CHAPTER – III

RESEARCH METHODOLOGY

Research methodology is fundamentally the essential segment of any research project as it designates the sequence of tasks for the whole research process (Pandey et al., 2021). It is the basic part of every research activity. It includes the statistical and coordinated plan of action that scientists take to compile, interpret, assess, and present data. It is valuable since it ensures the transparency, credibility, and reliability of the research (Campbell et al., 2014). It is the thing that not only steers the present inquiry process but is also a suitable resource for the entire research community.

3.1 Nature of Study

The study adopts a descriptive approach to understand the behaviour of retail investors in the derivative market. It aims to portray their investment preferences, trading patterns, and the factors influencing their decisions, providing a detailed snapshot of their interactions within this financial domain.

3.2 Research Process

The research process is classified into three phases in the current study as illustrated in Figure 3.1. Stage one included a review of the literature, problem identification and objectives framing, finalising the variable of the study and development of the theory. In stage two: the sampling design for the study was done, a questionnaire was constructed and the data collection and analysis for the pilot study was carried out. Pilot study modification, final data collection, analysis and interpretation for the final data and deriving summary and conclusion were done in stage three.

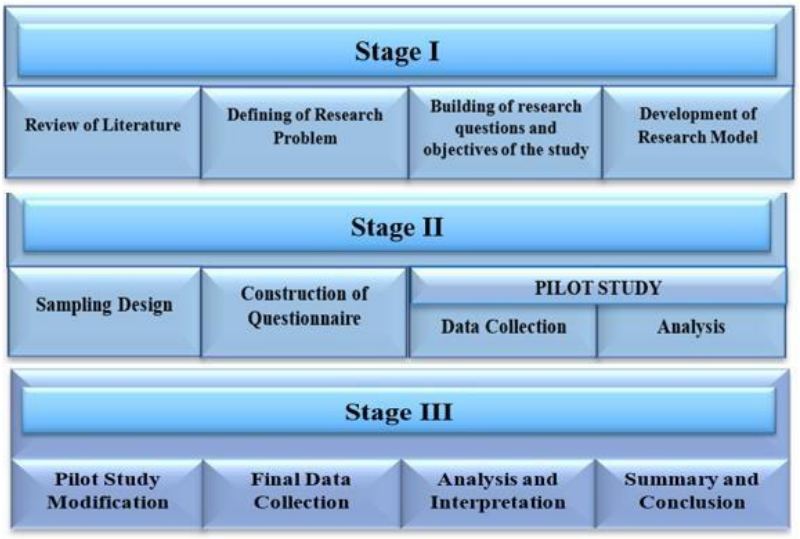


Figure 3.1 Research Process of the study

3.3 Locale of the Study

India as an investment destination is driven by its growing strong economy, the country's demographic dividend, and a huge rising middle-class population. With greater retail participation in the financial markets, India also happens to be one of the prime investment locations in equities and derivatives, reflecting an evolving state as a competitive investment arena. One of the most industrialized states in India, Tamil Nadu presents a diversified population with differential investment behaviours, making this sample representative for analysis. The adoption of technology in financial markets by the state and awareness about the same from its investors further increase its applicability towards understanding retail investment patterns in derivatives. Coimbatore is an ideal location for studying retail investors due to its well-established industrial base and increasing awareness of financial markets. Coimbatore's strategic location as an industrial and educational hub makes it an attractive region for analysing retail investors.

Coimbatore located in the southern state of Tamil Nadu, India, Coimbatore is well known for its vibrant culture, entrepreneurial ethos, and dynamic demographic structure. Its unique composition includes people of diverse cultural backgrounds, multiple languages, and various strata of socioeconomic status. This diversity, coupled with the city’s economic significance, offers an ideal foundation for examining investor behaviour, particularly within the context of the derivative market. The city gained prestige as an educational hub through several prestigious institutions offering undergraduate and postgraduate programs, plus those that offer research, engaging students and scholars in a countrywide and abroad reach. This academic ecosystem engrosses innovation, the interchange of information, and the collaboration of different interfiles, making Coimbatore a dynamic field of intellectual and professional progress. Moreover, high educational standards in the city have led to an enormous population of well-educated professionals with stable and often significant earnings, and increasing interest in financial investments, including derivative trading.

