	Percentage
Business TV News	81	21
Official Website	45	11.7
Professional Advisor	155	40.3
Family and Friends	50	13
Magazine/ Newspapers	43	11.1
Books	10	2.9
Total	**384**	**100**

Source: Primary Data

Table 4.14 presents a comprehensive summary of investors' awareness sources for obtaining business-related information. The dominant source is Professional Advisor, mentioned by 40.3 per cent of the respondents (155 individuals), indicating a widespread reliance on television broadcasts for staying informed about business matters. Official Websites contribute 11.7 per cent, with 45 individuals expressing a preference for information directly from authoritative online platforms. Business TV News plays a significant role, with 21 per cent (81 individuals) seeking guidance from experts in the field. Family and Friends, at 13 per cent (50 individuals), showcase the enduring influence of personal networks in shaping business perspectives. Magazines/Newspapers, accounting for 11.1 per cent (43 individuals), underscore the continued relevance of traditional print media. Books have the lowest frequency at 2.9 per cent (10 individuals), suggesting that, while less commonly used, some still turn to books for in-depth insights. This diverse array of sources highlights the multifaceted nature of

information acquisition in the business domain, with individuals drawing on a mix of media, personal connections, and professional advice to stay well-informed.

4.3.2 Awareness Towards Derivative Market Terminologies

Awareness of derivative market terminologies is crucial for investors and financial professionals aiming to navigate the complexities of modern financial markets. Awareness of key terminologies is essential for investors and traders navigating the complexities of financial instruments. Awareness of terminologies related to market orders, limit orders, and stop orders is fundamental for executing effective trading (Singh and Kansal, 2010). Key terminology should be understood by market players to minimise risks, maximise rewards and make well-informed choices. Extensive knowledge of these terminologies is necessary for both understanding the larger economic indicators and trends impacted by derivative trading activity as well as for efficient market participation (Chui, 2012).

Table 4.15 Awareness Towards Derivative Market Terminologies

Terminologies	EA	MA	SA	SA	NAA	Std. Deviation	Mean
	1	2	3	4	5		
Long position	6%	8%	24%	39%	23%	1.08484	3.67
Short position	4%	11%	20%	42%	23%	1.05674	3.69
Spot contract	6%	22%	27%	29%	17%	1.15530	3.28
Expiration	9%	19%	24%	32%	16%	1.20486	3.25
Market maker	10%	14%	24%	33%	19%	1.21613	3.37
Bid-ask spread	12%	17%	23%	32%	17%	1.25958	3.23
At the money	8%	19%	24%	28%	22%	1.22968	3.38
In the money	13%	13%	21%	31%	22%	1.30882	3.37
Out of the money	9%	19%	24%	27%	22%	1.24902	3.35
Market lot	8%	18%	26%	28%	20%	1.21217	3.34
Time decacy	10%	17%	32%	25%	16%	1.19743	3.19
Spotless	8%	16%	35%	27%	15%	1.12493	3.25

Source: Computed Data

EA – Extremely Aware; MA – Moderately Aware; SA – Somewhat Aware; SA – Slightly Aware; NAA – Not at all Aware

Table 4.15 presents the awareness of various financial terminologies among respondents. Each term is evaluated based on the percentage of respondents with their familiarity or understanding of the term. Additionally, the mean score and SD for each term are provided to assess central tendency and variability in responses.

The term *Long position* has a mean score of 3.67, suggesting that respondents are confident in their understanding of this concept. A SD of 1.08484 suggests a moderate degree of variability, indicating that although most respondents possess a certain level of knowledge,

there is still noticeable variation in their awareness levels. *Short position* has a mean score of 3.69, the highest among the terms listed, reflecting a strong awareness among respondents. The SD of 1.05674 is slightly lower than implying that there is slightly less variability in responses and a more consistent understanding of this term. With a mean score of 3.28, *Spot contract* indicates moderate awareness among respondents. A SD of 1.15530 indicates a higher degree of variability in understanding, suggesting that while some respondents have a strong grasp of the term, others may be less familiar with it.

The term *Expiration* has a mean score of 3.25, indicating a moderate level of awareness. The SD of 1.20486 reveals considerable variability, suggesting a wide range of understanding among respondents. Similarly, the term *Market Maker* has a mean score of 3.37, reflecting a reasonable level of awareness. However, the SD of 1.21613 highlights notable variability in responses, implying that while many respondents understand the term, a significant number still have unclear or limited knowledge. *Bid-ask spread* has a mean score of 3.23, which indicates moderate awareness. The higher SD of 1.25958 suggests considerable variability, meaning that respondents have different levels of familiarity with this term.

The term *At the Money* has a mean score of 3.38, indicating a reasonable level of awareness among respondents. The SD of 1.22968 points to a moderate degree of variability, suggesting that while many respondents are knowledgeable, there are others with varying levels of understanding. With a mean score of 3.37, *In the Money* reflects a reasonable level of awareness. The SD of 1.30882 is the highest among the terms listed, indicating significant variability and suggesting that respondents have widely differing levels of familiarity with this concept. *Out of the money* has a mean score of 3.35, indicating moderate awareness. The SDof 1.24902 indicates a moderate level of variability in responses, suggesting that the understanding of this term varies across respondents.

The term *Market lot* has a mean score of 3.34, indicating a moderate level of awareness. The SD of 1.21217 suggests a moderate degree of variability, implying that while some respondents are familiar with the term, others have varying levels of understanding. *Time decay* has a mean score of 3.19, the lowest among the terms listed, suggesting slightly lower awareness. The SD of 1.19743 indicates moderate variability, suggesting that respondents have differing levels of familiarity with this concept. Lastly, *Spotless* has a mean score of 3.25, indicating moderate awareness. The SD of 1.12493 is relatively lower compared to other terms, suggesting less variability and a more consistent understanding among respondents. The overall data suggests that terms like Short position and Long position are well-understood

among respondents, as indicated by their higher mean scores and relatively lower standard deviations. In contrast, terms like Time decay and Spot contract have lower mean scores and higher standard deviations, indicating that these concepts are less familiar to respondents and understood with more variability. The variability in standard deviations across terms highlights differing levels of familiarity and the need for targeted education on specific financial terminologies to ensure a more uniform understanding.

4.3.2.1 Gender and Awareness Towards Derivative Market Terminologies

Gender can influence awareness towards derivative market terminologies. Historically, finance and derivatives have been male-dominated fields, potentially impacting women's access to relevant education and professional exposure. Increasing efforts towards gender equality in education and finance can enhance awareness among all genders, promoting inclusive understanding and participation in derivative markets.

H_{a8}: There is a significant mean difference between Gender and Awareness towards derivative Market Terminologies

Table 4.16 presents the ANOVA analysis examining differences in awareness of various financial terminologies based on gender. For the term *Long position,* the ANOVA results show a Sum of Squares between groups of 3.022 with 4 degrees of freedom and a Mean square of 1.511. The Sum of Squares within groups is 458.311, with 380 degrees of freedom. The F-statistics is 1.286, with a p value of 0.278. Since the p value is greater than 0.05, it indicates that there is no statistically significant difference in the awareness of the long position term between genders. Similarly, for the term *Short position*, the Sum of Squares between groups is 2.813, with a Mean square of 1.406, while the Sum of Squares within groups is 434.933. The F- statistics is 1.261, and the p value is 0.285. This p-value, also greater than 0.05, suggests that there is no significant gender-based difference in awareness of the short position term.

Table 4.16 Gender and Awareness Towards Derivative Market Terminologies

Terminologies	Gender	Sum of Squares	df	Mean Square	F	p value
Long position	Between Groups	3.022	4	1.511	1.286	0.278
	Within Groups	458.311	380	1.175		
	Total	461.333	384			
Short position	Between Groups	2.813	4	1.406	1.261	0.285
	Within Groups	434.933	380	1.115		
	Total	437.746	384			
Spot contract	Between Groups	4.867	4	2.433	1.831	0.162
	Within Groups	518.344	380	1.329		
	Total	523.211	384			
Expiration	Between Groups	.837	4	0.418	0.287	0.751
	Within Groups	568.222	380	1.457		
	Total	569.059	384			
Market maker	Between Groups	1.404	4	0.702	0.474	0.623
	Within Groups	578.356	380	1.483		
	Total	579.761	384			
Bid-ask spread	Between Groups	12.769	4	6.385	4.088	0.018
	Within Groups	609.159	380	1.562		
	Total	621.929	384			
At the money	Between Groups	2.172	4	1.086	0.717	0.489
	Within Groups	590.576	380	1.514		
	Total	592.748	384			
In the money	Between Groups	4.932	4	2.466	1.443	0.238
	Within Groups	666.569	380	1.709		
	Total	671.501	384			
Out of the money	Between Groups	5.469	4	2.734	1.759	0.173
	Within Groups	606.073	380	1.554		
	Total	611.542	384			
Market lot	Between Groups	.401	4	0.200	0.136	0.873
	Within Groups	575.589	380	1.476		
	Total	575.990	384			
Time decacy	Between Groups	.949	4	0.475	0.330	0.719
	Within Groups	561.117	380	1.439		
	Total	562.066	384			
Spotless	Between Groups	1.375	4	0.688	0.542	0.582
	Within Groups	494.686	380	1.268		
	Total	496.061	384			

Source: Computed Data

For the term *Spot contract*, the ANOVA analysis shows a between-group Sum of Squares of 4.867, with a Mean square of 2.433. Sum of Squares is 518.344. The F-statistics is 1.831, and the p-value is 0.162. p-value is greater than 0.05, there is no significant gender-based difference in awareness of the term spot contract. Similarly, for *Expiration*, the between-group Sum of Squares is 0.837, with a Mean square of 0.418. The within-group Sum of Squares is 568.222, with an F-statistics of 0.287 and a p-value of 0.751. This high p-value indicates no significant difference in awareness of the term expiration between genders. For *Market Maker*, Sum of Squares is 1.404, with a Mean square of 0.702. The within-group Sum of Squares is 578.356. The F-statistics is 0.474, and the p-value is 0.623, suggesting no significant gender-based difference in awareness of market makers. However, for the term *Bid-ask spread*, the Sum of Squares is 12.769, with a Mean square of 6.385, and the within-group Sum of Squares is 609.159. The F-statistics is 4.088, with a p-value of 0.018. Since this p-value is less than 0.05, it indicates a significant gender-based difference in awareness of the term "Bid-ask spread."

For the term *At the Money*, the between-group Sum of Squares is 2.172, with a Mean square of 1.086. The Sum of Squares is 590.576. The F-statistics is 0.717, and the p-value is 0.489. This suggests that there is no significant gender-based difference in awareness of the term at the money. For the term *In the Money*, the between-group Sum of Squares is 4.932, with a Mean square of 2.466. The within-group Sum of Squares is 666.569. The F-statistics is 1.443, and the p-value is 0.238, indicating no significant difference in awareness based on gender. Similarly, for *Out of the Money*, the between-group Sum of Squares is 5.469, with a Mean square of 2.734. The within-group Sum of Squares is 606.073. The F-statistics is 1.759, and the p value is 0.173, showing no significant gender-based difference in awareness of this term either.

The term *Market Lot* shows a between-group Sum of Squares of 0.401 with a Mean square of 0.200. The within-group Sum of Squares is 575.589. The F-statistics is 0.136, and the p value is 0.873, indicating no significant gender-based difference in awareness of the term. For *Time Decay*, the between-group Sum of Squares is 0.949 with a Mean square of 0.475. The within-group Sum of Squares is 561.117. The F-statistics is 0.330, and the p value is 0.719, suggesting no significant gender-based difference in awareness. Lastly, for the term *Spotless*, the between-group Sum of Squares is 1.375, with a Mean square of 0.688. The within-group Sum of Squares is 494.686. The F-statistics is 0.542, and the p value is 0.582, indicating no significant gender-based difference in awareness of this term.

It can therefore be inferred from the findings that gender was found not to significantly affect the levels of awareness towards the specified financial terminologies by the respondents. This indicates that both male and female participants exhibit similar levels of familiarity and understanding with these financial terms, as evidenced by the absence of statistical significance in the gender-based differences.

4.3.2.2 Age and Awareness Towards Derivative Market Terminologies

Age plays a crucial role in shaping awareness and understanding of derivative market terminologies. Younger individuals, often more digitally native and exposed to online financial resources, exhibit greater familiarity with concepts like long and short positions, spot contracts, and bid-ask spreads. Their comfort with technology and digital platforms might enhance comprehension of terms such as expiration, market maker, and time decay. In contrast, elder persons, while possessing extensive life experience, require additional educational efforts to grasp these complex financial concepts fully.

H_{a9} – There is a significant mean difference between Age and Awareness towards Derivative Market Terminologies

Table 4.17 examines the influence of age on awareness of various derivative market terminologies. For the term *Long position*, the F-value is 2.388 with a p value of 0.051, indicating significant differences in understanding among different age groups. The between-group Mean square (2.771) is slightly higher than the within-group Mean square (1.160), suggesting variability in knowledge levels based on age. For the *Short position*, the F-value is 2.553 with a p-value of 0.027, showing significant differences, as the between-group Mean square (0.621) is higher than the within-group Mean square (1.122), indicating variability in awareness across age groups. The term *Spot contract* has an F-value of 2.626 and a p value of 0.034, also revealing significant differences in awareness, with the between-group Mean square (3.448) exceeding the within-group Mean square (1.313). For *Expiration*, the F-value is 3.617 with a value of 0.007, further demonstrating significant differences in understanding across age groups, as indicated by the substantial difference “between-group Mean Square” (5.115) and the within-group Mean square (1.414).

Table 4.17 Age and Awareness Towards Derivative Market Terminologies

Terminologies		Sum of Squares	df	Mean Square	F	p value
Long position	Between Groups	11.083	3	2.771	2.388	0.051
	Within Groups	450.250	381	1.160		
	Total	461.333	384			
Short position	Between Groups	2.484	3	0.621	2.553	0.027
	Within Groups	435.262	381	1.122		
	Total	437.746	384			
Spot contract	Between Groups	13.790	3	3.448	2.626	0.034
	Within Groups	509.421	381	1.313		
	Total	523.211	384			
Expiration	Between Groups	20.459	3	5.115	3.617	0.007
	Within Groups	548.599	381	1.414		
	Total	569.059	384			
Market maker	Between Groups	16.283	3	4.071	2.803	0.026
	Within Groups	563.478	381	1.452		
	Total	579.761	384			
Bid-ask spread	Between Groups	17.492	3	4.373	2.807	0.025
	Within Groups	604.437	381	1.558		
	Total	621.929	384			
At the money	Between Groups	19.010	3	4.753	3.214	0.013
	Within Groups	573.738	381	1.479		
	Total	592.748	384			
In the money	Between Groups	2.972	3	0.743	3.431	0.006
	Within Groups	668.530	381	1.723		
	Total	671.501	384			
Out of the money	Between Groups	14.113	3	3.528	2.291	0.059
	Within Groups	597.429	381	1.540		
	Total	611.542	384			
Market lot	Between Groups	9.817	3	2.454	1.682	0.053
	Within Groups	566.173	381	1.459		
	Total	575.990	384			
Time decacy	Between Groups	7.264	3	1.816	1.270	0.021
	Within Groups	554.802	381	1.430		
	Total	562.066	384			
Spotless	Between Groups	17.698	3	4.425	3.589	0.007
	Within Groups	478.363	381	1.233		
	Total	496.061	384			

Source: Computed Data

The term *Market maker,* also reveals significant differences, with an F-value of 2.803 and a p value of 0.026. The Mean square between groups (4.071) is notably higher than within groups (1.452), indicating variability in understanding by age. *Bid-ask spread* also shows significant differences with an F-value of 2.807 and a p-value of 0.025, where the between-group Mean square (4.373) is higher than the within-group (1.558). *At the money* has significant differences with an F-value of 3.214 and a Sig. of 0.013, and the Mean square between groups (4.753) is higher than within groups (1.479), indicating age-related variability. *In the money* shows significant differences with an F-value of 3.431 and p-value of 0.006, with the Mean square between groups (0.743) and within groups (1.723) suggesting varying levels of awareness by age.

The term *Out of the money* shows an F-value of 2.291 and a value of 0.059, approaching significance, suggesting some variability in understanding across age groups, as indicated by the higher between-group Mean square (3.528) compared to within-group (1.540). *Market lot* exhibits near significant differences, with an F-value of 1.682 and a p value of 0.053, indicating some variability in awareness, as reflected by a higher between-group Mean square (2.454) compared to within-group (1.459). The term *Time decay* shows significant differences, with an F-value of 1.270 and a value of 0.021, indicating variability in understanding across age groups, as demonstrated by the between-group Mean square (1.816). Finally, *Spotless* exhibits significant differences, with an F-value of 3.589 and a p value of 0.007, reflecting notable age-related variability in awareness, as indicated by the higher between-group Mean square (4.425) compared to within-group (1.233).

Thus, the results indicate that age significantly impacts the understanding of several derivative market terminologies. Terms like short position, spot contract, expiration, market maker, bid-ask spread, at the money, in the money, time decay, and spotless show significant differences in awareness across age groups, as indicated by p-values less than 0.05. The variability in understanding suggests that different age groups differ in levels of exposure, education, or experience with these financial concepts, highlighting the need for age-targeted educational initiatives to enhance financial literacy across all demographics.

4.3.2.3 Education Qualification and Awareness Towards Derivative Market Terminologies

Derivative market terminologies are crucial for both investors and financial professionals alike. Understanding the concepts such as futures, options, swaps, and forwards not only enhances their investment abilities. The promotion of education and awareness in derivative

market terminologies are pivotal for promoting financial stability and informed decision-making financial literacy but also empowers individuals to make informed investment decisions.