Coimbatore’s culture of entrepreneurship and investment established over the years further makes it suitable for such studies. The city has a strong and well-functioning network of nationalized banks, as well as a strong stock brokerage firm that functions effectively with a very active financial sector promoting and encouraging investment activities. Increasing financial literacy among residents, along with rising incomes, has motivated many residents to seek sophisticated investment strategies, such as derivatives, to optimize returns. This is

reflected in the city's strong retail investor base, which has around one hundred thousand active participants in both stock and derivative markets (Gurrola et al., 2022).

The city's geographical and infrastructural advantages also play a significant role. Coimbatore is a major trade and investment centre in Tamil Nadu, attracting financial professionals, brokers, and investors, which further fuels its investment culture. The combination of a well-educated population with increasing earnings, access to efficient financial institutions, and a supportive entrepreneurial ecosystem make Coimbatore an ideal location to examine the attitudes, behaviours, and decision-making dynamics of retail investors in the derivative market. These factors collectively position Coimbatore as a rich and comprehensive setting for studying the intricacies of investment decision-making and the anticipated financial outcomes in the derivative trading sector.

3.4 Population and Sampling Strategy

The sample of the study comprises traders from Coimbatore city involved in the Derivative Market. The stock broking companies intervened to reach the retail investors since such investors are dispersed all over. Hence, the target population of this study comprised those investors whose accounts were managed through stockbroking. The Coimbatore city was divided into five zones: Central, North, South, East and West. From each zone two stock broking companies were chosen based on two criteria 1) the willingness of the stock brokering company to act as a mediator and 2) the largest number of retail investors trading in the derivative market. The investors investing in the stock market were excluded from data collection.

3.5 Sample Size Calculation

Sample size is an essential part of designing a research study. It has to do with how many participants should be enrolled in the sample to give the study sufficient statistical power to detect any significant effects or differences. Cochran's formula (1977) is commonly used to determine the optimal sample size, and it is outlined as follows:

$$\eta_0 = \frac{\mathbf{Z^2pq}}{\mathbf{e^2}}$$

η_0 = Sample Size

$\mathbf{Z^2}$ = 95% Level of confidence

Z = 1.96 table value

p = estimated proportion of attributes of the population

q = 1 – p

e = desired margin of error

Therefore, values are applied to the formula.

Z = 1.96 (Table value at 95 per cent level of confidence)

p = 0.5 (50 per cent)