H_{a10}: There is a significant mean difference between Education Qualification and Awareness towards Derivative Market Terminologies

Long position F-value is 1.924 with a significance (p value) of 0.006. This indicates a statistically significant difference between groups regarding their understanding or application of long positions, as the p-value is less than 0.05. The Mean square between groups is 2.243 compared to 1.166 within groups, signifying a notable variance among different educational or awareness levels. The term *Short position* shows an F-value of 2.602 and a p value of 0.036, indicating a significant variance between groups, suggesting varying levels of understanding across age groups. The Mean square between groups (2.859) is substantially higher than within groups (1.099), highlighting considerable differences in knowledge across the sampled population. *Spot contract* F-value is 1.661 with a p-value of 0.048. This near-threshold significance implies some differences in understanding spot contracts among groups, though less pronounced than other terms. The Mean square between groups (2.203) is relatively close to within groups (1.326), indicating moderate variability.

With an F-value of 2.578 and a p-value of .037, *Expiration* shows significant differences between groups. The Mean square between groups is 3.683 versus 1.429 within groups, suggesting variability in comprehension across different demographics or educational levels. The *Market maker* term has a low F-value of 0.585 but is still significant with a p-value of 0.041. This result is interesting because it shows that even small differences in Mean square values (0.869 between groups and 1.485 within groups) can be statistically significant, indicating some variance in understanding market makers. The term *Bid-ask spread* has an F-value of 2.643 and a p value of 0.033, indicating significant differences in the understanding of bid-ask spreads across different groups. The Mean square between groups (4.124) is higher than within groups (1.560), indicating pronounced variability in awareness.

Table 4.18 Education and Awareness Towards Derivative Market Terminologies

Terminologies		Sum of Squares	df	Mean Square	F	p-value
Long position	Between Groups	8.970	6	2.243	1.924	0.006
	Within Groups	452.363	378	1.166		
	Total	461.333	384			
Short position	Between Groups	11.435	6	2.859	2.602	0.036
	Within Groups	426.310	378	1.099		
	Total	437.746	384			
Spot contract	Between Groups	8.810	6	2.203	1.661	0.048
	Within Groups	514.401	378	1.326		
	Total	523.211	384			
Expiration	Between Groups	14.734	6	3.683	2.578	0.037
	Within Groups	554.325	378	1.429		
	Total	569.059	384			
Market maker	Between Groups	3.477	6	.869	0.585	0.041
	Within Groups	576.284	378	1.485		
	Total	579.761	384			
Bid-ask spread	Between Groups	16.498	6	4.124	2.643	0.033
	Within Groups	605.431	378	1.560		
	Total	621.929	384			
At the money	Between Groups	19.487	6	4.872	3.297	0.011
	Within Groups	573.261	378	1.477		
	Total	592.748	384			
In the money	Between Groups	6.108	6	1.527	0.890	0.040
	Within Groups	665.384	378	1.715		
	Total	671.501	384			
Out of the money	Between Groups	6.902	6	1.725	1.107	0.033
	Within Groups	604.640	378	1.558		
	Total	611.542	384			
Market lot	Between Groups	13.649	6	3.412	2.354	0.050
	Within Groups	562.341	378	1.449		
	Total	575.990	384			
Time decacy	Between Groups	11.677	6	2.919	2.058	0.026
	Within Groups	550.389	378	1.419		
	Total	562.066	384			
Spotless	Between Groups	12.408	6	3.102	2.489	0.043
	Within Groups	483.653	378	1.247		
	Total	496.061	384			

Source: Computed Data

The term *At the money* has an F-value of 3.297 and a p value of 0.011, indicating a statistically significant difference in understanding across the groups. The high Mean square between groups (4.872) versus within groups (1.477) shows substantial differences in knowledge among the sampled population. *In the money* with a lower F-value is 0.890 but a p-value is 0.040, in the money also shows significant variance, though the difference in Mean square values (1.527 between groups and 1.715 within groups) is smaller, suggesting less variability compared to other terms. The term *Out of the money* has an F-value is 1.107 and a p value of 0.033, indicating significant differences in understanding across groups. The Mean square between groups (1.725) and within groups (1.558) suggests moderate variability in the awareness of out-of-the-money positions.

F-value for the *Market lot* is 2.354 with a p-value of 0.050, indicating strong significance. The Mean square between groups (3.412) is significantly higher than within groups (1.449), suggesting notable differences in knowledge across groups. With an F-value of 2.058 and a p value of 0.026, Time Decay shows significant variation in understanding. The Mean square between groups (2.919) versus within groups (1.419) suggests considerable variability. The term *Spotless* has an F-value of 2.489 and a p value of 0.043, indicating significant differences in understanding. The Mean square between groups (3.102) exceeds that within groups (1.247), highlighting considerable variability in awareness.

Thus, it exhibits those higher educational qualifications likely to correlate with greater awareness and understanding of derivative market terminologies. This finding underscores the importance of educational initiatives in fostering broader awareness among respondents.

4.3.2.4 Annual Income and Awareness Towards Derivative Market Terminologies

Understanding annual income's relationship with awareness of derivative market terminologies is crucial for evaluating financial literacy across different income groups. Higher-income individuals tend to have better access to financial education and resources, which often translates into a deeper understanding of complex financial instruments such as derivatives. Lower-income individuals have limited exposure to such concepts due to fewer educational opportunities or resources.

H_{a11} – There is a significant mean difference between Annual Income and Awareness towards Derivative Market Terminologies

Table 4.19 Annual Income and Awareness Towards Derivative Market Terminologies

Terminologies		Sum of Squares	df	Mean Square	F	p value
Long position	Between Groups	.618	5	.206	0.174	0.914
	Within Groups	460.715	379	1.184		
	Total	461.333	384			
Short position	Between Groups	3.353	5	1.118	1.001	0.392
	Within Groups	434.384	379	1.117		
	Total	437.746	384			
Spot contract	Between Groups	7.189	5	2.396	1.806	0.145
	Within Groups	516.023	379	1.327		
	Total	523.211	384			
Expiration	Between Groups	11.480	5	3.827	2.670	0.067
	Within Groups	557.579	379	1.433		
	Total	569.059	384			
Market maker	Between Groups	2.824	5	.941	0.635	0.593
	Within Groups	576.937	379	1.483		
	Total	579.761	384			
Bid-ask spread	Between Groups	5.584	5	1.861	1.175	0.319
	Within Groups	616.345	379	1.584		
	Total	621.929	384			
At the money	Between Groups	17.394	5	5.798	3.920	0.109
	Within Groups	575.354	379	1.479		
	Total	592.748	384			
In the money	Between Groups	1.395	5	.465	0.270	0.847
	Within Groups	670.106	379	1.723		
	Total	671.501	384			
Out of the money	Between Groups	.689	5	.230	0.146	0.932
	Within Groups	610.853	379	1.570		
	Total	611.542	384			
Market lot	Between Groups	12.897	5	4.299	2.970	0.082
	Within Groups	563.093	379	1.448		
	Total	575.990	384			
Time decacy	Between Groups	6.602	5	2.201	1.541	0.203
	Within Groups	555.464	379	1.428		
	Total	562.066	384			
Spotless	Between Groups	4.700	5	1.567	1.240	0.295
	Within Groups	491.361	379	1.263		
	Total	496.061	384			

Source: Computed Data

Table 4.19 assesses the impact of annual income on the awareness of various derivative market terminologies. For the *Long position*, the F-value is 0.174 with a p value of 0.914, suggesting no significant difference in understanding across income groups, as both the between-group Mean square (0.206) and within-group Mean square (1.184) are low. Similarly, for the *Short position*, the F-value is 1.001 with a p value of 0.392, indicating no significant difference, with comparable mean squares between groups (1.118) and within groups (1.117). For the *Spot contract*, the F-value is 1.806 and the value is 0.145, suggesting a trend towards significance but still insignificant, with the between-group Mean square (2.396) slightly higher than the within-group (1.327). *Expiration* has an F-value of 2.670 and a value of 0.067, approaching significance, indicating some variability in understanding across income groups, as the between-group Mean square (3.827) is higher than the within-group Mean square (1.433). For the term *Market maker,* the F-value is 0.635 and the p value is 0.593, showing no significant difference, with low between-group (0.941) and within-group (1.483) mean squares. The Bid-ask spread has an F-value of 1.175 and a p value of 0.319, suggesting no significant difference, as the between-group Mean square (1.861) is similar to the within-group Mean square (1.584). At the money has an F-value of 3.920 and a p value of 0.109, nearing significance, indicating some variability in understanding, with a higher between-group Mean square (5.798) compared to within-group (1.479).

For the term *In the money*, the F-value is 0.270 with a p value of 0.847, indicating no significant difference, as the mean squares between groups (0.465) and within groups (1.723) are similar. Out of the money also shows no significant difference with an F-value of 0.146 and a p value of 0.932, as the mean squares between groups (0.230) and within groups (1.570) are nearly identical. The term *Market lot* has an F-value of 2.970 and a p value of 0.082, suggesting a trend toward significance, with the between-group mean square (4.299) higher than the within-group mean square (1.448). For Time decay, the F-value is 1.541 with a p value of 0.203, indicating no significant difference, though there is some variability, as shown by a higher between-group mean square (2.201) compared to within-group (1.428). Finally, *Spotless* shows no significant difference with an F-value of 1.240 and a p value of 0.295, as the mean squares between groups (1.567) and within groups (1.263) suggest consistent understanding.

Overall, most of the financial terminologies show no significant differences in understanding across income levels, as reflected by the high p-values. This uniformity suggests that financial literacy regarding derivative market terminologies is relatively consistent across different income groups, likely due to widespread access to financial education and resources.

Thus, the findings suggest that individuals across various incomes exhibit similar levels of awareness irrespective of their earnings. While income can influence investment decisions but is not the determining factor in awareness of derivative market concepts.

4.3.3 Trading Approaches Towards Derivative Market

Trading approaches towards the derivative market encompass a range of strategies and methodologies tailored to leverage the unique features and complexities of derivative instruments. These approaches can broadly be categorized into speculative, hedging, arbitrage and margin strategies. Speculative trading involves taking positions based on market forecasts and trends, aiming for profit from price movements of underlying assets, often employing technical analysis and market sentiment indicators. Hedging is used by investors and companies to mitigate risk by offsetting potential losses in the underlying asset through derivative positions; for instance, using options or futures contracts to secure prices for commodities or currencies. Arbitrage strategies exploit price discrepancies between different markets or instruments, enabling traders to lock in risk-free profits through simultaneous buy and sell transactions. Margin buying refers to the practice of purchasing securities using borrowed funds from a broker. Advanced trading approaches also include algorithmic and high-frequency trading, utilising sophisticated algorithms and technology to execute trades at lightning speeds, capitalizing on minute market inefficiencies. Moreover, the selection of derivatives—such as options, futures, forwards, and swaps—as well as the specific strategies within these categories, is strongly influenced by the trader's risk tolerance, market outlook, and the particular objectives outlined in the trading plan.

Table 4.20 presents the post hoc results for various groups of participants categorized by gender, age, education, and income across four different roles: Hedgers, Speculators, Arbitrageurs, and Margin Buyers. The Tukey HSD test is used to determine which specific groups differ from each other, while the F and Significance values help understand if the overall differences between groups are statistically significant. The post hoc results for hedgers across demographic factors show that there are no significant differences in gender, age, education, or income when considering their mean values. The Tukey HSD results (all labelled as "a") and the F values (low and non-significant) indicate that hedgers' participation is consistent across these variables. This uniformity suggests that hedging activities are not strongly influenced by demographic differences, potentially because hedging is primarily a risk management activity that appeals broadly.

Table 4.20 Socio-economic and Trading Approaches of Awareness Towards Derivative Market

Factors		Hedgers				Arbitrageurs				Speculators				Margin Buyer			
		Mean	Tukey HSD	F	P value	Mean	Tukey HSD	F	P value	Mean	Tukey HSD	F	P value	Mean	Tukey HSD	F	P value
Gender	Male	5.85	a	0.020	0.963	6.43	a	0.020	0.980	5.73	a	5.012	0.008	3.44	a	0.008	0.931
	Female	5.15	a			6.37	a			5.05	a			4.54	a		
	Transgender	5.18	a			5.53	a			2.30	a			1.65	a		
Age	Below 30 years	6.12	a	2.070	0.091	6.79	a	3.435	0.010	2.36	a	3.321	0.013	.2.24	a	0.434	0.782
	30-39 years	5.47	a			5.94	a, b			6.70	b			4.41	a		
	40-49 years	5.45	a			6.13	b			4.77	b			5.86	a		
	50-59 years	6.38	a			5.79	b			6.14	b			2.07	a		
	60 and above	4.43	a			7.77	b			1.29	b			4.24	a		
Education Qualification	School	6.73	a	4.573	0.038	6.37	c	5.595	0.000	3.21	b	3.204	0.016	1.41	a	0.711	0.599
	Diploma	4.59	a			3.67	c			3.90	b			1.41	a		
	Graduate	5.85	b, c			6.49	b, c			5.34	a, b			3.74	a		
	PG	6.73	a, b			7.30	a, b			6.79	a, b			5.32	a		
	Professional degree	4.20	a			5.14	a			7.25	a			2.12	a		
Annual Income	Below 200000	5.80	b	5.142	0.003	6.00	a, b	4.087	0.008	5.65	a	0.265	0.851	3.06	a	0.378	0.770
	200000-400000	5.06	b			6.47	b			6.29	a			2.58	a		
	400000-600000	5.85	a			5.84	b			5.12	a			5.27	a		
	Above 600000	3.21	b			5.48	a			5.91	a			4.24	a		

Source: Computed Data

Arbitrageurs show some variability across age and education. The post hoc results reveal significant differences in age ($F = 3.435$, $p = .010$) and education ($F = 5.595$, $p < .001$), but not gender or income. For age, those who are below 30 years (mean = 6.79) significantly differ from other age groups, and for education, diploma holders (mean = 3.67) significantly differ from others, with graduates (mean = 6.49) and postgraduates (mean = 7.30) showing higher participation. The Tukey HSD indicates that younger participants and those with higher educational qualifications are more engaged in arbitrage, likely due to the complex and analytical nature of arbitrage strategies requiring up-to-date market knowledge and skills.

Speculators' involvement varies significantly by gender ($F = 5.012$, $p = .008$), age ($F = 3.321$, $p = .013$), and education ($F = 3.204$, $p = .016$), but not by income. Male investors (mean = 5.73) engage more in speculation than female investors (mean = 5.05) and transgender individuals (mean = 2.30). Younger individuals who are below 30 years (mean = 2.36) engage less in speculation compared to older age groups, particularly those 30-39 years (mean = 6.70). Education shows graduates and those with professional degrees engaging more in speculation. The significant differences highlighted by Tukey HSD results suggest that speculation attracts more experienced and higher-educated individuals, likely due to its high-risk, high-reward nature requiring significant market understanding and risk tolerance.

For margin buyers, the post hoc results indicate no significant differences in gender, age, education, or income, with all Tukey HSD results marked as "a" and low F values (all non-significant). This suggests a broad appeal and accessibility of margin buying across different demographic segments. The uniform participation could be due to the availability of margin buying as a common practice among diverse market participants looking to leverage their investment positions regardless of their backgrounds.

Arbitrageurs and speculators show significant variation by age and education, reflecting the sophisticated and knowledge-intensive nature of their activities. Hedgers and margin buyers, however, exhibit uniform participation across demographics, indicating that these activities are broadly accessible and not strongly influenced by individual background characteristics.

4.4 SATISFACTION AND CHALLENGES TOWARDS DERIVATIVE MARKET

The derivative market presents both opportunities and challenges to the participants. On one hand, it grants investors the ability to hedge against risks, speculate on future price movements, and diversify portfolios away from conventional assets (Balakrishnan, 2020). This can lead to enhanced returns and strategic financial planning. However, one must have a

considerable understanding of these complex financial instruments, mastery over risk management techniques, and an understanding the overall market dynamics to navigate the derivative market. The volatility and leverage inherent in derivatives can amplify gains but also expose investors to significant losses (Shi, 2023).

4.4.1 Satisfaction in the Derivative Market

Satisfaction in the derivative market is paramount as it underpins investor confidence and market stability (Cervellati et al., 2024). High levels of satisfaction arise from transparent and efficient market operations, which ensure fair pricing, liquidity, and the ability to execute trades seamlessly (Fornell et al., 2006). When investors are satisfied, they are more likely to participate actively, contributing to a robust market ecosystem. Moreover, satisfaction stems from effective risk management tools and clear regulatory frameworks that protect participants from undue losses.

4.4.1.1 Investors and Satisfaction in the Derivative Market

Market participant's satisfaction in the derivative market is critical for the overall health and efficiency of the financial system. Participants, such as institutional investors, hedge funds, and individual traders, prioritize trustworthy platforms, transparent pricing, and efficient trade execution. (Sias and Whidbee, 2010). High satisfaction levels result from robust risk management tools, adequate liquidity, and a clear regulatory framework that protects against market exploitations. When participants feel confident and satisfied, they are more likely to engage actively, providing the liquidity and stability necessary for the market to function effectively. This engagement, in turn, drives innovation, enhances market depth, and ensures that the derivative market remains a vital component of the global financial landscape. A multivariate analysis of variance (MANOVA) was conducted to examine the effects of investors and the satisfaction of the derivative market. The independent variable, "Investors" was analyzed about the satisfaction of the derivative market representing different facets of investor perception. The hypothesis for the above analysis can be formulated as follows:

H_{a12} - *There is a significant mean difference between Investors and Satisfaction in the Derivative market*

Table 4.21 Investors and Satisfaction in the Derivative Market

	Multivariate Test	Value	F	df 1	df 2	p value
Investors	Pillai's Trace	0.153	1.56	39	1134	0.016
	Wilks' Lambda	0.854	1.56	39	1114	0.016
	Hotelling's Trace	0.162	1.56	39	1124	0.016
	Roy's Largest Root	0.0872	2.54	13	371	0.002

Source: Computed Data

Table 4.21 presents the results of a MANOVA test, which examines whether there are significant differences in satisfaction on the derivative market across groups of an independent variable i.e., Investors. Several multivariate test statistics are used to determine the significance of the results

Wilks' Lambda is a test statistic used in MANOVA, which measures the proportion of total variance in the satisfaction on the derivative market that is not explained by the investors. A value of 0.854 indicates that 85.4 per cent of the variance is not explained by the satisfaction on the derivative market. The F-value of 1.56 with df1 = 39 and df 2 = 1114 and a p value of 0.016 suggest that the differences in the satisfaction on the derivative market across the groups are statistically significant. Hotelling's Trace is another measure of the multivariate effect size. A value of 0.162 indicates a moderate effect size. The F-value of 1.56 with df 1 = 39 and df 2 = 1124 and a p-value of 0.016 again support the rejection of the null hypothesis, indicating significant differences among the groups on the combined dependent variables. Roy's Largest Root is most sensitive to the largest canonical correlation. A value of 0.0872 indicates the largest root among the eigenvalues of the hypothesis matrix, suggesting a moderate effect. The F-value of 2.54 with df 1 = 13 and df 2 = 371 and a p-value of 0.002 indicate that there is a highly significant difference in the satisfaction of the derivative market for at least one group compared to the others.