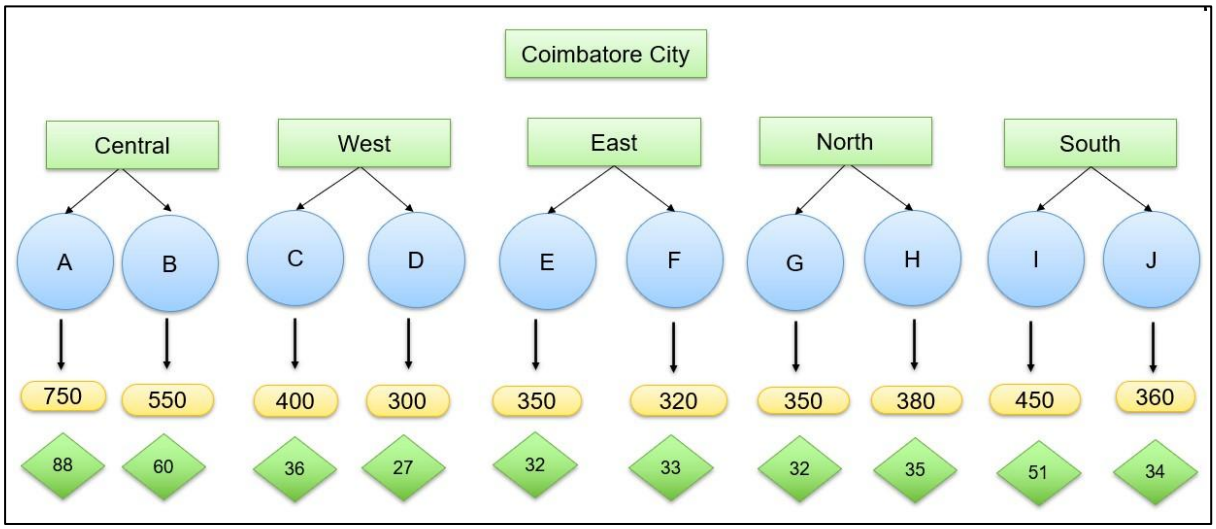
q = 1 – 0.5 = 0.5

e = ± 5 percent = 0.05

$$\text{Thus, } \eta_0 = \frac{(1.96)^2\,(0.5)\,(0.5)}{(0.05)^2} = 384.16 = 384 \text{ samples}$$

- **Sample Selection**

The total number of retail investors registered with stockbroking companies was 4,210. Among these, 428 retail investors with over three years of experience in the derivative market were identified as the target population for the study. Utilizing the census sampling technique, all 428 investors were included in the study. Data collection was facilitated by distributing questionnaires through stockbroking companies to gather responses directly from the investors. Once the required sample size of 384 participants was achieved, the data collection process was concluded.



Source: Complied Data

Figure 3.2 Determination of Sample Size

3.6 Source of Data

The data sources include different channels or origins that researchers may resort to in compiling information to provide answers to their research questions or attain objectives. The present study used both primary and secondary data sources.

3.6.1 Primary Data

Primary data in research refers to information collected directly from sources for a specific research purpose. This data is firsthand and has not been previously published or analyzed. It is gathered to address research questions, test hypotheses, or achieve the study's objectives. The methods for primary data collection are inherently dependent upon the nature of the research and its requirements. This research employed a well-structured questionnaire for the collection of valid data from the investors.

3.6.1.1 Questionnaire Scale

A questionnaire scale is the set of responses or options offered to participants while conducting the study. The scale helps in measuring and quantifying attitudes, opinions, behaviours, or characteristics among participants. The stages involved in framing the questionnaire of the study are given in Figure 3.3.

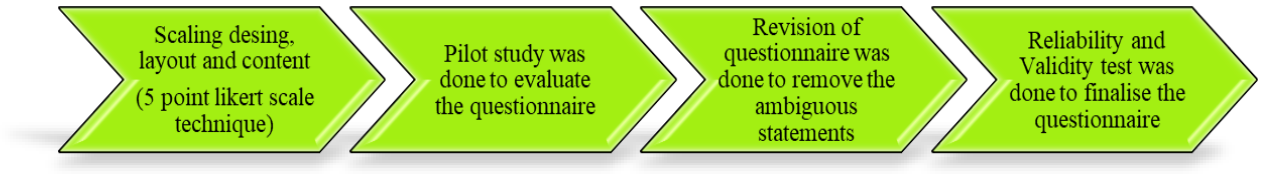


Figure 3.3 Stages in Framing Questionnaire

The first section of the questionnaire of the study dealt with categorising the investors into four types and basic information about their investment in the Derivative Market. The next section is the objective influencing to invest in the Derivative Market, the sectors they prefer to invest in, awareness towards various derivative terminologies and their satisfaction while trading in the Derivative Market. This section contains a statement related to personality traits, behavioural biases, attitude, financial literacy, and self-efficacy variables, illustrating investors' behaviours. This would cover the personal details of the investors. The questionnaire has been designed to be clear, accurate, and concise, ensuring it is easily understandable for the investors. The constructs of the study are outlined in Table 3.1.