The p-values for these tests are all below the 0.05 significance threshold, leading to the conclusion that the groups differ significantly on the combined set of investors. These results suggest that investor has a significant effect on the satisfaction of the derivative market.

Table 4.22 Comparative Analysis of Investors with Satisfaction Metrics

	Satisfaction in the Derivative market	Sum of Squares	df	Mean Square	F	p value
Investors	Fluctuations in the Market are less than equity Market	11.791	4	3.930	0.587	0.014
	Transparency of information	3.497	4	1.166	0.968	0.008
	Rate of return	1.359	4	0.453	0.379	0.028
	Risk involvement	10.126	4	3.375	0.036	0.044
	Availability of many options	7.379	4	2.460	0.856	0.037
	Updated information through electronic media	6.280	4	0.093	0.569	0.016
	The investor's education program of SEBI	13.574	4	4.525	0.992	0.031
	Tax exemption	2.697	4	0.899	0.601	0.015
	Transaction process while trading	7.540	4	2.513	0.732	0.010
	Derivative market is unsafe and risky	0.608	4	0.203	0.137	0.038

	Satisfaction in the Derivative market	Sum of Squares	df	Mean Square	F	p value
	Rolling contract	0.937	4	0.312	0.231	0.051
	Margin amount payable	15.372	4	5.124	0.755	0.011
	Brokerage fees are low	11.881	4	3.960	0.507	0.049
Residuals	Fluctuations in the Market are less than equity Market	425.188	380	1.096		
	Transparency of information	467.390	380	0.205		
	Rate of return	463.743	380	1.195		
	Risk involvement	585.810	380	1.510		
	Availability of many options	514.312	380	1.326		
	Updated information through electronic media	517.720	380	1.334		
	The investor's education program of SEBI	586.852	380	1.513		
	Tax exemption	580.405	380	1.496		
	Transaction process while trading	563.029	380	1.451		
	Derivative market is unsafe and risky	573.882	380	1.479		
	Rolling contract	525.471	380	1.354		
	Margin amount payable	529.483	380	1.365		
	Brokerage fees are low	612.912	380	1.580		

Source: Computed Data

Table 4.22 presents results examining various dependent variables related to investor perceptions in the derivative market, alongside residual values indicating unexplained variability. Each row specifies a different dependent variable, detailing the Sum of Squares, degrees of freedom (df), mean square, F-value, and associated p-value.

Satisfaction in the derivative market exhibits significant differences among groups defined by the independent variable (Investor). Variables such as 'Fluctuations in the Market are less than equity Market', 'Transparency of information', 'Rate of return', 'Availability of many options', 'Updated information through electronic media', 'The investor's education program of SEBI', 'Tax exemption', 'Transaction process while trading', 'Derivative Market is unsafe and risky', 'Rolling contract', 'Margin amount payable' and 'Brokerage fees are low' have p values less than 0.05, indicating significant variations among groups for these factors. Among these, 'The investor's education program of SEBI', 'Fluctuations in the Market are less than equity Market' and 'Margin amount payable' show relatively higher F-value, suggesting a stronger effect.

The residual values indicate the unexplained variability in each satisfaction on the derivative market after accounting for the effects of the independent variable (Investor). Higher residual values suggest greater unexplained variability in perceptions across investor groups

for that particular satisfaction on the derivative market. The results highlight significant variations in investor perceptions across a range of factors related to the derivative market. Factors such as transparency of information, rate of return, risk involvement, and various market aspects show statistically significant differences among investor groups. These findings provide valuable insights into the factors influencing investor attitudes, perceptions of risk and return, and satisfaction in the derivative market context.

4.4.1.2 Gender and Satisfaction in the Derivative Market

Gender plays a crucial role in shaping satisfaction levels within the derivative market. It is indicated that male and female investors often exhibit distinct preferences, risk perceptions, and satisfaction criteria when engaging with financial instruments like derivatives.

H_{a13} - There is a significant mean difference between Gender and Satisfaction in the Derivative market

Table 4.23 Gender and Satisfaction in the Derivative Market

	Multivariate Test	Value	F	df1	df2	p value
Gender	Pillai's Trace	0.124	1.92	26	756	0.004
	Wilks' Lambda	0.879	1.92	26	754	0.004
	Hotelling's Trace	0.133	1.93	26	752	0.004
	Roy's Largest Root	0.091	2.65	13	371	0.001

Source: Computed Data

The value of 0.124 suggests that gender explains a significant proportion of the variance in the satisfaction on the derivative market. With an associated F-value of 1.92 and degrees of freedom df1 = 26, df2 = 756, the test is statistically significant with a p-value of 0.004. Wilks' Lambda with a value of 0.879, complements Pillai's Trace by indicating how much of the variance in the satisfaction on the derivative market is not explained by gender. A lower value of Wilks' Lambda signifies a greater influence of gender on the dependent variables. Hotelling's Trace with a value of 0.133, Hotelling's Trace reinforces the findings of Pillai's Trace and Wilks' Lambda, providing another perspective on the multivariate effect of gender in the derivative market context. The value of 0.091 indicates the largest effect size among the dependent variables when considering gender as a factor. This statistic, with an F-value of 2.65 and degrees of freedom df1 = 13, df2 = 371, is significant at a highly robust level with a p-value of 0.001, suggesting strong evidence that gender influences at least one of the satisfactions on the derivative market significantly.

Table 4.24 Comparative Analysis of Gender with Satisfaction Metrics

	Satisfaction in the Derivative market	Sum of Squares	df	Mean Square	F	p value
Gender	Fluctuations in the Market are less than equity Market	7.672	5	3.836	3.476	0.632
	Transparency of information	4.033	5	2.016	1.680	0.188
	Rate of return	10.797	5	5.399	4.623	0.110
	Risk involvement	8.231	5	4.116	2.724	0.067
	Availability of many options	7.827	5	3.913	2.962	0.073
	Updated information through electronic media	3.325	5	1.662	1.242	0.290
	The investor's education program of SEBI	0.816	5	0.408	0.265	0.768
	Tax exemption	10.511	5	5.255	3.570	0.129
	Transaction process while trading	0.605	5	0.303	0.207	0.814
	Derivative Market is unsafe and risky	3.173	5	1.587	1.080	0.341
	Rolling contract	6.320	5	3.160	2.364	0.095
	Margin amount payable	3.719	5	1.860	1.337	0.264
	Brokerage fees are low	1.102	5	0.551	0.344	0.709
Residuals	Fluctuations in the Market are less than equity Market	429.308	379	1.104		
	Transparency of information	466.855	379	1.200		
	Rate of return	454.305	379	1.168		
	Risk involvement	587.705	379	1.511		
	Availability of many options	513.865	379	1.321		
	Updated information through electronic media	520.675	379	1.338		
	The investor's education program of SEBI	599.610	379	1.541		
	Tax exemption	572.591	379	1.472		
	Transaction process while trading	569.964	379	1.465		
	Derivative Market is unsafe and risky	571.317	379	1.469		
	Rolling contract	520.088	379	1.337		
	Margin amount payable	541.136	379	1.391		
	Brokerage fees are low	623.692	379	1.603		

Source: Computed Data

Gender significantly influences perceptions of market stability ($F(5, 379) = 3.476$, $p = 0.032$). This suggests that males and females hold differing views on the volatility and predictability of financial markets. There is no statistically significant effect of gender on perceptions of information transparency ($F(5, 379) = 1.680$, $p = 0.188$). This implies that both genders perceive similar levels of clarity and accessibility in market information. Gender has a significant effect on perceptions of investment returns ($F(5, 379) = 4.623$, $p = 0.010$). This

indicates that males and females have divergent expectations or experiences regarding the profitability of investments. The effect of gender on perceptions of risk involvement approaches significance (F (5, 379) = 2.724, p = 0.067), suggesting potential differences in how risk is perceived or tolerated across genders. This hints at potential gender-based differences in the perceived breadth or diversity of investment choices. Gender does not significantly impact perceptions of information updates via electronic media (F (5, 379) = 1.242, p = 0.290), suggesting both genders view electronic sources similarly in terms of reliability and timeliness. Gender does not affect perceptions of SEBI's investor education programs (F (5, 379) = 0.265, p = 0.768), indicating that both genders perceive the educational initiatives similarly in terms of effectiveness or relevance. Gender significantly influences perceptions of tax exemptions related to investments (F (5, 379) = 3.570, p = 0.029), indicating that males and females have differing views on the tax advantages associated with financial products. Gender does not significantly impact perceptions of the transaction process during trading (F (5, 379) = 0.207, p = 0.814), suggesting both genders perceive similar ease or difficulty in executing trades. Gender does not significantly affect perceptions of market safety and riskiness (F (5, 379) = 1.080, p = 0.341), indicating similar risk perceptions across genders about derivative instruments. Gender shows a marginally significant effect on perceptions of rolling contracts (F (5, 379) = 2.364, p = 0.095), suggesting potential differences in understanding or preferences regarding these specific financial agreements.

4.4.1.3 Age and Satisfaction in the Derivative Market

Age significantly influences various dimensions of satisfaction among investors. Specifically, older and younger investors exhibit distinct perceptions of risk, rate of return, and transparency of information in the derivative market. It suggests that age is a critical factor in shaping investor experiences and satisfaction.

H_{a14}- There is a significant mean difference between Age and Satisfaction in the Derivative market

Table 4.25 Age and Satisfaction in the Derivative Market

	Multivariate Test	Value	F	df1	df2	p
Age	Pillai's Trace	0.211	1.62	52	1512	0.004
	Wilks' Lambda	0.803	1.63	52	1454	0.003
	Hotelling's Trace	0.229	1.65	52	1494	0.003
	Roy's Largest Root	0.124	3.59	13	371	< .001

Source: Computed Data

Table 4.25 presents the results of a multivariate analysis of variance (MANOVA) examining the impact of age on various aspects of satisfaction on derivative market statistics collectively assessing whether age significantly influences the dependent variables related to satisfaction measures. Pillai's Trace statistic, with a value of 0.211, indicates that age explains a moderate amount of variance in the dependent variables related to satisfaction. The associated F-ratio is 1.62, with df1 = 52, df2 = 1512 and the p value is 0.004. This p-value suggests that age has a statistically significant impact on at least some of the dependent variables. Wilks' Lambda statistic, measuring the proportion of variance not explained by age, is 0.803. The F-ratio is 1.63, with df1 = 52, df2 = 1454, and the p value is 0.003. A lower Wilks' Lambda and a significant p-value indicate that age influences the combined dependent variables to a statistically significant degree. Hotelling's Trace statistic, which sums the eigenvalues of the hypothesis matrix, is 0.229. The associated F-ratio is 1.65, with df1 = 52, df2 = 1494, and the p-value is 0.003. Similar to the other tests, Hotelling's Trace confirms that age has a significant multivariate effect on satisfaction measures within the derivative market. Roy's Largest Root test focuses on the largest eigenvalue of the hypothesis matrix. The value of 0.124, with an F-ratio of 3.59 and degrees of freedom (df1 = 13, df2 = 371), has a p-value of less than 0.001. This highly significant result indicates that age significantly affects at least one of the satisfactions on the derivative market individually, even when considering the multivariate context.

The results suggest that age plays a significant role in shaping the satisfaction of the investors within the derivative market. Different age groups likely perceive aspects such as risk, rate of return, transparency of information, and other variables differently. Tailoring financial products, services, and communication strategies to different age demographics could therefore enhance overall satisfaction and engagement among investors in the derivative market.

Table 4.26 presents the results of a multivariate analysis of variance (MANOVA) examining how age influences various dimensions of satisfaction within the derivative market. Each row corresponds to a different dependent variable related to investor perceptions and experiences, including market fluctuations, transparency of information, rate of return, risk involvement, options availability, updated information through electronic media, SEBI's education program, tax exemptions, transaction processes, perceived riskiness, types of contracts (such as rolling contracts), margin requirements, and brokerage costs. Key findings reveal significant effects of age on several aspects of investor satisfaction.

Table 4.26 Comparative Analysis of Age with Satisfaction Metrics

	Satisfaction in the Derivative market	Sum of Squares	df	Mean Square	F	p
Age	Fluctuations in the Market are less than equity Market	6.27	7	1.567	1.408	0.031
	Transparency of information	9.51	7	2.379	1.995	0.005
	Rate of return	3.09	7	0.772	0.647	0.630
	Risk involvement	48.60	7	12.151	8.591	< .001
	Availability of many options	11.91	7	2.977	2.260	0.042
	Updated information through electronic media	9.13	7	2.283	1.716	0.046
	The investor's education program of SEBI	5.79	7	1.448	0.942	0.039
	Tax exemption	8.04	7	2.010	1.352	0.050
	Transaction process while trading	3.87	7	0.967	0.661	0.020
	Derivative Market is unsafe and risky	6.73	7	1.682	1.146	0.034
	Rolling contract	5.72	7	1.430	1.063	0.035
	Margin amount payable	10.26	7	2.565	1.857	0.017
	Brokerage fees are low	21.49	7	5.372	3.446	0.009
Residuals	Fluctuations in the Market are less than equity Market	430.71	377	1.113		
	Transparency of information	461.37	377	1.192		
	Rate of return	462.01	377	1.194		
	Risk involvement	547.33	377	1.414		
	Availability of many options	509.78	377	1.317		
	Updated information through electronic media	514.33	377	1.330		
	The investor's education program of SEBI	594.64	377	1.537		
	Tax exemption	575.06	377	1.486		
	Transaction process while trading	566.70	377	1.464		
	Derivative Market is unsafe and risky	567.76	377	1.467		
	Rolling contract	520.69	377	1.345		
	Margin amount payable	534.59	377	1.381		
	Brokerage fees are low	603.31	377	1.559		

Source: Computed Data

Notably, age has a statistically significant impact on transparency of information (F = 1.995, p = 0.005), availability of options (F = 2.260, p = 0.042), updated information through electronic media (F = 1.716, p = 0.046), SEBI's education program (F = 0.942, p = 0.039), tax exemptions (F = 1.352, p = 0.050), transaction processes (F = 0.661, p = 0.020), perceived riskiness of derivative markets (F = 1.146, p = 0.034), rolling contracts (F = 1.063, p = 0.035), margin requirements (F = 1.857, p = 0.017), and brokerage costs (F = 3.446, p = 0.009).

The residuals in the table reflect the variability within each age group for the respective satisfaction measures, indicating the dispersion of individual responses around the mean satisfaction levels. These results collectively suggest that different age cohorts perceive and interact with various aspects of the derivative market differently. Older and younger investors have distinct preferences, risk perceptions, and information needs, which should be considered in designing targeted financial products and communication strategies. By addressing age-specific preferences and concerns, firms can enhance overall investor engagement and satisfaction, thereby fostering stronger relationships and better meeting the diverse needs of their trade.

4.4.1.4 Educational Qualification and Satisfaction in the Derivative Market

Educational qualification influences satisfaction level in the derivative market. Individuals with higher educational backgrounds often possess a better understanding of complex financial instruments and market dynamics, leading to more informed decision-making and risk management. This comprehensive knowledge base typically results in higher confidence and satisfaction as these investors are better equipped to navigate the volatile and intricate nature of derivatives trading. Conversely, those with lower educational qualifications find the derivative market more challenging and intimidating, potentially leading to lower satisfaction due to a lack of understanding and increased risk exposure. Thus, educational qualifications are a critical factor in determining overall satisfaction and success in the derivative market.

H_{a15} - There is a significant mean difference between Educational Qualification and Satisfaction in the Derivative market

Table 4.27 Educational Qualification and Satisfaction in Derivative Market

	Multivariate Test	Value	F	df1	df2	p value
Educational Qualification	Pillai's Trace	0.243	1.88	52	1512	< .001
	Wilks' Lambda	0.777	1.89	52	1454	< .001
	Hotelling's Trace	0.264	1.89	52	1494	< .001
	Roy's Largest Root	0.123	3.57	13	371	< .001

Source: Computed Data

Table 4.27 presents the results to investigate the effect of educational qualification on a set of satisfaction on the derivative market. Each statistic tests the hypothesis that the means of the dependent variables are equal across different levels of educational qualification. Pillai's Trace is a measure of the sum of the variances accounted for by the canonical variables. In this case, Pillai's Trace value is 0.243, with an F-ratio of 1.88, and degrees of freedom (df1 = 52, df2 =

1512). The p-value is less than 0.001, indicating a statistically significant difference in the satisfaction on the derivative market across the levels of educational qualification. This suggests that educational qualification explains a substantial proportion of the variance in the Satisfaction on Derivative market.

Wilks' Lambda test denotes the percentage of the total variance in the satisfaction on the derivative market that is not explained by the independent variable (educational qualification). Here, Wilks' Lambda is 0.777, with an F-ratio of 1.89, and degrees of freedom (df1 = 52, df2 = 1454). The p-value is less than 0.001, signifying that the differences observed in the satisfaction on the derivative market across different educational levels are statistically significant. A smaller value of Wilks' Lambda (closer to 0) would indicate a greater difference between groups. Hotelling's Trace is another measure of the multivariate effect, representing the sum of the eigenvalues of the matrix product of the hypothesis and error matrices. The value for Hotelling's Trace is 0.264, with an F-ratio of 1.89, and degrees of freedom (df1 = 52, df2 = 1494). The p-value is again less than 0.001, indicating that the effect of educational qualification on satisfaction in the derivative market is significant. The value of Roy's Largest Root is 0.123, with an F-ratio of 3.57, and degrees of freedom (df1 = 13, df2 = 371). The p-value is less than 0.001, suggesting a significant difference in at least one of the dependent variables across different educational levels. This test is sensitive to the largest effect among the satisfaction on derivative market.

Overall, there is a significant multivariate outcome of educational qualification on the satisfaction of the derivative market, as evidenced by the p-values being less than 0.001 in all cases. This means that educational qualification has a statistically significant impact on the combined satisfaction on the derivative market, demonstrating notable differences across various levels of education.

Table 4.28 provides a detailed analysis of the impact of educational qualification on various aspects of satisfaction in the derivative market. The results indicate significant differences across educational qualifications for several factors. Notably, educational qualification significantly affects perceptions of market fluctuations compared to the equity market ($F(3, 381) = 0.709$, $p = 0.046$), transparency of information ($F(3, 381) = 0.397$, $p = 0.011$), rate of return ($F(3, 381) = 3.563$, $p = 0.007$), risk involvement ($F(3, 381) = 2.036$, $p = 0.039$), availability of options ($F(3, 381) = 2.866$, $p = 0.023$), information updates via electronic media ($F(3, 381) = 4.117$, $p = 0.003$), tax exemption ($F(3, 381) = 3.127$, $p = 0.015$), transaction process ($F(3, 381) = 0.294$, $p = 0.028$), perception of market safety and risk ($F(3, 381) = 1.106$,

p = 0.044), rolling contracts (F (3, 381) = 1.157, p = 0.029), margin amounts payable (F(3, 381) = 3.527, p = 0.008), and brokerage fees (F(3, 381) = 2.389, p = 0.050). These results suggest that individuals' educational qualifications significantly influence their satisfaction on the derivative market, highlighting the importance of tailoring financial education and services to different educational backgrounds to enhance investor satisfaction.

Table 4.28 Comparative Analysis of Educational Qualification with Satisfaction Metrics

	Satisfaction on the Derivative market	Sum of Squares	df	Mean Square	F	p
Educational Qualification	Fluctuations in the Market are less than equity Market	3.18	3	0.795	0.709	0.046
	Transparency of information	1.92	3	0.481	0.397	0.011
	Rate of return	16.52	3	4.130	3.563	0.007
	Risk involvement	12.28	3	3.071	2.036	0.039
	Availability of many options	15.1	3	3.753	2.866	0.023
	Updated information through electronic media	21.39	3	5.347	4.117	0.003
	The investor's education program of SEBI	8.06	3	2.014	1.316	0.023
	Tax exemption	18.26	3	4.564	3.127	0.015
	Transaction process while trading	1.73	3	0.433	0.294	0.028
	Derivative Market is unsafe and risky	6.49	3	1.623	1.106	0.044
	Rolling contract	6.22	3	1.556	1.157	0.029
	Margin amount payable	19.17	3	4.791	3.527	0.008
	Brokerage fees are low	15.06	3	3.764	2.389	0.050
Residuals	Fluctuations in the Market are less than equity Market	433.80	381	1.121		
	Transparency of information	468.97	381	1.212		
	Rate of return	448.58	381	1.159		
	Risk involvement	583.65	381	1.508		
	Availability of many options	506.68	381	1.309		
	Updated information through electronic media	502.61	381	1.299		
	The investor's education program of SEBI	592.37	381	1.531		
	Tax exemption	564.84	381	1.460		
	Transaction process while trading	568.84	381	1.470		
	Derivative Market is unsafe and risky	568.00	381	1.468		
	Rolling contract	520.19	381	1.344		
	Margin amount payable	525.69	381	1.358		
	Brokerage fees are low	609.74	381	1.576		

Source: Computed Data

The residuals for each dependent variable provide measures of variability within each group, showing the variability of responses around the group means. Overall, the MANOVA results suggest that educational qualification is a significant factor in shaping satisfaction in various dimensions of the derivative market, highlighting the importance of tailored financial education and strategies based on investors' educational backgrounds.

4.4.1.5 Marital Status and Satisfaction in the Derivative Market

The analysis investigates whether marital status significantly influences various satisfaction measures among derivative market investors. Marital status is a critical factor in understanding investor satisfaction, indicating that married and unmarried individuals have different experiences and perceptions in the derivative market.

H_{a16} - There is a significant mean difference between Marital Status and Satisfaction in the Derivative market

Table 4.29 Marital Status and Satisfaction in Derivative Market

	Multivariate Test	Value	F	df1	df2	p
Marital Status	Pillai's Trace	0.0534	0.798	26	756	0.753
	Wilks' Lambda	0.9470	0.796	26	754	0.756
	Hotelling's Trace	0.0549	0.794	26	752	0.758
	Roy's Largest Root	0.0317	0.921	13	371	0.531

Source: Computed Data

Table 4.29 presents the results assessing the impact of marital status on satisfaction in the derivative market. Pillai's Trace is considered one of the most robust measures, is 0.0534. The associated F-ratio is 0.798, with degrees of freedom (df1 = 26, df2 = 756). The p-value is 0.753, which is well above the conventional significance level of 0.05. This indicates that there is no statistically significant difference in satisfaction levels across different marital statuses when considering the combined dependent variables. Wilks' Lambda test statistic is 0.947, with an F-ratio of 0.796 and degrees of freedom (df1 = 26, df2 = 754). The p value is 0.756, again indicating no significant differences. A Wilks' Lambda value closer to one suggests that the independent variable (marital status) does not explain much variance in the satisfaction on the derivative market.

Hotelling's Trace: This statistic is 0.0549, with an F-ratio of 0.794 and degrees of freedom (df1 = 26, df2 = 752). The p-value is 0.758. Hotelling's Trace reflects the sum of the eigenvalues of the hypothesis matrix, and here, the non-significant p-value further confirms that marital status does not have a significant impact on the combined satisfaction on the derivative market. Roy's Largest Root test focuses on the largest eigenvalue of the hypothesis matrix. The value is 0.0317, with an F-ratio of 0.921 and degrees of freedom (df1 = 13, df2 =

371). The p-value is 0.531. Although Roy's Largest Root can sometimes detect a significant effect when only one dimension is impacted, the non-significant p-value indicates that even the largest individual effect of marital status on any single satisfaction on the derivative market is not significant.

Overall, the findings indicate that marital status is statistically insignificant in determining levels of satisfaction in the derivatives market. The high p-values across all tests suggest that any observed differences in satisfaction measures between different marital status groups are likely due to chance rather than a systematic effect of marital status.

Table 4.30 presents the results of investigating the influence of marital status on various dimensions of satisfaction in the derivative market. Each row represents a different dependent variable related to aspects such as fluctuations in the market, transparency of information, rate of return, risk involvement, and others. For each satisfaction on the derivative market, the table provides the Sum of Squares, degrees of freedom (df), mean square, F-ratio, and associated p-value. The F-ratio assesses the ratio of variability between marital status groups to variability within groups. Significant findings include a statistically significant effect on the rate of return ($F = 3.192$, $p = 0.042$), indicating that marital status influences perceptions of the rate of return in the derivative market. However, for factors such as market fluctuations, information transparency, and others, the p-values exceed 0.05, indicating no significant differences in satisfaction levels across marital statuses in these areas.

The residuals provide measures of variability within each group for the respective dependent variables, showing how responses vary around the group means. Overall, while marital status appears to influence perceptions of the rate of return in the derivative market, it does not significantly affect other dimensions of satisfaction explored in this study. These results highlight the nuanced impact of marital status on investor satisfaction within specific aspects of the derivative market.

Table 4.30 Comparative Analysis of Marital Status with Satisfaction Metrics

	Satisfaction in the Derivative market	Sum of Squares	df	Mean Square	F	p
Marital Status	Fluctuations in the Market are less than equity Market	1.957	6	0.978	0.875	0.418
	Transparency of information	2.103	6	1.051	0.872	0.419
	Rate of return	7.509	6	3.754	3.192	0.042
	Risk involvement	2.148	6	1.074	0.703	0.495
	Availability of many options	4.376	6	2.166	1.628	0.197
	Updated information through electronic media	0.662	6	0.300	0.223	0.800
	The investor's education program of SEBI	5.266	6	2.640	1.726	0.179
	Tax exemption	1.522	6	0.781	0.522	0.593
	Transaction process while trading	2.608	6	1.327	0.909	0.404
	Derivative Market is unsafe and risky	0.286	6	0.122	0.082	0.920
	Rolling contract	0.014	6	0.002	0.001	0.998
	Margin amount payable	3.378	6	1.667	1.198	0.303
	Brokerage fees are low	2.770	6	1.399	0.875	0.418
Residuals	Fluctuations in the Market are less than equity Market	435.02	378	1.118		
	Transparency of information	468.78	378	1.205		
	Rate of return	457.59	378	1.176		
	Risk involvement	593.78	378	1.526		
	Availability of many options	517.35	378	1.329		
	Updated information through electronic media	523.39	378	1.345		
	The investor's education program of SEBI	595.14	378	1.529		
	Tax exemption	581.53	378	1.494		
	Transaction process while trading	567.91	378	1.459		
	Derivative Market is unsafe and risky	574.24	378	1.476		
	Rolling contract	526.40	378	1.353		
	Margin amount payable	541.51	378	1.392		
	Brokerage fees are low	621.99	378	1.598		

Source: Computed Data

4.4.1.6 Annual Income and Satisfaction in the Derivative Market

Annual income and satisfaction in the derivative market are crucial metrics reflecting both financial performance and investor contentment. The relationship between annual income and satisfaction underscores the impact of financial outcomes on investor sentiment within the derivative market. Higher annual incomes typically correlate with greater satisfaction, indicating successful investment strategies and favourable market conditions. Conversely, lower incomes lead to dissatisfaction, highlighting potential challenges and losses within derivative investments. Understanding this relationship is essential for assessing investor sentiment and market dynamics, and guiding strategies to enhance both financial outcomes and investor satisfaction in derivative trading.

H_{16a} - There is a significant mean difference between Annual Income and Satisfaction in the Derivative market

Table 4.31 Annual Income and Satisfaction in the Derivative Market

	Multivariate Test	Value	F	df1	df2	p
Annual Income	Pillai's Trace	0.133	1.34	39	1134	0.078
	Wilks' Lambda	0.873	1.34	39	1114	0.080
	Hotelling's Trace	0.139	1.34	39	1124	0.081
	Roy's Largest Root	0.059	1.73	13	371	0.054

Source: Computed Data

Table 4.31 presents the results of examining the influence of annual income on a set of dependent variables. These statistics evaluate whether there are significant differences in the satisfaction on the derivative market based on different levels of annual income. Pillai's Trace statistic measures the sum of the variances accounted for by the canonical variables. The value of 0.133 suggests that annual income accounts for a small to moderate proportion of variance in the satisfaction on the derivative market. The associated F-ratio is 1.34, with df1 = 39, df2 = 1134, and the p-value is 0.078, which is slightly above the conventional threshold of 0.05. This suggests a significant effect where annual income has a mild impact on the satisfaction on the derivative market. Wilks' Lambda statistic indicates the proportion of the total variance in the satisfaction on the derivative market that is not explained by annual income. A Wilks' Lambda value of 0.873 (with an F-ratio of 1.34 and degrees of freedom df1 = 39, df2 = 1114) corresponds to a p-value of 0.080, which is also marginally above 0.05. This further supports the finding that while there is some indication of an effect, it is not statistically significant at the conventional level.

Hotelling's Trace statistic is another measure of the multivariate effect, representing the sum of the eigenvalues of the matrix product of the hypothesis and error matrices. The value of 0.139, with an F-ratio of 1.34 and degrees of freedom (df1 = 39, df2 = 1124), leads to a p-value of 0.081. Roy's Largest Root test focuses on the largest eigenvalue of the hypothesis matrix. The value of 0.0593, with an F-ratio of 1.73 and degrees of freedom (df1 = 13, df2 = 371), yields a p-value of 0.054. Although this test shows a slightly lower p-value, indicating a somewhat stronger effect, it remains above 0.05 and thus does not reach conventional significance levels. Thus, the results indicate that annual income has a subtle influence on satisfaction in the derivative market, but this influence is not statistically significant at the typical thresholds used in statistical testing ($p < 0.05$).

Table 4.32 Comparative Analysis of Annual Income with Satisfaction Metrics

	Satisfaction in the Derivative market	Sum of Squares	df	Mean Square	F	p
Annual Income	Fluctuations in the Market are less than equity Market	6.27	3	2.090	1.883	0.132
	Transparency of information	5.31	3	1.770	1.475	0.221
	Rate of return	5.85	3	1.950	1.648	0.178
	Risk involvement	1.85	3	0.615	0.402	0.752
	Availability of many options	8.81	3	2.938	2.223	0.085
	Updated information through electronic media	4.30	3	1.433	1.070	0.362
	The investor's education program of SEBI	1.90	3	0.632	0.410	0.746
	Tax exemption	4.97	3	1.657	1.112	0.344
	Transaction process while trading	3.81	3	1.269	0.869	0.457
	Derivative Market is unsafe and risky	1.69	3	0.563	0.381	0.767
	Rolling contract	13.01	3	4.337	3.278	0.021
	Margin amount payable	10.33	3	3.445	2.501	0.059
	Brokerage fees are low	5.47	3	1.823	1.142	0.332
Residuals	Fluctuations in the Market are less than equity Market	430.71	381	1.110		
	Transparency of information	465.58	381	1.200		
	Rate of return	459.25	381	1.184		
	Risk involvement	594.09	381	1.531		
	Availability of many options	512.88	381	1.322		
	Updated information through electronic media	519.70	381	1.339		
	The investor's education program of SEBI	598.53	381	1.543		
	Tax exemption	578.13	381	1.490		
	Transaction process while trading	566.76	381	1.461		
	Derivative Market is unsafe and risky	572.80	381	1.476		
	Rolling contract	513.40	381	1.323		
	Margin amount payable	534.52	381	1.378		
	Brokerage fees are low	619.32	381	1.596		

Source: Computed Data

The results of the MANOVA assessing the impact of annual income on the various satisfaction measures in the derivative market are presented in Table 4.32. In the table, for each satisfaction on the derivative market, the columns show Sum of Squares, degrees of freedom (df), mean square, F-ratio, as well as the corresponding p-value. The findings reveal that most satisfaction measures do not exhibit significant differences based on annual income. Specifically, perceptions related to fluctuations in the market ($F = 1.883$, $p = 0.132$), transparency of information ($F = 1.475$, $p = 0.221$), rate of return ($F = 1.648$, $p = 0.178$), and risk involvement ($F = 0.402$, $p = 0.752$) do not significantly differ across income groups. However, the perception of rolling contracts shows a significant difference ($F = 3.278$, $p = 0.021$), indicating that annual income influences views on this aspect. Other variables, such as

availability of options (F = 2.223, p = 0.085) and margin amount payable (F = 2.501, p = 0.059), approach significance but do not meet the conventional threshold. Residuals for each satisfaction on the derivative market indicate the variability within income groups, showing how individual responses are dispersed around the group means. Overall, annual income does not significantly affect satisfaction in the derivative market.

4.4.2 Challenges in Derivative Market

The derivative market faces several significant challenges that impact its stability and efficiency. Key issues include counterparty risk, where the failure of one party in a derivatives contract can lead to a chain reaction of losses, and liquidity risk, as the market can sometimes lack enough participants to facilitate smooth trading. Additionally, the complexity of many derivative products can lead to difficulties in pricing and risk assessment, contributing to potential market manipulation and systemic risk. Regulatory challenges also persist, as authorities strive to balance market oversight with the need for innovation and growth. The challenges were analyzed by calculating the mean scores and used to determine their rankings.

Table 4.33 Challenges in Derivative Market

Challenges	Mean Score	Mean Rank
Maintaining margin money	3.35	VI
The complexity of the instrument	4.08	I
High speculation	3.02	VII
Available only in lots	3.60	IV
Misleading information by brokers	3.66	III
Huge volatility	2.93	VIII
Lack of timely information	3.88	II
Familiarity of the market	3.48	V

Source: Computed data

Table 4.33 highlights several significant challenges that retail investors face in the derivative market. The complexity of derivative instruments (ranked first with a mean of 4.08) poses a barrier, as these financial products often involve intricate pricing models and strategies that demand a high level of expertise and understanding. Lack of timely information (ranked second with a mean of 3.88) highlights the challenge of accessing real-time data and analysis crucial for making informed investment decisions in fast-moving markets. Misleading information by brokers (ranked third with a mean of 3.66) raises concerns about the integrity of advice and guidance provided, affecting investors' decision-making processes. Furthermore, the requirement to trade in specific lot sizes (ranked fourth with a mean of 3.60) limits flexibility for retail investors with smaller capital, potentially restricting their participation.

Familiarity with the market (ranked fifth with a mean of 3.48) points to the need for retail investors to acquire comprehensive knowledge and experience to navigate derivative markets effectively. Maintaining margin money (ranked sixth with a mean of 3.35) is a crucial issue, as it requires investors to have sufficient capital to cover potential losses or margin calls, which can be financially demanding. High speculation (ranked seventh with a mean of 3.02) underscores the risk inherent in derivatives, where investments can be highly speculative and volatile, potentially leading to substantial gains or losses. Lastly, the significant issue of huge volatility (ranked eighth with a mean of 2.93) emphasizes the unpredictable nature of derivative prices, exposing investors to sudden and severe market fluctuations.