Table 3.1 Research Constructs and Sources

Variables		Sources
Personality Traits		Cheng Po Lai, 2019
Attitude	Risk	Danish Sarwar, 2020
	Money	Muhammed Asif Nadeem, 2020
	Herding behaviour	Ardalan Rajabi, 2020
	Heuristics	Charles and Kasilingam, 2016

Behavioural Biases	Overconfidence	Azawadi Ali, 2011
	Mental Accounting	Mohapatra and Anuradha, 2021
	Loss aversion	Mohapatra and Anuradha, 2021
Financial Literacy		Lusardi and Mitchell, 2011; Kok Fei Chong, 2021
Self-Efficacy		Tahmina Akhter, 2022
Intention to invest		Cheng Po Lai, 2019

Source: Secondary Data

3.6.1.2 Content Validity

Content validation is one of the most important aspects of ensuring quality in research. Content validity refers to the comprehensive representation of all the domains that a test intends to measure through its items. The constructs evaluated in this study were derived from previous literature and appropriately refined to examine the trading behaviour of retail investors in the derivative market. Five experts reviewed the questionnaire to enhance content validity as recommended by Gilbert and Prion in 2016. The representatives of the five experts are three from Professionals in the Derivative Market, while the other two are statistical analysts. With the recommendations of the experts, some final adjustments were made in the questionnaire.

3.6.1.3 Pilot Study

A pilot study is a small-scale preliminary investigation carried out in advance of full-scale research work. The research tests the feasibility, reliability, and validity of various constructs involved, such as the research design, tools, procedures, and methods for data analysis. It helps the researchers identify weaknesses or potential flaws to rectify them before investing resources into a large-scale and comprehensive investigation. It was tested with sixty investors of Derivative Market, which were selected on a referral basis from Coimbatore City. Likert's five-point scale questionnaire is considered to be of great reliability and validity, and there were no further modifications to be carried out as per the report of the analysis and expert opinion few questions were modified and additional questions were added.

3.6.2 Secondary Data

Secondary research is one of the primary strategies adopted during research, which involves the analysis of existing data that other researchers or organizations have already prepared. The technique is based on utilizing existing datasets, reports, and studies that do not call for new data collection. Scientists pool together and synthesize their findings by using existing information, which in turn makes their investigations more efficient and deeper. From the secondary data analysis, tendencies and patterns of change over time can be discerned,

including short-term trends and longer-term movement, regarding changes in the behaviour of retail investors in the derivative market. This longitudinal perspective facilitates greater classification ability regarding the main drivers and factors that shall affect the trading decisions - thus providing a more subtle understanding of dynamics in the market.

3.7 Period of the Study

The study spanned a significant timeframe, commencing from September 2021 and concluding in December 2024. During this period, data collection was undertaken for a concentrated period of five months, spanning from May 2023 to September 2023.

3.8 Screening of Data

Data screening, according to Gaskin (2012), involves the preprocessing stage of ensuring that the data collected are clean, reliable, and appropriate for subsequent statistical analyses, particularly for the discernment of cause-and-effect relationships among the variables under study. The case and variable screening techniques were used to validate the authenticity and utility of the data. This was done by the utilization of technical and visual inspection methods. It was only by screening under such stringent conditions that seven responses were found to have a non-engaging character, that all the questions have values identical to one another. Therefore, responses were acceptable for further analysis.

3.8.1 Reliability test

Reliability testing is a decisive step in the research process, ensuring the consistency of measurement instruments, which makes them valid for data collection. One commonly used method for this is Cronbach's alpha coefficient. This measures the extent to which the items or questions in a measurement instrument are interrelated. The higher the correlations between the items, the greater the reliability of the instrument.