4.5 ASSESSMENT OF ATTITUDE, PERSONALITY TRAITS, BEHAVIOURAL BIASES, FINANCIAL LITERACY AND SELF – EFFICACY

The assessment of the factors of attitude personality traits, financial literacy, behavioural biases and self–efficacy is very important for a deep understanding of the trading behaviour of retail investors in derivative markets. Together, assessing these factors provides an insight into individuals financial behaviour enabling tailored interventions and strategies to improve financial well-being.

Table 4.34 exhibits the overall mean values for each category. In terms of Openness, respondents generally agreed with the statement "I am very careful in planning and selecting a suitable investment" with a mean of 3.45, showing a cautious approach towards investments. For Conscientiousness, the mean score is 3.16, with respondents identifying more as listeners than talkers, indicating a preference for careful consideration and attention to detail. Extraversion is characterized by a mean score of 3.12, suggesting a moderate preference for innovative products and a balanced attitude towards risk management. Agreeableness, with a mean of 3.20, reflects a tendency to trust received information and a moderate desire to reduce market participation barriers. Neuroticism has a mean of 3.05, indicating a level of dependence on financial advisors and a tendency to be affected by personal intuition and past losses. In terms of Risk, the mean is 3.35, highlighting a tendency towards high-risk investments and the perception of risk as an opportunity. For Money, the mean score is 3.16, showing a recognition of money as crucial for opportunities and investment, though it also causes anxiety. Herding Behaviour has a mean of 3.28, reflecting reliance on the opinions of others and market movements.

Table 4.34 Assessment of Attitude, Personality Traits, Behavioural Biases, Financial Literacy and Self – Efficacy

Variables	Statements	1	2	3	4	5	Mean	Overall mean
		SDA	DA	N	A	SA		
Openness	I am very careful in planning and selecting a suitable investment	0.3%	4.3%	24.9%	49.9%	21.3%	3.86	3.45
	Derivatives need low investment which influenced me to invest	2.9%	9.4%	21.4%	49.9%	17.4%	3.69	
	Wish to get suggestions for investment decisions from professionals	9.3%	20.9%	29.3%	27.5%	14.7%	3.19	
	I strongly believe that we can make good returns only when we take some risks	12.0%	15.8%	32.1%	31.8%	10.3%	3.15	
	I try to make some return immediately after any losses in derivative market	8.2%	15.6%	30.5%	28.2%	19.2%	3.36	
Conscientiousness	I tend to be more of a listener than a speaker.	9.6%	22.4%	31.8%	23.7%	14.2%	3.12	3.16
	I am highly attentive to details and capable of making decisionsindependently.	13.1%	14.0%	33.3%	26.0%	15.8%	3.20	
	My theoretical knowledge supports me to trade	14.6%	13.0%	31.0%	25.2%	18.7%	3.23	
	I analyse my past experience before trading	18.4%	18.6%	30.0%	20.1%	15.8%	3.00	
	I am capable to invest in various financial instruments to make profits in derivative market	8.7%	14.8%	35.1%	28.2%	14.7%	3.27	
Extraversion	I prefer to invest in innovative products	18.1%	17.6%	20.4%	30.5%	16.3%	3.13	3.12
	It is difficult to manage the risk but I'm quite okay with the returns	10.5%	17.1%	33.8%	21.9%	18.4%	3.23	
	I feel the practical experience is enough to invest in Derivative Market	9.9%	19.4%	30.5%	27.5%	14.5%	3.19	
	Derivative contracts are flexible enough to allow us to deal with a variety of trades	17.5%	20.7%	24.9%	19.6%	20.3%	3.08	
	Feel comfortable making my own investment decision and not following others	16.9%	23.0%	27.0%	21.9%	13.9%	2.96	
Agreeableness	I generally place trust in the information I receive.	14.6%	14.8%	28.0%	25.7%	19.5%	3.23	3.20
	Heavy lot size should be reduced to increase participation in the Market	13.1%	19.1%	26.5%	24.7%	18.7%	3.19	
	I do not keep any exposure limit when trading in the derivative market	14.0%	18.6%	30.3%	23.2%	16.3%	3.12	

Contd.,

Table 4.34 Assessment of Attitude, Personality Traits, Behavioural Biases, Financial Literacy and Self – Efficacy

Variables	Statements	1	2	3	4	5	Mean	Overall mean
		SDA	DA	N	A	SA		
	Always decide to take a risk based on the underlying exposure in derivative Market	12.2%	17.9%	26.7%	27.0%	18.4%	3.23	
	Decide based on liquidity which gives more information and profit	12.2%	19.6%	26.5%	23.9%	19.7%	3.22	
Neuroticism	I rely entirely on my financial advisor and have little knowledge of financial matters myself.	11.1%	22.2%	25.7%	20.9%	22.4%	3.23	3.05
	I tend to be careless and unorganized	15.7%	23.7%	23.4%	24.7%	14.7%	3.03	
	I tend to postpone my financial decisions if I face any loss	15.5%	25.8%	26.5%	19.3%	15.5%	2.97	
	My decision of buying/sell greatly relies on my personal intuition	12.5%	27.6%	22.6%	29.3%	10.0%	2.99	
	I become risk averse after prior loss	12.8%	28.6%	21.1%	26.0%	13.7%	3.02	
Risk	I view myself as someone who is willing to take on high risks.	4.7%	9.7%	23.9%	46.1%	16.6%	3.61	3.35
	I consider risk in investment as an opportunity	19.0%	18.9%	13.2%	40.7%	10.8%	3.11	
	In the investment process, I wouldn't mind losing some money	3.2%	5.4%	29.5%	47.1%	15.8%	3.67	
	It is a risky decision to invest in Derivative Market	6.4%	13.8%	18.8%	41.7%	20.8%	3.57	
	I am sure that derivative is the right choice of investment	10.2%	20.7%	29.0%	27.7%	14.2%	3.17	
	Derivatives have an uncertain future	11.7%	12.5%	36.1%	31.0%	10.5%	3.19	
	I think investing in Derivatives is highly risky	12.0%	15.6%	25.2%	34.4%	14.7%	3.27	
	It is important to avoid monetary losses	10.8%	16.8%	38.9%	22.4%	12.6%	3.19	
Money	Money is the most important tool for all my hopes	10.2%	17.9%	33.3%	20.1%	20.5%	3.24	3.16
	Good investment depends on how much money you have	13.1%	17.1%	31.3%	24.4%	16.3%	3.16	
	Having a lot of money means having lots of opportunities	7.9%	18.4%	33.6%	23.4%	18.4%	3.27	
	I am much more of a saver than a spender	9.6%	23.5%	30.3%	17.6%	21.1%	3.18	
	I enjoy investing in innovative products to impress others	12.0%	27.6%	24.9%	22.6%	15.0%	3.03	
	Even thinking about my money makes me anxious	12.5%	24.7%	24.7%	26.2%	13.9%	3.07	

Contd.

Table 4.34 Assessment of Attitude, Personality Traits, Behavioural Biases, Financial Literacy and Self – Efficacy

Variables	Statements	1	2	3	4	5	Mean	Overall mean
		SDA	DA	N	A	SA		
Herding Behaviour	The size of my investment is influenced by the opinions of others, such as brokers or financial consultants.	6.1%	15.1%	31.6%	34.9%	13.7%	3.36	3.28
	I trust the information provided by friends, relatives, and colleagues.	4.4%	16.8%	28.2%	33.6%	18.2%	3.44	
	I monitor market trends when making decisions to buy or sell stocks.	5.2%	22.4%	21.6%	39.2%	12.6%	3.32	
	Other's investor's recommendations of investment affect my purchase	11.4%	23.0%	28.8%	24.9%	13.9%	3.09	
Heuristics	I prefer investing in stocks I am familiar with.	9.0%	31.6%	23.9%	26.7%	10.3%	2.99	3.20
	I am more influenced by past winners than by past losers when making investment decisions.	8.7%	25.5%	26.2%	27.5%	13.7%	3.13	
	I frequently overestimate the losses	12.5%	26.3%	23.9%	25.2%	14.2%	3.05	
	I stick on to the expert's estimation	3.2%	13.3%	27.7%	40.5%	16.3%	3.53	
	I adjust my portfolio based on expert advice.	6.4%	13.0%	32.1%	34.9%	14.7%	3.40	
	I tend to be slow in updating my beliefs in light of new information.	7.6%	21.7%	35.4%	26.5%	10.3%	3.11	
Overconfidence	I am confident in my ability to evaluate the securities in my investment portfolio.	10.2%	17.3%	36.1%	26.7%	11.3%	3.13	3.13
	My past investment decisions were primarily based on specific investment skills	9.9%	15.6%	32.3%	30.5%	13.4%	3.24	
	I believe I have a better ability to predict future prices.	8.2%	22.4%	33.3%	22.9%	14.7%	3.15	
	I feel that my investment decisions often lead to higher-than-average returns in the market.	8.2%	20.9%	34.9%	24.7%	12.9%	3.15	
	I am confident that my skills and knowledge of the market enable me to outperform it.	12.2%	19.9%	29.8%	21.9%	18.4%	3.16	
Mental Accounting	I always allocate my income into several accounts	13.4%	29.8%	24.4%	19.3%	15.3%	2.96	2.99
	I always treat my monthly income and bonuses differently	11.1%	30.4%	24.4%	21.6%	14.5%	3.00	

Contd.

Table 4.34 Assessment of Attitude, Personality Traits, Behavioural Biases, Financial Literacy and Self – Efficacy

Variables	Statements	1	2	3	4	5	Mean	Overall mean
		SDA	DA	N	A	SA		
	I always calculate the costs associated with my monthly income.	12.5%	29.3%	20.9%	24.4%	15.0%	3.02	
	I don't always calculate the costs associated with my bonus income.	11.7%	31.4%	23.4%	19.1%	16.6%	2.99	
Loss Aversion	My past loss experiences significantly influence my risk-taking ability.	11.4%	29.6%	22.4%	23.7%	15.0%	3.03	2.96
	I tend to avoid selling shares that have decreased in value.	12.5%	30.1%	25.2%	20.4%	13.7%	2.96	
	I typically sell shares that have increased in value.	15.7%	26.3%	26.5%	23.2%	10.8%	2.90	
Financial Literacy	I have complete knowledge of the Derivative Market	3.5%	10.5%	34.4%	37.4%	15.3%	3.50	3.32
	I check the financial statements of the company for the past 5 years before investing	5.5%	12.0%	26.7%	41.2%	15.8%	3.50	
	Considering most familiar sectors while investing	6.1%	18.9%	29.8%	28.5%	18.2%	3.34	
	I know how to monitor the fluctuation in the market	12.0%	12.0%	37.9%	22.9%	17.4%	3.24	
	I am aware of the prices of the particular stock in a day	17.8%	17.3%	32.6%	18.3%	16.8%	3.03	
Self - Efficacy	I always stick to my spending plan when unexpected expenses arise	11.7%	20.9%	32.1%	22.4%	15.0%	3.10	3.10
	I try to make progress toward my financial goals though it is challenging	15.7%	16.8%	33.3%	22.6%	13.7%	3.06	
	I quickly try to figure out a solution at hard times	12.2%	19.4%	29.0%	26.7%	14.7%	3.15	
	When unexpected expenses occur, I usually have to use credit	14.6%	21.7%	30.3%	22.1%	13.7%	3.02	
	I have confidence in my ability to manage my finances	13.4%	18.1%	31.3%	21.1%	18.4%	3.15	
	I try to overcome if I am running out of money due to losses	13.1%	19.9%	28.8%	22.9%	17.6%	3.14	
Intention to Invest	Derivatives are definitely one of my choices	9.9%	23.7%	25.2%	26.2%	16.8%	3.18	3.15
	I would refer derivatives stocks to others	11.1%	24.2%	28.0%	25.7%	12.9%	3.07	
	I would talk positively about derivatives to others	8.2%	23.2%	27.0%	25.7%	17.6%	3.22	
	I will invest in derivatives frequently	10.2%	22.7%	26.7%	26.0%	16.3%	3.17	
	I believe that derivative is an attractive investment channel	9.9%	25.0%	27.7%	24.9%	14.2%	3.10	

Source: Computed Data

Heuristics, with a mean of 3.20, indicate a preference for familiar stocks and expert advice. Overconfidence, at a mean of 3.13, shows moderate self-assurance in evaluating securities and predicting market trends. Mental Accounting has a lower mean of 2.99, suggesting less consistency in income allocation and cost calculation. Loss Aversion, with a mean of 2.96, reveals that past losses significantly affect risk-taking abilities. Financial Literacy has a mean of 3.32, indicating a reasonable level of knowledge about the derivative market. Self-Efficacy, with a mean of 3.10, shows confidence in financial management despite challenges. Finally, Intention to Invest, at a mean of 3.15, reflects a positive inclination towards investing in derivatives and recommending them to others.

4.5 PERSONALITY TRAITS OF DERIVATIVE RETAIL INVESTORS

Evaluating personality traits is essential to comprehending a person's persistent thinking, emotion and behaviour patterns. Key personality traits including those included in Big Five model (Conscientiousness, Extraversion, Agreeableness, Openness and Neuroticism) provide an extensive framework for this evaluation. Strong performance and success are predicted by high conscientiousness which is frequently linked to dependability and planning. Social interaction can be improved by extraversion and agreeableness however neuroticism could indicate a tendency towards anxiety and emotional stability, which can have an impact on mental health and stress management.

4.5.1 Analysis of the Dimensions of Personality Traits

Confirmatory factor analysis is applied in the statistical process to identify the areas through which investment decisions are maximally influenced. The sample size has a quantitative impact on the applicability of the factor analysis. In this context, Kaiser-Maier-Olkin (KMO) sample adequacy measurement is still another technique useful in showing the fitness of data for factor analysis. (Shrestha, N. 2021). Its range KMO statistics from 0 to 1. However, Kaiser (1974) recommends that any KMO statistic above 0.5 is considered acceptable. According to Field (2000), scores between 0.5 and 0.7 are average, 0.7 and 0.8 are acceptable, and 0.8 and 0.9 are exceptional. The sample used for performing the factor analysis is statistically significant for this study since the value of KMO for the total matrix is 0.828.

Table 4.35 Dimension of Personality Traits

Traits	Statements	Openness	Conscientiousness	Extraversion	Agreeableness	Neuroticism
Openness	I am very careful in planning and selecting a suitable investment	**0.803**	0.451	0.265	0.172	0.092
	Derivatives need low investment which influenced me to invest	**0.527**	0.329	0.215	0.131	0.149
	Wish to get suggestions for investment decisions from professionals	**0.717**	0.497	0.294	0.307	0.252
	I strongly believe that we can make good returns only when we take some risks	**0.585**	0.417	0.381	-0.079	0.176
	I try to make some return immediately after any losses in the derivative market	**0.673**	0.487	0.617	0.237	0.396
Conscientiousness	I tend to be more of a listener than a speaker.	0.481	**0.724**	0.604	0.117	0.212
	I am highly attentive to details and capable of making decisions independently.	0.421	**0.668**	0.299	0.063	0.238
	My theoretical knowledge supports me to trade	0.469	**0.826**	0.366	0.389	0.111
	I analyse my experience before trading	0.554	**0.819**	0.275	0.343	0.186
	I am capable of investing in various financial instruments to make profits in the derivative market	0.447	**0.489**	0.109	0.295	0.312
Extraversion	I prefer to invest in innovative products	0.271	0.359	**0.383**	0.107	0.313
	It is difficult to manage the risk but I'm quite okay with the returns	0.433	0.371	**0.887**	0.188	0.239
	I feel the practical experience is enough to invest in Derivative Market	0.309	0.441	**0.838**	0.132	0.196
	Derivative contracts are flexible enough to allow us to deal with a variety of trades	0.420	0.480	**0.587**	0.286	

Cont.

Table 4.35 Dimension of Personality Traits

Traits	Statements	Openness	Conscientiousness	Extraversion	Agreeableness	Neuroticism
	Feel comfortable making my own investment decision and not following others	0.371	0.437	**0.433**	0.344	0.270
Agreeableness	I generally place trust in the information I receive.	0.230	0.303	0.193	**0.665**	0.331
	Heavy lot size should be reduced to increase participation in the Market	0.257	0.253	0.108	**0.719**	0.192
	I do not keep any exposure limit when trading in the derivative market	0.110	0.039	-0.017	**0.716**	0.319
	Always decide to take a risk based on the underlying exposure in derivative Market	0.172	0.271	0.128	**0.758**	0.484
	Decide based on liquidity which gives more information and profit	0.091	0.297	0.351	**0.782**	0.438
Neuroticism	I rely entirely on my financial advisor and have little knowledge of financial matters myself.	0.174	0.186	0.281	0.387	**0.929**
	I tend to be careless and unorganized	0.225	0.343	0.277	0.457	**0.794**
	I tend to postpone my financial decisions if I face any loss	0.114	0.290	0.301	0.327	**0.410**
	My decision to buy/sell greatly relies on my intuition	0.320	0.142	0.104	0.413	**0.472**
	I become risk averse after prior loss	0.077	0.210	0.083	0.251	**0.507**

Source: Computed Data

In Table 4.35 CFA was employed to assess the validity of a model that posits five personality traits—Openness, Conscientiousness, Extraversion, Agreeableness, and Neuroticism—as key determinants in financial decision-making. Each trait was measured by specific scale items reflecting behaviours and attitudes towards investment in the derivative market. The loadings (values) represent the degree to which each item is associated with its respective trait.

For Openness, items like careful planning in investments and seeking professional suggestions loaded strongly (0.803 and 0.717 respectively), indicating these behaviours are indicative of an open personality in financial contexts. Conscientiousness had high loadings on being a listener (0.724) and paying attention to details (0.668), showing that conscientious individuals are meticulous and prefer structured decision-making processes. Extraversion was strongly associated with comfort in managing risk for returns (0.887) and relying on practical experience (0.838), suggesting extroverts are more hands-on and comfortable with market fluctuations. Agreeableness, indicated by trusting received information (0.665) and deciding based on liquidity (0.782), shows a tendency to consider external inputs and market conditions. Neuroticism had significant loadings on dependency on financial advisors (0.929) and being unorganized (0.794), reflecting traits of uncertainty and a lack of self-reliance.

Overall, CFA results validate that each scale item appropriately measures the intended personality trait, reinforcing the model's structure and providing insights into how different personality traits influence investment behaviours in the derivative market.

4.5.2 Impact of Personality Traits on the Trading Behaviour of Retail Investors

As per the proposed model, the 'Trading Behaviour' is taken as the output variable and the covariates are 'Openness', 'Conscientiousness', 'Extraversion', 'Agreeableness' and 'Neuroticism''

Multiple Regression Analysis results show a model having a good fit with an R-value of 0.843 with an F-value of 143.87. This evidence implies that the model significantly explains the changes in the dependent variable (p value< 0.01). The table lists five predictor variables (traits): Openness, Conscientiousness, Extraversion, Agreeableness, and Neuroticism, all showing statistically significant relationships with the dependent variable (P-values < 0.01).

H_a – There is a significant difference between Personality Traits and Trading Behaviour

Table 4.36 Influence of Personality Traits on the Trading Behaviour

Variable code	R-Value: 0.843			F value: 143.87 p Value: < 0.01			
	Coefficients						
	Traits	Unstandardized Coefficients		Standardized Coefficients	t value	p value	Collinearity Statistics	
		B	Std. Error	Beta			Tolerance	VIF
	(Constant)	0.165	0.110		1.500	0.067		
X_1	Openness	0.301	0.115	0.435	2.621	0.005	0.964	1.038
X_2	Conscientiousness	0.199	0.058	0.369	3.402	0.000	0.937	1.067
X_3	Extraversion	0.435	0.105	0.355	4.143	0.000	0.918	1.089
X_4	Agreeableness	0.386	0.125	0.356	3.088	0.001	0.913	1.096
X_5	Neuroticism	0.424	0.121	0.349	3.518	0.000	0.958	1.043

Source: Computed Data

The unstandardized coefficients (B) indicate the strength and direction of these relationships. Openness (B = 0.301), Conscientiousness (B = 0.199), Extraversion (B = 0.435), Agreeableness (B = 0.386), and Neuroticism (B = 0.424) all positively contribute to the dependent variable. Standardized coefficients (Beta) suggest that Openness (Beta = 0.435), Conscientiousness (Beta = 0.369), Extraversion (Beta = 0.355), Agreeableness (Beta = 0.356), and Neuroticism (Beta = 0.349) have substantial impacts, with Extraversion showing the highest standardized effect. The t-values support the significance of these predictors. Collinearity statistics show low multicollinearity, with the high tolerance values together with the VIF values that are always less than 1.1 indicating that there are no high correlations among the predictors, thereby fostering reliability in the model. The formulated equation is

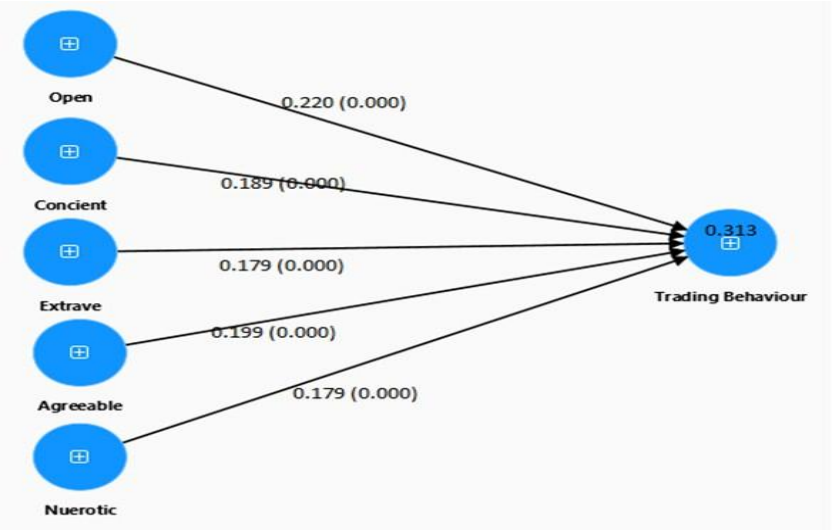
$$Y = 0.165 + 0.301_{x1} + 0.199_{x2} + 0.435_{x3} + 0.386_{x4} + 0.424_{x5}$$

Table 4.37 Effect of Personality Traits on Trading Behaviour of Retail Investors

		B	Sample mean	Std Dev	T	p value	Result
Openness	→ Trading behaviour	0.220	0.310	0.030	7.216	0.000	Significant
Consciousness	→ Trading behaviour	0.189	0.190	0.025	7.601	0.000	Significant
Extraversion	→ Trading behaviour	0.179	0.446	0.035	5.134	0.000	Significant
Agreeableness	→ Trading behaviour	0.199	0.366	0.030	6.633	0.000	Significant
Neuroticism	→ Trading behaviour	0.179	0.419	0.022	7.960	0.000	Significant

Source: Computed Data

Table 4.37 provides a detailed analysis of the relationships between various personality traits and their impact on financial literacy, as well as the subsequent effects on satisfaction, intention to invest, and trading behaviour. Each predictor variable significantly influences financial literacy, as indicated by their respective coefficients (B), sample means, standard deviations, T-values, and P-values. Specifically, Openness (B = 0.220, T = 5.134), Conscientiousness (B = 0.189, T = 7.601), Extraversion (B = 0.179, T = 3.738), Agreeableness (B = 0.199, T = 6.633), and Neuroticism (B = 0.179, T = 7.960) all have significant positive impacts on trading behaviour. Each of these relationships is significant, demonstrating a clear, positive progression from personality traits to trading behaviour.



Source: Computed Data

Figure 4.2 Influence of Personality Traits on Trading Behaviour

4.6 ATTITUDE OF DERIVATIVE RETAIL INVESTORS

The assessment of attitude involves evaluating an individual's predispositions and tendencies towards particular ideas, people, objects, or situations. This assessment typically considers cognitive, affective, and behavioural components, which together form the overall attitude. Cognitive aspects pertain to beliefs and knowledge, affective elements involve emotions and feelings, and behavioural components related to how these attitudes influence actions.

4.6.1 Analysis of the Dimensions of Attitude

The CFA was employed to discover the underlying factors with the largest influence over investment decisions. From this, it becomes clear whether factor analysis is acceptable depending on the level of sample sufficiency. In this regard, Kaiser-Maier-Olkin's (KMO) sample adequacy measurement is yet another helpful technique to demonstrate the suitability

of data for factor analysis. (Shrestha, N. 2021). The minimum range of the KMO statistic report ranges from 0 to 1. The higher values above 0.5 have been taken into account as acceptable by Kaiser (1974). According to Field (2000), scores between 0.5 and 0.7 are average, 0.7 and 0.8 are acceptable, and 0.8 and 0.9 are exceptional. The sample used to conduct the factor analysis is statistically significant in this study since the value KMO for the overall matrix is 0.828.

Table 4.38 Dimensions of Attitude

Attitude	Statements	Risk Attitude	Money Attitude
Risk Attitude	I view myself as someone willing to take on high risks.	**0.449**	0.255
	I consider risk in investment as an opportunity	**0.598**	0.563
	In the investment process, I wouldn't mind losing some money	**0.608**	0.200
	It is a risky decision to invest in Derivative Market	**0.739**	0.238
	I am sure that a derivative is the right choice of investment	**0.715**	0.202
	Derivatives have an uncertain future	**0.737**	0.289
	I think investing in Derivatives is highly risky	**0.439**	0.463
	It is important to avoid monetary losses	**0.347**	0.313
Money Attitude	Money is the most important tool for all my hopes	0.267	**0.475**
	Good investment depends on how much money you have	0.293	**0.676**
	Having a lot of money means having lots of opportunities	0.412	**0.786**
	I am much more of a saver than a spender	0.416	**0.802**
	I enjoy investing in innovative products to impress others	0.369	**0.694**
	Even thinking about my money makes me anxious	0.357	**0.789**

Source: Computed Data

Table 4.38 assesses the alignment of specific items with the constructs of Risk Attitude and Money Attitude through CFA. For Risk Attitude, items like "It is a risky decision to invest in a Derivative Market" (0.739) and "Derivatives have an uncertain future" (0.737) exhibit high factor loadings, indicating strong associations with the risk attitude construct. Conversely, items such as "I consider myself a high-risk taker" (0.449) and "I think investing in Derivatives is highly risky" (0.439) show moderate loadings. For Money Attitude, items such as "I am much more of a saver than a spender" (0.802) and "Even thinking about my money makes me anxious" (0.789) display high factor loadings, demonstrating a strong link with the money attitude construct. Lower loadings, like "Money is the most important tool for all my hopes" (0.475), suggest a weaker association. Overall, the CFA results indicate which items effectively

represent their respective constructs, aiding in the evaluation of the measurement model's validity.

4.6.2 Impact of Attitude on the Trading Behaviour of Retail Investors

The Trading Behaviour is the outcome variable in the suggested model, and "Risk" and "Money" are the covariates.

H_a – There is a significant difference between Attitude and Trading Behaviour

Table 4.39 Influence of Attitude on the Trading Behaviour

Variable code	R-Value: 0.633					F value: 100.87 p Value: <0.01	
	Coefficients					Collinearity Statistics	
	Traits	Unstandardized Coefficients	Standardized Coefficients	t value	p value		
		B	Std. Error	Beta		Tolerance	VIF
	(Constant)	0.143	0.096		1.488	0.069	
X_1	Risk	0.360	0.058	0.228	6.155	0.000	0.910	1.099
X_2	Money	0.365	0.015	0.374	24.426	0.000	0.990	1.010

Source: Computed Data

Table 4.39 provides a detailed analysis of the relationship between the dependent variable (Variable code) and two independent variables (Risk and Money attitudes). An R-value of 0.633 indicates that the relationship in correlation between the independent variable and the dependent variable is moderate to strong. The F value of 100.87, with a p value of less than 0.01, demonstrates that the regression model is statistically significant, meaning that the predictors collectively have a significant impact on the dependent variable. Examining the coefficients, the constant (0.143) represents the expected value of the dependent variable when both Risk and Money attitudes are zero. For the Risk attitude (X_1), the unstandardized coefficient (B) of 0.360 signifies that for each unit increase in Risk attitude, the dependent variable increases by 0.360 units, holding the Money attitude constant. The standardized coefficient (Beta) of 0.228 shows the relative impact of Risk attitude compared to other predictors. The significant t-value (6.155) and p value (0.000) indicate that Risk attitude is a significant predictor.

Similarly, for the Money attitude (X_2), the unstandardized coefficient (B) of 0.365 implies that each unit increase in Money attitude results in a 0.365 unit increase in the dependent variable, holding the Risk attitude constant. The standardized coefficient (Beta) of 0.374 highlights the substantial effect of Money attitude. The highly significant t-value (24.426) and p-value (0.000) confirm its importance as a predictor. Collinearity statistics show tolerance

values close to 1 (0.910 for Risk and 0.990 for Money) and VIF values near 1 (1.099 for Risk and 1.010 for Money), indicating low multicollinearity and suggesting that both predictors contribute uniquely to the model. Overall, this analysis reveals that both Risk and Money attitudes are significant and independent predictors of the dependent variable, providing a robust model for understanding their influence. The formulated equation is

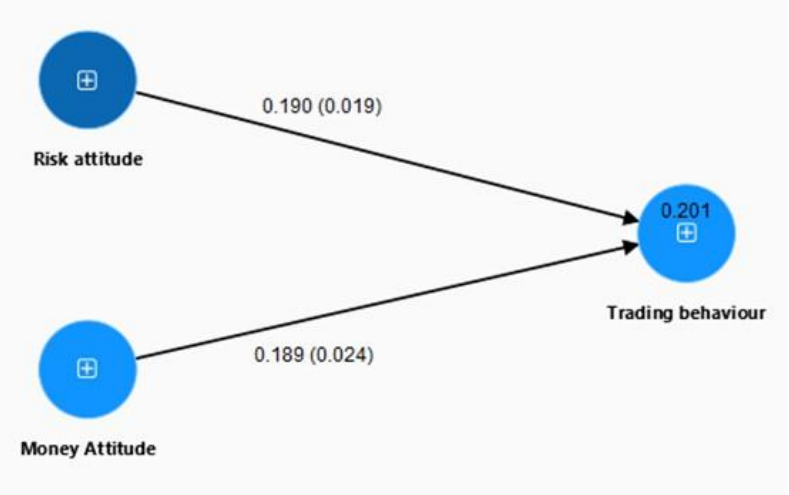
$$\mathbf{Y = 0.143 + 0.360_{x1} + 0.365_{x2}}$$

Table 4.40 Effect of Attitude on Trading Behaviour of Retail Investors

		B	Sample mean	Std Dev	T	p value	Result
Risk attitude	→ Trading Behaviour	0.190	0.199	0.091	2.088	0.019	Significant
Money attitude	→ Trading Behaviour	0.189	0.194	0.095	1.992	0.024	Significant

Source: Computed Data

Table 4.40 presents a path analysis examining the relationships between various attitudes and behaviours, highlighting their significance and impact on one another. The relationship shows that Risk attitude significantly influences Trading Behaviour, B of 0.190 and a "t-value" of 2.088 showing the significance of this relationship. Similarly, Money attitude also significantly affects Trading Behaviour, coefficient of 0.189 and a "t-value" of 1.992 reinforcing the significance of this link. Overall, the analysis demonstrates that both Risk and Money attitudes are crucial predictors of Trading Behaviour.



Source: Computed Data

Figure 4.3 Influence of Attitude on Trading Behaviour

4.7 BEHAVIOURAL BIASES OF DERIVATIVE RETAIL INVESTORS

Assessing behavioural biases involves examining the cognitive distortions and emotional factors that influence individuals' decision-making processes. These biases, such as overconfidence, anchoring, loss aversion, and herd behaviour, often lead to irrational choices that deviate from logical reasoning and optimal outcomes.

From Table 4.41 CFA provides insights into the relationships between various behavioural biases and their corresponding scale items. The component loadings are reported in the table; the relationship between each scale item and the underlying bias it intends to measure. Herding behaviour items show high loadings with values such as 0.768 and 0.759, suggesting strong associations with this bias. Heuristics items also demonstrate significant loadings, particularly with "I modify my portfolio on the expert's advice" at 0.804, indicating reliance on simplified decision rules. Overconfidence is evident in high loadings like 0.799 for the item related to specific investment skills. Mental accounting items, such as treating monthly income and bonuses differently, show substantial loadings, with one item reaching 0.867. Loss aversion is notably strong, with prior loss experience affecting risk-taking ability at a loading of 0.905. The cross-loadings, though present, are generally lower, indicating that while some items relate to multiple biases, their primary associations are clear. These CFA results effectively validate the scale items, confirming that they are robust indicators of their respective behavioural biases.

H_a – There is a significant difference between Behavioural Biases and Trading Behaviour

Table 4.41 Dimensions of Behavioural Biases

Behavioural Biases	Statements	Herding Behaviour	Heuristics	Overconfidence	Mental Accounting	Loss Aversion
Herding Behaviour	The size of my investment is influenced by the opinions of others, such as brokers or financial consultants.	**0.657**	0.357	0.375	0.266	0.131
	I trust the information provided by friends, relatives, and colleagues.	**0.709**	0.500	0.475	0.408	0.322
	I monitor market trends when making decisions to buy or sell stocks.	**0.680**	0.423	0.519	0.335	0.318
	Other's investor's recommendations of investment affect my purchase	**0.759**	0.717	0.496	0.491	0.564
	I prefer investing in stocks I am familiar with.	**0.768**	0.622	0.396	0.496	0.486
Heuristics	I am more influenced by past winners than by past losers when making investment decisions.	0.558	**0.698**	0.367	0.327	0.456
	I frequently overestimate the losses	0.568	**0.720**	0.380	0.418	0.528
	I stick on to the expert's estimation	0.563	**0.775**	0.491	0.482	0.484
	I adjust my portfolio based on expert advice.	0.538	**0.720**	0.366	0.460	0.313
	I tend to be slow in updating my beliefs in light of new information.	0.567	**0.804**	0.655	0.593	0.582
	The size of my investment is influenced by the opinions of others, such as brokers or financial consultants.	0.480	**0.697**	0.599	0.523	0.479
Overconfidence	I am confident in my ability to evaluate the securities in my investment portfolio.	0.552	0.575	**0.791**	0.425	0.450
	My past investment decisions were primarily based on specific investment skills	0.457	0.518	**0.799**	0.447	0.528

Cont.