Table 3.2 Reliability Test

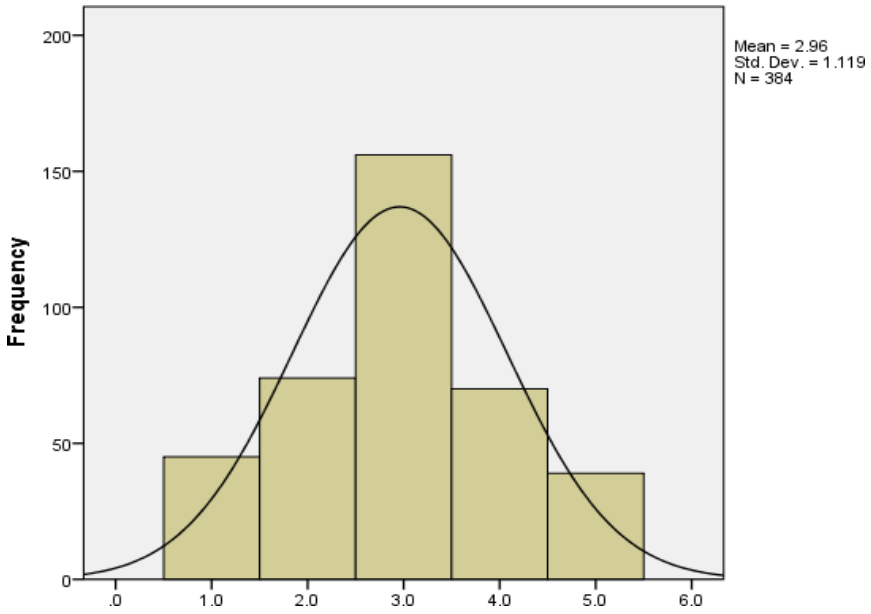
Factors	Variables	No. of Statements	Value
Personality Traits	Openness	5	0.824
	Conscientiousness	5	0.843
	Extraversion	5	0.771
	Agreeableness	5	0.799
	Neuroticism	5	0.881
Attitude	Risk	8	0.951
	Money	6	0.711
Behavioural Biases	Herding behaviour	5	0.761
	Heuristics	6	0.699
	Overconfidence	5	0.739
	Mental Accounting	4	0.726
	Loss aversion	3	0.834

	Financial Literacy	5	0.755
	Self-efficacy	6	0.835
	Intention to invest	5	0.978

Source: Computed Data

3.8.2 Normality test

The Kolmogorov-Smirnov (KS) test of normality is used to determine whether a data set follows a normal distribution. This test compares the empirical cumulative distribution function of the data set with the theoretical normal distribution. It measures the maximum deviation or variation between the two distributions, assessing the goodness of fit. A low p-value indicates a significant deviation from normality, suggesting that the dataset does not follow a normal distribution. Therefore, the KS test of normality is crucial for verifying whether parametric statistical methods, which assume normality, can be applied for valid and reliable analyses in research.



Source: Computed Data

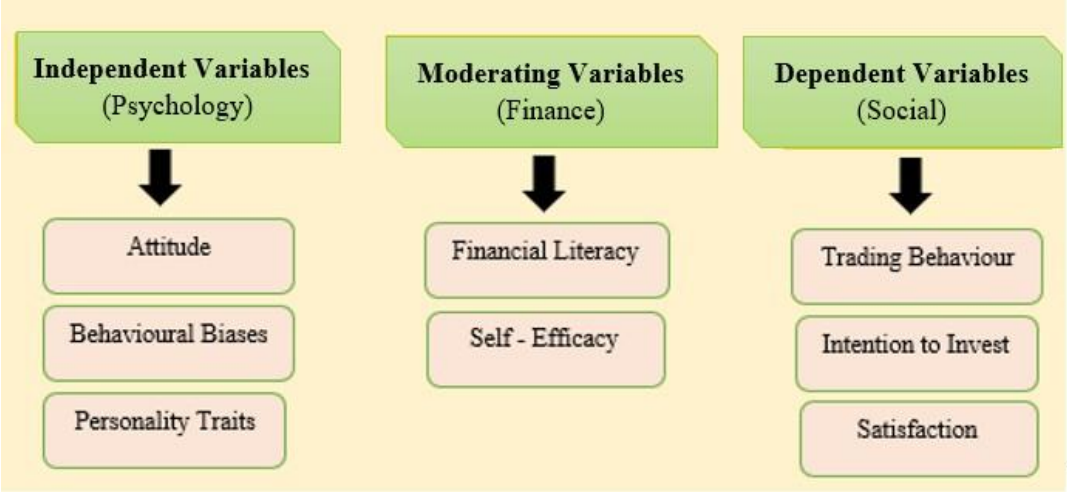
Figure 3.4 Normality Curve

3.9 Development of Conceptual Framework

Behavioural finance seeks to understand the behaviour of retail investors in the derivative market by examining how psychological factors, cognitive biases, and emotions influence their investment decisions and actions. A model was subsequently designed based on the theories to identify the trading behaviour of retail investors. The theory of planned behaviour and the Big Five personality traits theory were adopted to select the variables for the study.