Table 4.41 Dimensions of Behavioural Biases

Behavioural Biases	Statements	Herding Behaviour	Heuristics	Overconfidence	Mental Accounting	Loss Aversion
	I believe I have a better ability to predict future prices.	0.432	0.433	**0.770**	0.427	0.391
	I feel that my investment decisions often lead to higher-than-average returns in the market.	0.439	0.384	**0.722**	0.398	0.325
	I am confident that my skills and knowledge of the market enable me to outperform it.	0.471	0.512	**0.622**	0.586	0.403
Mental Accounting	I always allocate my income into several accounts	0.535	0.619	0.486	**0.801**	0.570
	I always treat my monthly income and bonuses differently	0.431	0.561	0.476	**0.867**	0.697
	I always calculate the costs associated with my monthly income.	0.385	0.423	0.513	**0.818**	0.605
	I don't always calculate the costs associated with my bonus income.	0.433	0.386	0.430	**0.639**	0.462
Loss Aversion	My past loss experiences significantly influence my risk-taking ability.	0.489	0.615	0.613	0.690	**0.905**
	I tend to avoid selling shares that have decreased in value.	0.417	0.497	0.446	0.676	**0.842**
	I typically sell shares that have increased in value.	0.445	0.565	0.408	0.585	**0.856**

Source: Computed Data

H_a – There is a significant difference between Behavioural Biases and Trading Behaviour

Table 4.42 Influence of Behavioural Biases on the Trading Behaviour

Variable code	R-Value: 0.81			F value: 90.89 p Value: <0.01			
	Coefficients					Collinearity Statistics	
	Traits	Unstandardized Coefficients	Standardized Coefficients	t value	p value		
		B	Std. Error	Beta		Tolerance	VIF
	(Constant)	0.121	0.125		0.968		
X_1	Herding Behaviour	0.337	0.015	0.338	22.580	0.000	0.944	1.060
X_2	Heuristics	0.295	0.016	0.300	19.021	0.000	0.960	1.042
X_3	Overconfidence	0.296	0.016	0.294	18.135	0.000	0.956	1.046
X_4	Mental Accounting	0.293	0.015	0.263	19.045	0.000	0.900	1.111
X_5	Loss Aversion	0.289	0.015	0.257	18.736	0.000	0.942	1.061

Source: Computed Data

The multiple regression analysis examines the relationship between various behavioural biases and a dependent variable, with strong statistical significance. The model demonstrates a high explanatory power, evidenced by an R-value of 0.813 and an F-value of 90.89, indicating the predictors collectively explain a substantial portion of the variance in the dependent variable. The p-value is less than 0.01, affirming the model's overall significance. Individual coefficients show that all biases significantly contribute to the dependent variable, with p-values less than 0.01. Herding behaviour (X_1) has a standardized coefficient (Beta) of 0.338, the highest among the predictors, indicating its strong influence. Heuristics (X_2) and overconfidence (X_3) follow closely, with Betas of 0.300 and 0.294, respectively. Mental accounting (X_4) and loss aversion (X_5) also have significant yet slightly lower Betas of 0.263 and 0.257, respectively.

Unstandardized coefficients (B) indicate the expected change in the dependent variable for each unit change in the predictor. Herding behaviour, for example, has a B of 0.337, suggesting a notable impact. Collinearity statistics reveal low Variance Inflation Factors (VIFs) ranging from 1.042 to 1.111, and high tolerances, indicating minimal multicollinearity and reinforcing the reliability of these predictors in the model. Overall, the regression analysis confirms that all five behavioural biases are significant predictors of the dependent variable, with herding behaviour being the most influential, and the model exhibits strong explanatory power with no multicollinearity issues. The formulated equation is

$$\mathbf{Y = 0.121 + 0.337_{x1} + 0.295_{x2} + 0.296_{x3} + 0.293_{x4} + 0.289_{x5}}$$

Table 4.43 Effect of Behavioural Biases on Trading Behaviour of Retail Investors

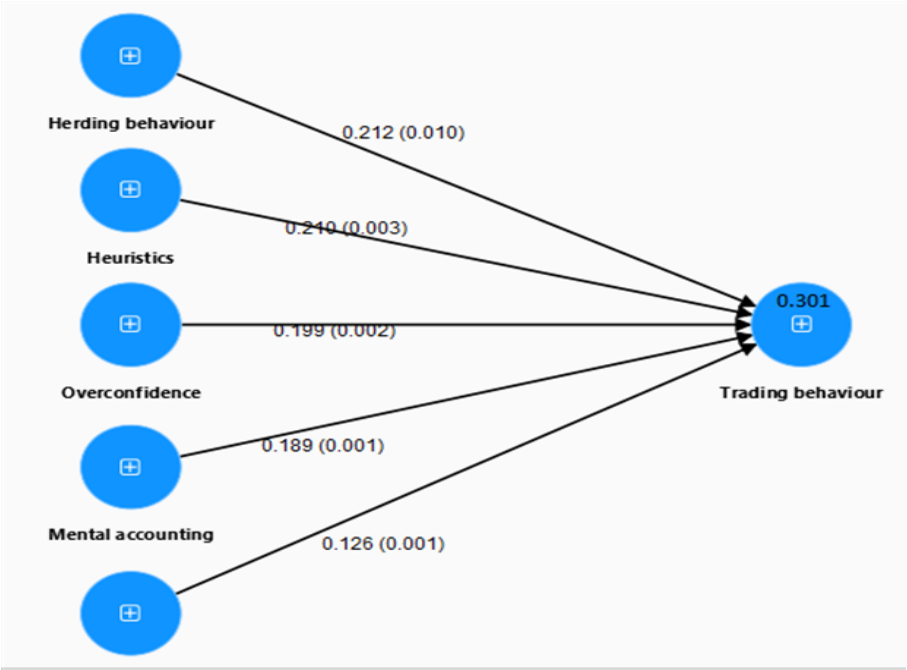
		B	Sample mean	Std Dev	T	p value	Result
Herding Behaviour	→ Trading behaviour	0.212	0.215	0.091	2.330	0.010	Significant
Heuristics	→ Trading behaviour	0.210	0.219	0.075	2.782	0.003	Significant
Overconfidence	→ Trading behaviour	0.199	0.206	0.070	2.843	0.002	Significant
Mental Accounting	→ Trading behaviour	0.189	0.192	0.058	3.259	0.001	Significant
Loss Aversion	→ Trading behaviour	0.126	0.131	0.040	3.161	0.001	Significant

Source: Computed Data

Table 4.43 presents results from a series of regression analyses examining the relationships between various behavioural biases (Herding Behaviour, Heuristics, Overconfidence, Mental Accounting, Loss Aversion) and their impact on different subsequent outcomes (Satisfaction, Intention to invest, and Trading behaviour). Each row corresponds to a specific regression model showing the unstandardized coefficient (B), sample mean, SD, t-value, p-value, and the significance result.

For each behavioural bias, the results indicate statistically significant relationships with Satisfaction, Intention to invest, and Trading behaviour. Herding Behaviour shows a significant positive impact on Trading Behaviour (B = 0.212, t = 2.330), suggesting that individuals influenced by herding tendencies tend to report higher satisfaction levels. Similar significant effects are observed for Heuristics (B = 0.210, t = 2.782), Overconfidence (B = 0.199, t = 2.843), Mental Accounting (B = 0.189, t = 3.259), and Loss Aversion (B = 0.126, t = 3.161) on Trading Behaviour.

These findings collectively suggest that behavioural biases strongly influence trading behaviours. The consistent significance across all variables underscores the robustness of these relationships in explaining investment-related decision-making processes.



Source: Computed Data

Figure 4.4 Influence of Behavioural Biases on Trading Behaviour

4.8 MULTIDIMENSIONAL BEHAVIOUR OF RETAIL INVESTORS IN THE DERIVATIVE MARKET

A complex interplay of factors influences the trading behaviour of retail investors in the derivative market. Key determinants include investor psychology, such as attitude, risk tolerance and biases, which often drive speculative and impulsive trading actions. Market knowledge and access to information play critical roles, with more informed investors typically making more calculated and strategic trades. A complex play of factors influences the trading behaviour of the retail investor in the derivative market. The multidimensional approach to measuring investor behaviour integrates psychological, financial, and social factors to capture the complexity and interconnectedness of decision-making processes. While each dimension—psychological (attitudes, behavioural biases, personality traits), financial (financial literacy, self-efficacy), and social (satisfaction, investment intentions, trading behaviour). A multidimensional study is essential because individual dimensions may not fully capture the complexity of investor behaviour. While each dimension has a significant standalone influence, their combined effects often interact in dynamic ways, offering deeper insights into decision-making. Thus, understanding investor behaviour holistically ensures more accurate predictions of their behaviour.

Table 4.44 Reliability and Validity Measures for Key Constructs of Trading Behaviour

Constructs	Cronbach Alpha	Composite reliability	AVE values
Agreeability	0.792	0.796	0.703
Loss Aversion	0.838	0.796	0.734
Herd Behaviour	0.788	0.808	0.709
Heuristics	0.783	0.808	0.822
Mental Accounting	0.783	0.793	0.815
Overconfidence	0.831	0.887	0.723
Conscientiousness	0.787	0.817	0.741
Extraversion	0.706	0.822	0.809
Financial literacy	0.726	0.757	0.747
Intention	0.744	0.788	0.862
Trading behaviour	0.856	0.841	0.966
Money	0.799	0.721	0.813
Neuroticism	0.782	0.827	0.736
Openness	0.753	0.973	0.761
Risk	0.758	0.852	0.713
Satisfaction	0.858	0.862	0.871
Self-Efficacy	0.717	0.759	0.705

Source: Computed Data

Table 4.44 presents the constructs along with their corresponding Cronbach's Alpha, Composite Reliability, and Average Variance Extracted (AVE) values, which are essential indicators in validating the measurement models used in research. Cronbach's Alpha is an internal consistency measure, which checks the reliability of a set of scale or test items. Higher values indicate greater reliability. Typically, values above 0.7 are considered acceptable. In the table, all the construct's values range above the acceptable value indicating the reliability. Trading Behaviour (0.856), Satisfaction (0.858), and Loss Aversion (0.838) exhibit high internal consistency, indicating that the items measuring these constructs reliably exhibit their intended concepts.

Composite Reliability measures the internal consistency of constructs in a structural equation model, similar to Cronbach's Alpha but accounting for the variability of item loadings. Generally, Composite Reliability values above 0.7 are considered acceptable, indicating that the items collectively represent the construct well. Notably, constructs such as Openness (0.973), Overconfidence (0.887), and Investor Behaviour (0.841) demonstrate high composite reliability, suggesting robust construct representation.

AVE captures how much variance a construct explains compared to variance due to measurement error. Higher values indicate that a construct explains more of the variance in its items. An AVE value above 0.5 is generally considered acceptable, indicating that the construct explains more than half of the variance in the observed variables. In this table, constructs like Intention (0.862), Satisfaction (0.871), and Mental Accounting (0.822) have high AVE values, indicating strong convergent validity.

Table 4.45 outlines the direct effects of various psychological and behavioural constructs on financial literacy, satisfaction, intention, and trading behaviour. Each row lists the path coefficient, the average of these coefficients across bootstrap samples, the SD of these coefficients, the T statistic, the P value, and the result of hypothesis testing.

Financial literacy, personality traits like Openness (O = 0.311, T = 5.868), Conscientiousness (O = 0.190, T = 2.754), Extraversion (O = 0.455, T = 9.891), Agreeableness (O = 0.355, T = 5.299), and Neuroticism (O = 0.414, T = 7.527) all have significant positive effects, as indicated by their high T statistics and low P values (all < 0.05), confirming their influence on financial literacy.

Regarding satisfaction, constructs such as Risk (O = 0.248, T = 2.725), Money (O = 0.212, T = 2.058), Herd Behaviour (O = 0.301, T = 5.281), Heuristics (O = 0.211, T = 2.221), Overconfidence (O = 0.244, T = 5.545), Mental Accounting (O = 0.238, T = 2.644), Loss Aversion (O = 0.213, T = 5.195), and Self-Efficacy (O = 0.210, T = 2.333) significantly impact satisfaction.

Satisfaction has a strong effect on intention (O = 0.775, T = 6.146), which in turn significantly predicts trading behaviour (O = 0.815, T = 6.736). These relationships are robust, with high T statistics and P values of 0.000, signifying high significance. Overall, the results confirm that all tested paths are significant, with P values below the 0.05 threshold, supporting the hypothesized relationships between these constructs. This indicates that personality traits significantly influence financial literacy, and various behavioural factors impact satisfaction, which subsequently affects intention and trading behaviour.

Table 4.45 Direct Effects of Psychological and Financial Dimensions on Social Dimensions

Direct effects	Original sample (O)	Sample mean (M)	SD(STDEV)	T statistics (|O/STDEV|)	P values	Result
Openness → Financial literacy	0.311	0.338	0.053	5.868	0.000	Accepted
Conscientiousness → Financial literacy	0.190	0.207	0.069	2.754	0.007	Accepted
Extraversion → Financial literacy	0.455	0.495	0.046	9.891	0.000	Accepted
Agreeability → Financial literacy	0.355	0.386	0.067	5.299	0.000	Accepted
Neuroticism → Financial literacy	0.414	0.450	0.055	7.527	0.000	Accepted
Risk → Satisfaction	0.248	0.270	0.091	2.725	0.008	Accepted
Money → Satisfaction	0.212	0.230	0.103	2.058	0.042	Accepted
Herd Behaviour → Satisfaction	0.301	0.327	0.057	5.281	0.000	Accepted
Heuristics → Satisfaction	0.211	0.229	0.095	2.221	0.029	Accepted
Overconfidence → Satisfaction	0.244	0.265	0.044	5.545	0.000	Accepted
Mental Accounting → Satisfaction	0.238	0.259	0.090	2.644	0.010	Accepted
Loss Aversion → Satisfaction	0.213	0.232	0.041	5.195	0.000	Accepted
Self-Efficacy → Satisfaction	0.210	0.228	0.090	2.333	0.022	Accepted
Satisfaction → Intention	0.775	0.842	0.048	6.146	0.000	Accepted
Intention → Trading behaviour	0.815	0.886	0.121	6.736	0.000	Accepted

Source: Computed data

Table 4.46 Moderating Effects of Financial Dimensions on Social Dimensions

Moderation effects	Original sample (O)	Sample mean (M)	SD (STDEV)	T statistics (|O/STDEV|)	P values
Financial literacy ∗ Risk → Satisfaction	0.123	0.134	0.053	2.321	0.022
Financial literacy ∗ Money → Satisfaction	0.104	0.113	0.050	2.080	0.040
Financial literacy ∗ Herd Behaviour → Satisfaction	0.122	0.133	0.052	2.346	0.021
Financial literacy ∗ Heuristics → Satisfaction	0.109	0.118	0.034	3.206	0.002
Financial literacy ∗ Overconfidence → Satisfaction	0.112	0.122	0.056	2.000	0.048
Financial literacy ∗ Mental Accounting → Satisfaction	0.182	0.198	0.052	3.500	0.001
Financial literacy ∗ Loss Aversion → Satisfaction	0.117	0.127	0.048	2.438	0.017
Self-Efficacy ∗ Risk → Satisfaction	0.128	0.139	0.063	2.032	0.045
Self-Efficacy ∗ Money → Satisfaction	0.126	0.137	0.026	4.846	0.000
Self-Efficacy ∗ Herd Behaviour → Satisfaction	0.195	0.212	0.057	3.421	0.001
Self-Efficacy ∗ Heuristics → Satisfaction	0.122	0.132	0.048	2.538	0.013
Self-Efficacy ∗ Overconfidence → Satisfaction	0.132	0.143	0.061	2.164	0.033
Self-Efficacy ∗ Mental Accounting → Satisfaction	0.145	0.158	0.072	2.014	0.047
Self-Efficacy ∗ Loss Aversion → Satisfaction	0.198	0.215	0.055	3.600	0.000

Source: Computed data

Table 4.46 examines the moderation effects of financial literacy and self-efficacy on the relationship between various behavioural factors and satisfaction. Each factors exhibit the interaction effect, showing original sample coefficients, sample means, standard deviations, T statistics, P values, and the moderation result, classified as either high or partial.

Several interaction effects indicate high moderation, where the combination of financial literacy or self-efficacy with specific behavioural factors significantly enhances satisfaction beyond their individual contributions. Notably, financial literacy exhibits high moderation with risk (T = 2.321, P = 0.022), herd behaviour (T = 2.346, P = 0.021), heuristics (T = 3.206, P = 0.002), mental accounting (T = 3.500, P = 0.001), and loss aversion (T = 2.438, P = 0.017). This means that individuals with higher financial literacy who exhibit these behavioural tendencies experience a more substantial increase in satisfaction.

Self-efficacy also shows high moderation in combination with several factors: money (T = 4.846, P = 0.000), herd behaviour (T = 3.421, P = 0.001), heuristics (T = 2.538, P = 0.013), overconfidence (T = 2.164, P = 0.033), and loss aversion (T = 3.600, P = 0.000). These interactions imply that individuals with greater self-efficacy and these behavioural characteristics report higher satisfaction levels.

Partial moderation is observed in interactions such as financial literacy with money (T = 2.080, P = 0.040) overconfidence (T = 2.000, P = 0.048), and self-efficacy with risk (T = 2.032, P = 0.045) and mental accounting (T = 2.014, P = 0.047). While these interactions still significantly influence satisfaction, their effects are not as pronounced as those classified under high moderation.

Overall, the results reveals that the interplay between financial literacy, self-efficacy, and various behavioural factors significantly impacts satisfaction levels, with many interactions demonstrating strong moderating effects. This underscores the importance of considering both individual competencies and behavioural tendencies in understanding and enhancing satisfaction in financial contexts.