Based on the behavioural model, the independent variables are identified from the study: Attitude (towards Risk and Money), Behavioural Biases (Herding, Heuristics, Overconfidence,

Mental Accounting, Loss Aversion), Personality Traits of conscientiousness, openness, extraversion, agreeableness, neuroticism, Financial Literacy, and Self-Efficacy. In this model, the self-efficacy of an investor serves as the moderating variable, influencing the relationship between various factors and the dependent variable, which is trading behaviour. The model incorporates multidimensional factors from behavioural finance, such as cognitive biases, emotions, and psychological influences, to better understand how they impact investor decision-making and trading actions. attitude, behavioural biases and personality traits are the variables under the dimension of psychology; financial literacy and self–efficacy under the finance dimension and the social dimension satisfaction, intention to invest and trading behaviour are considered.



Source: Complied Data

Figure 3.5 Identified Variables Based on Multidimensional Behaviour of Investors

3.9.1 Independent Variables

The independent variables, extracted from the trading behaviour model, include factors such as attitude, behavioural biases and personality traits. Together, these factors provide a comprehensive view of how psychological dimensions drive investor actions.

3.8.1.1 Attitude and Trade in Derivative Market

- **Risk Attitude**

There is an economic saying that the higher the risk higher the return (Cheng et al., 2018). Investors exhibit varying levels of risk aversion, and numerous factors influence the investment choices they make. Investors with a higher level of risk perception are likely to achieve greater returns (Hoffmann et al., 2015). Conversely, greater potential for losses often leads to more risk-taking in trading (Cheng et al., 2018). The study revealed that having a risk-oriented mindset positively influences stock trading decisions. Derivative market paves the way for

examining the risk-taking behaviour of traders (Cheng et al., 2018). People take risks because they can enjoy them in some way. Each approaches risk differently. Some people take risks because they find them to be more enjoyable; others take risks because they are known to their friends and family as risk-takers; still, others think that taking risks is the most important aspect of their lives; still, others are drawn to the risk factor and find it more enjoyable than the fright factor. The monetary derivative is considered to be part of any investor's management of risk.

- **Money Attitude**

People's attitudes towards money can be described as behaviours about money. People build their attitudes towards money through the experiences they encounter in their lives. There are four different types of attitudes about money: avoidance, praise, position, and attention. Varied people have different views toward money. For instance, some people think about money as a source of humiliation, some idolize money, others avoid it, and others wish to use it to elevate their position and will.

3.9.1.2 Behavioural Biases

A bias is a tendency towards making definitional errors. In general, these biases represent preconceived ideas or prejudices. Such biases will lead investors towards making irrational or emotional decisions that would affect their investment (Ricciardi and Baker 2014). This provides evidence that biases are axiomatized by their emotions (Shukla et al. 2020). Consequently, there might be wrong decisions made, losses incurred, or opportunities missed, where both the losses and missed opportunities could have been avoided had due diligence been performed before making an investment decision (Verma et al. 2016). It should be made to look through the series of behavioural biases to avoid falling prey to the emotional trap (Khan et al. 2021). Based on the literature review, the most identified influential biases include herding behaviour, heuristics, overconfidence, mental accounting, and loss aversion.

- **Herding Behaviour**

Normally, investors tend to follow the decisions of other investors without any consideration for their risk-bearing ability. Gupta and Shrivastva (2022) claim that investors follow and are eager to join groups and, unfortunately, follow others' advice to stay safe. They tend to follow friends' advice, at times not realizing it to be Kumar et al. (2021). Any individual investor might mislearn the psychology of market direction. This too affects the investment decision-making process. In stock markets, it is seen time and again that investors rush to sell off their stock simply out of panic and fear of potential loss (Shukla, 2020). The investors see that other investors have more information and, as part of the herd, follow suit and also sell

their stocks. Such behaviour can easily be traced back to the fear of losing and greed. In herding behaviour, investors adopt other people's opinions to maintain their reputation and adhere to the recommendations of equity analysts. They adopt the opinions of others while selecting stocks (Ahmed et al., 2023). Derivative investment is also made based on preferential herd behaviour because common stock and derivative securities operate in conjunction.

- **Heuristics**

Heuristics refers to the cognitive shortcuts or mental techniques individuals use to make decisions quickly by relying on readily available information or relevant instances. These simplified approaches help individuals solve complex problems efficiently. Many investors use heuristics to speed up decision-making processes, allowing them to make faster investment choices without thoroughly analyzing all available data. According to easily accessed information, the stock market investor places more emphasis on the asset. Thus, when making investment decisions, the investor prefers home equities over foreign shares (Khan et al., 2021).

- **Overconfidence**

Bias is characterized by overestimation or even overconfidence about the skills or judgment of an individual. This leaves you with the sense of thinking that you are miles ahead of the rest, where your skills may only differ strikingly (Kumar et al., 2021). Investors might show overconfidence in the correctness of their knowledge and their ability to react to it (Madaan and Singh, 2019; Yiwen, 2022). Generally overconfident investor has a larger probability of giving rise to profitable irregular returns by better performance than the market by expecting market volatility. Overconfidence can even get investors to believe they know less than rationally about the market and its changes (Metwally, 2023). It is a type of self-deception in that the confident ones overrate their wits and capabilities, conveniently downplay risks, exaggerate their control over events, and, very often, manipulate their minds by being more intelligent than the average person. In the field of behavioural finance, overconfidence holds a critical influence on the choice of investment by each investor (Shukla, 2020). Overconfidence is the psychological bias of overestimation as a variable of greater confidence in predicting the specific event parameter and misleading willingness to assume it has the proper or exact judgment (Abdin et al, 2022).

- **Mental Accounting**

Psychological accounting indicates the cognitive processes through which persons or households organize, evaluate, and keep track of financial transactions. It involves how people mentally organize and interpret their financial transactions, which can influence their spending,

saving, and investing behaviours. Thus, most errors related to financial and investment decisions made by investors originate because of this psychological phenomenon. Such influences affect reactions that an investor puts forth on unanticipated losses and gains, as well as the source of the capital, which indirectly influences its allocation (Shukla, 2020). Mental or psychological accounting may also often yield negative consequences in daily life (Gill and Bajwa, 2018). According to the mental accounting bias, investors might make unreasonable distinctions between income returns versus capital appreciation among investment-related activities (Santi et al., 2019). Investors have a set of cognitive tools for the analysis of investment processes and to assess and monitor those processes.

- **Loss Aversion**

People who experience loss aversion will take greater risks to prevent losses than they will to experience profits. The prospect theory is used to investigate the idea of loss aversion initially. Due to this bias, investors often make decisions focusing on gains rather than losses as they have different valuations for gains and losses. Additionally, it is suggested that investors who have realised gains rather than losses and desire to quickly sell the shares to avoid market volatility are prone to loss aversion. This bias is significant since it affects the investors' purchase and sale choices. Additionally, research shows that individuals' tendency to experience greater emotional pain from losses due to mistakes drives a stronger desire to minimize losses.

- **Personality Traits**

Personality Traits can be used to define a person's character. It refers to a widely-held concept, which describes the differences among people about their personalities on five different dimensions. The five dimensions include extraversion, Openness, Conscientiousness, Neuroticism, and agreeableness.

- **Conscientious**

Conscientious people take higher risks less impulsively and are determined, well-organized, reliable, persistent, and punctual. Conscious people actively take part in decision-making. (Liljenström, H. (2021). Conscientious individuals have a positive relationship with their investment behaviour and trade more to achieve their goals (Gaal, 2022). Conscious investors make good investment decisions that are not based on illusions (Baker et al., 2023). They are pickier in their investment choices due to this ability.

- **Openness to Experience**

People who enjoy the experience are imaginative, resourceful, and tolerant. The risk-taking propensity of those with the attribute of openness to experience is higher than that of others. More open individuals are more likely to accept the unconventional guidelines recommended when making financial decisions (Campbell et al, 2023). Such individuals have positive associations with risk tolerance and stock investment willingness (Gaal, 2022).