Table 4.47 Relationship between Psychological, Financial Dimensions and Social Dimensions of Derivative Market

	A	LA	HB	H	MA	O	C	E	FL	ITI	IB	MA	N	Openness	RA	Satisfaction	SE
Agreeability	**1**																
Loss Aversion	0.762	**1**															
Herding Behaviour	0.709	0.715	**1**														
Heuristics	0.648	0.646	0.775	**1**													
Mental Accounting	0.581	0.627	0.769	0.783	**1**												
Overconfidence	0.503	0.607	0.692	0.726	0.667	**1**											
Conscientiousness	0.498	0.598	0.685	0.712	0.569	0.670	**1**										
Extraversion	0.481	0.487	0.641	0.638	0.539	0.582	0.613	**1**									
Financial literacy	0.401	0.475	0.605	0.601	0.521	0.541	0.585	0.706	**1**								
Intention	0.398	0.401	0.589	0.567	0.499	0.536	0.875	0.653	0.624	**1**							
Trading behaviour	0.369	0.384	0.546	0.534	0.472	0.479	0.451	0.616	0.596	0.778	**1**						
Money	0.352	0.369	0.453	0.421	0.441	0.456	0.446	0.566	0.518	0.699	0.756	**1**					
Neuroticism	0.341	0.287	0.337	0.356	0.357	0.445	0.418	0.527	0.452	0.568	0.687	0.680	**1**				
Openness	0.320	0.277	0.301	0.327	0.355	0.419	0.367	0.447	0.425	0.464	0.525	0.666	0.549	**1**			
Risk	0.286	0.259	0.233	0.303	0.268	0.350	0.322	0.451	0.399	0.314	0.490	0.572	0.426	0.648	**1**		
Satisfaction	0.228	0.242	0.220	0.237	0.256	0.307	0.314	0.306	0.336	0.234	0.318	0.413	0.345	0.584	0.711	**1**	
Self-Efficacy	0.202	0.231	0.119	0.211	0.229	0.226	0.284	0.271	0.295	0.200	0.265	0.385	0.281	0.475	0.657	0.512	**1**

Source: Computed Data

The Heterotrait-Monotrait measure of correlations, HTMT, is presented in Table 4.47. HTMT is the modern method for checking the discriminant validity in structural equation modelling, and it compares the average correlations of indicators of distinct constructs with that of other indicators within the same construct. In this table, the constructs compared include Agreeability, Loss Aversion, Herding Behaviour, Heuristics, Mental Accounting, Overconfidence, Conscientiousness, Extraversion, Financial Literacy, Intention, Trading Behaviour, Money, Neuroticism, Openness, Risk, Satisfaction, and Self-Efficacy. Each value represents the HTMT ratio between the constructs corresponding to its row and column.

The HTMT ratio between Agreeability and Loss Aversion is 0.822, suggesting a relatively high correlation and potentially indicating poor discriminant validity between these constructs. Similarly, Herding Behaviour shows a high HTMT ratio with Loss Aversion (0.715) and Heuristics (0.796), implying these constructs might overlap in what they measure. Conversely, the HTMT ratios involving Self-Efficacy and other constructs tend to be lower, indicating better discriminant validity, as seen in its relationships with Loss Aversion (0.231), herd behaviour (0.119), and Heuristics (0.211).

Overall, the result indicates varying validity, with some pairs exhibiting high HTMT ratios, suggesting they not be distinct enough. Constructs like Agreeability, Loss Aversion, and Herding Behaviour seem to have higher inter-correlations with each other and other constructs, potentially indicating issues with their distinctiveness. Conversely, constructs like Self-Efficacy and Risk show lower HTMT ratios with many other constructs, indicating better discriminant validity.

Table 4.48 Interdependency of Factors Influencing the Trading Behaviour

Indicators	VIF
Fluctuations in the Market are less than equity Market	1.97
Transparency of information	2.05
Rate of return	1.45
Risk involvement	2.16
Availability of many options	2.32
Updated information through electronic media	1.92
The investor’s education program of SEBI	1.45
Tax exemption	1.16
Transaction process while trading	2.23
Derivative Market is unsafe and risky	1.09
Rolling contract	1.42
Margin amount payable	1.36
Brokerage fees are low	1.81
I am very careful in planning and selecting a suitable investment	1.50

Cont.

Table 4.48 Interdependency of Factors Influencing the Trading Behaviour

Indicators	VIF
Derivatives need low investment which influenced me to invest	2.30
Wish to get suggestions for investment decisions from professionals	2.00
I strongly believe that we can make good returns only when we take some risks	2.14
I try to make some return immediately after any losses in derivative market	1.44
I am more of a listener than a talker	1.84
I always pay attention to details and can easily make decisions by myself	1.43
My theoretical knowledge supports me to trade	1.42
I analyse my experience before trading	1.74
I am capable of investing in various financial instruments to make profits in the derivative market	1.15
I prefer to invest in innovative products	1.03
It is difficult to manage the risk but I'm quite okay with the returns	1.30
I feel the practical experience is enough to invest in Derivative Market	1.86
Derivative contracts are flexible enough to allow us to deal with a variety of trades	1.92
Feel comfortable making my own investment decisions and not following others	2.09
I tend to trust the information as received	1.71
Heavy lot size should be reduced to increase participation in the Market	1.81
I do not keep any exposure limit when trading in the derivative market	1.77
Always decide to take a risk based on the underlying exposure in derivative Market	1.27
Decide based on liquidity which gives more information and profit	2.02
I am ignorant and exclusively depend on my financial advisor	2.13
I tend to be careless and unorganized	1.91
I tend to postpone my financial decisions if I face any loss	1.66
My decision to buy/sell greatly relies on my intuition	1.74
I become risk averse after prior loss	1.57
I consider myself a high-risk taker	1.80
I consider risk in investment as an opportunity	1.10
In the investment process, I wouldn't mind losing some money	1.75
It is a risky decision to invest in Derivative Market	1.68
I am sure that a derivative is the right choice for investment	1.71
Derivatives have an uncertain future	1.66
I think investing in Derivatives is highly risky	1.13
It is important to avoid monetary losses	1.49
Money is the most important tool for all my hopes	1.86
Good investment depends on how much money you have	1.05
Having a lot of money means having lots of opportunities	1.71
I am much more of a saver than a spender	1.72
I enjoy investing in innovative products to impress others	1.59
Even thinking about my money makes me anxious	1.78
I have complete knowledge of the Derivative Market	1.30
I check the financial statements of the company for the past 5 years before investing	1.91
I consider most familiar sectors at the time of investment	1.23

Cont.

Table 4.48 Interdependency of Factors Influencing the Trading Behaviour

Indicators	VIF
I can track the market fluctuations	2.09
I can also let know what price the specific stock is valued at during a particular day	1.76
I can always be true to my budget spending whenever incidents of unexpected expenses arise	1.55
Despite the difficulties, I make an effort to move closer to my financial objectives.	2.13
I attempt to find a solution in difficult situations as soon as possible.	2.03
When unexpected expenses occur, I usually have to use credit	1.96
I have confidence in my ability to manage my finances	1.49
When I run out of money because of losses, I attempt to get through it.	1.48
Derivatives are definitely one of my choices	1.34
I would refer derivatives stocks to others	2.05
I would talk positively about derivatives to others	1.29
I will invest in derivatives frequently	1.44
I believe that derivative is an attractive investment channel	1.14
My volume of investment also depends on the opinion of the other (broker, financial consultant)	2.12
I believe that information from friends, relatives, and colleagues has high reliability	1.94
I follow the market movements while buying or selling stocks	2.21
My purchase is impacted by the investing advice of other investors.	1.17
My expectations are met by the rate of return on my neighbours' investment.	1.87
I prefer to invest only in familiar stocks	1.44
Past winners influence me a lot when compared to past losers	1.54
I frequently overestimate the losses	1.23
I stick to random number estimation given by experts	1.96
I modify my portfolio on the expert's advice	2.03
I am too slow in updating my beliefs in response to recent evidence	1.21
I feel confident to evaluate securities prices in my investment portfolio myself	1.96
My past portfolio investments were mainly due to specific investment skills	1.33
My ability to predict future prices is better	1.95
My investment decisions can mostly earn higher-than-average returns in the market	2.15
I believe that my skills and knowledge of the market help me to outperform the market	1.02
I always allocate my income into several accounts	1.33
I always treat my monthly income and bonuses differently	1.78
I always calculate the cost to be incurred from my monthly money	1.19
I do not always calculate the cost to be incurred from my bonus Money	1.17
My prior loss experience highly affects my risk-taking ability	1.19
I usually have the tendency to avoid selling shares that have attained a lower value	1.26
I usually sell shares that have attained higher values	1.53

Source: Computed Data

Table 4.48 presents the VIF values for various indicators related to investment behaviour, particularly in the derivative market. The collinearity issue in the examined model has initially been examined as a presumptive approach because it adversely affects the data and the

extracted findings. Given this, the variance of the inflation factor values (VIF) has been investigated. Table 5 displays the findings that all inflation factor results fell within the expert-set upper limit of (5) (Hair et al, 2019). Indicating the accuracy of the data, all inflation factor variance values fell within the range of 1.02 and 2.30. this indicates that the factors are free from multicollinearity issues.

Table 4.49 Impact of Factors on Satisfaction Towards Derivative Market

Factors		R-square	Adjusted R-square
Personality Traits (PT) →	Financial literacy	0.637	0.618
Attitude (A) → Behavioural Biases (BB) → Self–Efficacy (SE) → PT → Financial Literacy (FL) →	Satisfaction	0.722	0.700
PT + A + BB + FL + SE → Satisfaction Satisfaction (S) →	Intention to invest	0.601	0.600
PT + A+ BB + FL+ SE + S → Intention Intention to Invest →	Trading behaviour	0.664	0.664

Source: Computed Data

Table 4.49 presents the R-square and Adjusted R-square values for four dependent variables: Financial Literacy, Satisfaction, Intention to Invest, and Trading Behaviour. R-square is the proportion of variation in the dependent variable explained by the independent variables. Adjusted R-square adjusts the value of R-square for the number of predictors in the model and gives a better measure in case of more than one predictor.

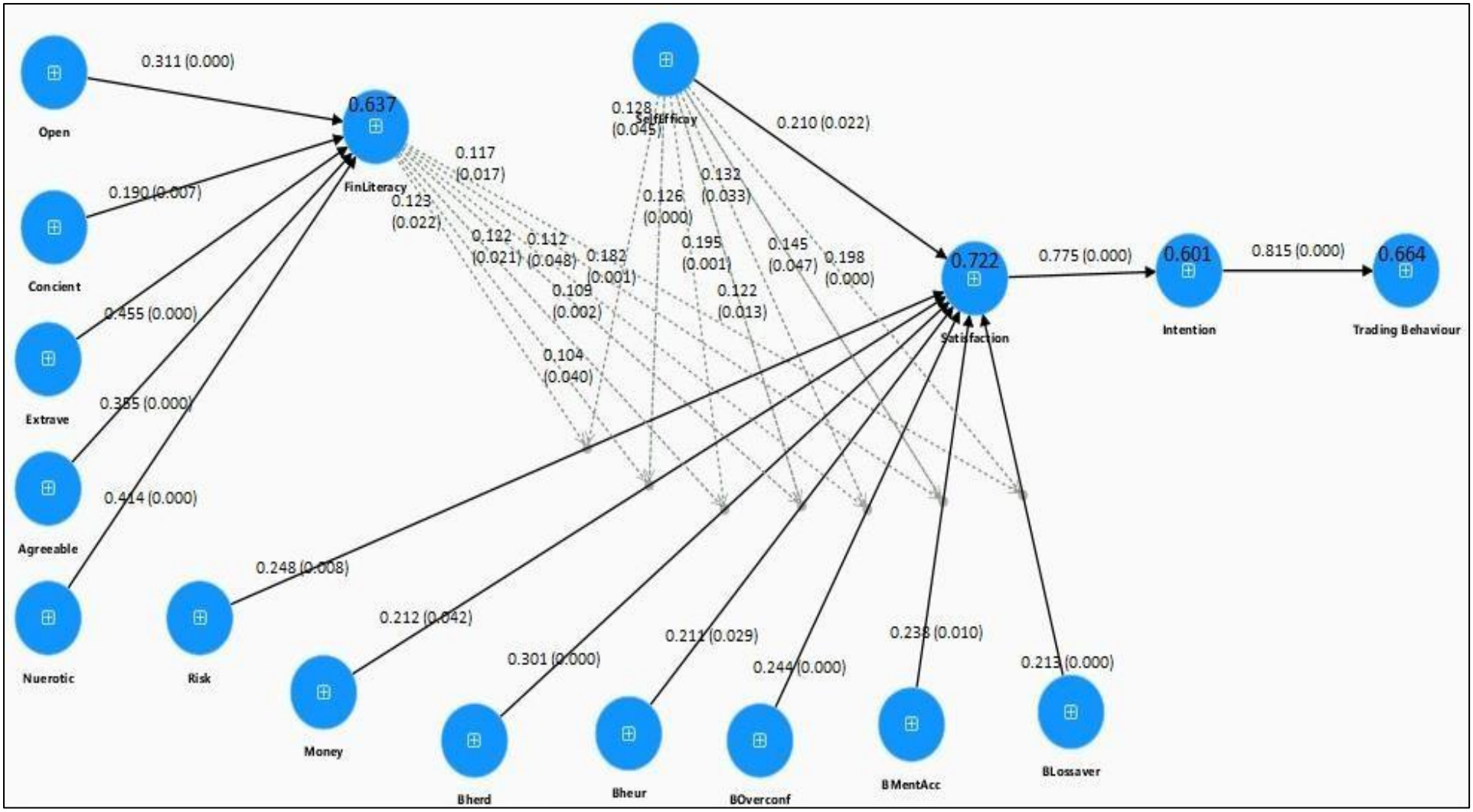
For Financial Literacy, the R-square is 0.637, meaning that 63.7% of the variability in Financial Literacy can be explained by the model, and the Adjusted R-square is slightly lower at 0.618, reflecting a minor adjustment for the number of predictors. Satisfaction shows an R-square of 0.722, indicating that 72.2% of its variability is explained by the model, with an Adjusted R-square of 0.700, also showing a small adjustment. The intention has an R-square of 0.601 and an almost identical Adjusted R-square of 0.600, indicating a high explanatory power with minimal adjustment. Trading Behaviour shows an R-square and Adjusted R-square both at 0.664, suggesting that 66.4% of the variance is consistently explained without any adjustment needed. This model shows a strong fit, with the Adjusted R-square matching the R-square, suggesting that the model is appropriately specified without undue complexity or

overfitting. The high explanatory power indicates that the variables included are highly relevant for understanding trading behaviour.

Figure 4.5 illustrates how retail investors' attitudes, behavioural biases, and the moderating influence of self-efficacy (SE) and financial literacy (FL) affect their propensity to engage in the derivative market. With a value of 0.637 per cent, financial literacy has a significant moderating influence on investors' inclination to participate in derivative markets (Figure 2). The derivative market is very different in terms of both performance and operations. As a result, trading in the derivative market is more influenced by financial literacy among regular investors. A positive correlation exists between the variables. According to the second hypothesis (H_{a2}), behavioural biases influence the actions of investors in the derivative market; however, the impact of herding bias is greater than that of other biases. Personality traits positively affect the financial literacy of the investors in the derivative market (H_{a3}) especially the influence of extraversion traits towards financial literacy more than other traits and the Attitude of the retail investors affects the satisfaction in the derivative market. Risk attitude is more effective than the money attitude of the investors. However, it shows less moderation in comparison to financial literacy in how it affects decisions about the investment of retail investors.

4.8.1 Analysis of Combined Effect of Factors Affecting Trading Behaviour

The unstandardized beta coefficient is a critical statistical measure used to quantify both the individual and combined effects of variables in regression analysis. The individual effect refers to the expected change in trading behaviour for a one-unit increase in a particular independent variable while keeping all other variables constant. This measure helps identify the unique contribution of each variable to the outcome, providing insight into its relative importance. The combined effect, on the other hand, measures the collective influence of psychological and financial dimensions working together. By analysing the unstandardized beta coefficients for each predictor, not only the standalone impact of individual factors but also how these factors interact and contribute to the overall variance in the dependent variable is projected. This dual-level analysis is essential in this multidimensional study, as it allows for a comprehensive understanding of the drivers behind complex behaviours by balancing the granular details with the broader picture.



Source: Computed data

Figure 4.5 Multidimensional Behaviour of Retail Investors in Derivative Market

Table 4.50 summarizes the individual and combined effects of various psychological and behavioural factors on outcomes. Personality Traits show that Openness, Conscientiousness, Agreeableness, and Extraversion have low individual effects but high combined effects on outcomes, indicating that these traits collectively have a substantial impact when considered together. Conversely, Neuroticism exhibits a high individual effect but a low combined effect, suggesting that while it strongly influences outcomes on its own, its impact is less pronounced when combined with other traits.

Table 4.50 Comparison of Individual and Combined Effect of the Factors affecting the Trading Behaviour of Retail Investors

Factors		**Individual Effect**	**Combined Effect**
Personality traits	Openness	0.301	0.311
	Conscientiousness	0.179	0.190
	Agreeableness	0.435	0.455
	Extraversion	0.312	0.355
	Neuroticism	0.496	0.414
Attitude	Risk	0.160	0.248
	Money	0.135	0.212
Behavioural Biases	Herding	0.237	0.301
	Heuristics	0.195	0.211
	Overconfidence	0.264	0.244
	Mental Accounting	0.193	0.238
	Loss Aversion	0.283	0.213

Source: Computed Data

Regarding Attitude, both Risk and Money have low individual effects but high combined effects, implying that individual attitudes towards risk and money are less influential alone but become significant when considered together. This reflects the importance of integrating multiple attitude aspects for a comprehensive understanding.

In the Behavioural Biases category, Herding, Heuristics, and Mental Accounting have low individual effects but high combined effects, indicating that these biases, while not strongly impactful individually, collectively play a crucial role when combined. On the other hand, Overconfidence and Loss Aversion show high individual effects but low combined effects,

meaning they have a significant impact when isolated but their influence diminishes when considered alongside other biases.

The analysis highlights distinct variations between individual and combined effects across personality traits, attitudes, and behavioural biases. Traits like Openness, Conscientiousness, Agreeableness, and Extraversion show a low individual impact but contribute significantly when combined, whereas Neuroticism has a higher individual effect that diminishes in combination. Attitudinal factors like Risk and Money exhibit a low individual effect but amplify collectively. Among behavioural biases, Herding, Heuristics, and Mental Accounting have greater combined effects, while Overconfidence and Loss Aversion demonstrate a stronger individual impact, which lessens in combination. This emphasizes the interplay of these factors in influencing complex behaviours, such as trading decisions.

Summary

This presents the results and discussions of the study. It includes an analysis of the socio-economic profile of retail investors, their investment objectives, and their awareness of various derivative market terminologies. The chapter also evaluates their satisfaction levels andthe challenges they encounter while trading in derivatives. The final aspect considered by the study relates to determining the effects of attitudes, personality traits, and behavioural biases on the derivative trading behaviour of retail investors.