- **Extraversion**

An extravert is active, upbeat, thrill-seeking, and inclined to socialize in large crowds. Extraversion holds only positive information which influences financial decision-making. Widagdo and Roz (2022) examined an association between financial decision-making and personality traits. He brings to the conclusion that extroversion is highly related to financial assets. Extraverted people seem to take greater risks to maximize their gains/ returns (Kamath, 2023)

- **Agreeableness**

The ability to get along with people is a quality that indicates collaboration, empathy, and generosity are the attributes of agreeableness. Acceptable individuals keep away from other people's problems. Without critically analysing it, they promote other people's information. The behaviour of cooperative investors in terms of investment also reflected that they are active stock traders and exhibit their tendency to follow market herd behaviour. Acceptable persons find it hard to make independent financial decisions and tend to depend on other financial analysts' knowledge (Moko, 2022).

- **Neuroticism**

Neurotics are pessimistic, depressed, anxious, and afraid of uncertainty and vagueness. Neurotic people fear uncertainty and distance themselves from risky products (Niszczota, 2014). A person who suffers from neuroses cannot analyse, critically think, or achieve cognitive ability and conceptual understanding. Because of the above reasons, the neurotic person fears failure and gets anxious while making a risky decision (Young, 2012).

3.9.2 Moderating Variables

Moderating factors are criteria that alter the relationship between an independent and dependent variable; they often serve to amplify the effects of independent variables rather than reduce them on dependent variables. This study incorporates both financial literacy and self-efficacy as moderating factors. Therefore, this research recognizes not only psychological

factors but also financial factors in critically impacting investor behaviour towards bridging the knowledge-confidence-action gap in financial decision-making.

- **Financial Literacy and Trade in the Derivative Market**

Financial knowledge is understanding and awareness of an individual on various financial concepts (Rezki Anggreni and Muchriana Muchran, 2023). Financial literacy is closely related to the growth and navigation of the financial sector by individuals (Angrisani, 2023). It would greatly affect a person in making financial decisions. Those with lower financial knowledge are less likely to invest in stocks or engage with the stock market, making it challenging for them to make sound financial choices. Investors usually overestimate how much they know and are certain about their financial knowledge (Bellofatto et al., 2018). Individuals are very much confident in their capabilities and financial literacy (Tipoe, 2024). Furthermore, it has been shown that financial literacy enhances a person's likelihood of engaging in financial transactions. Investors invest smarter if they tend to possess high financial literacy and report consistent financial literacy online (Bellofatto et al., 2018).

- **Self-efficacy and Trade in the Derivative Market**

An important psychological construct called financial self-efficacy is crucial in determining a person's decision-making style and personal financial behaviour during different stages of life. An individual can control various things and manage aspects of his life as self-efficacy. It differs from person to person. Self-efficacy is a dynamic process that regulates and motivates the behaviour of the investor (Brooks and Williams, 2021).

3.9.3 Dependent Variables

The trading behaviour of the retail investors in the derivative market was assessed in this study by focusing on three primary dependent variables: satisfaction, intention to invest, and trading behaviour. Such factors are measured with utmost care in the derivative market to diagnose the experiences, motivations, and actions taken by investors in the derivative market that are valued for their attitudes and behaviours toward derivative trading. Thus, while individual psychology plays a significant role in influencing these factors, they also closely intersect with sociological aspects in shaping financial decision-making in the derivative market.

- **Satisfaction**

The satisfaction of investors in investing in the derivative market represents a multi-dimensional review of their experience, outcome, and feelings in that financial field. Satisfaction centres on many aspects, but first of all, it involves profitability in investments

through the derivative market. Investors assess whether their returns are aligned with their expectations and whether the risk-reward ratio is within their tolerance. They have to be convinced that their positions are adequately hedged against market fluctuations and that losses cannot be overstated. It encompasses the analysis of the hedging capability of derivative products in diversifying their portfolios and ensuring a hedge against adverse market movements. Ease of transaction has a basic role in determining the level of satisfaction. Any type of complexities and constraints in completing transactions will finally frustrate their minds and reduce levels of satisfaction.

- **Intention to Invest**

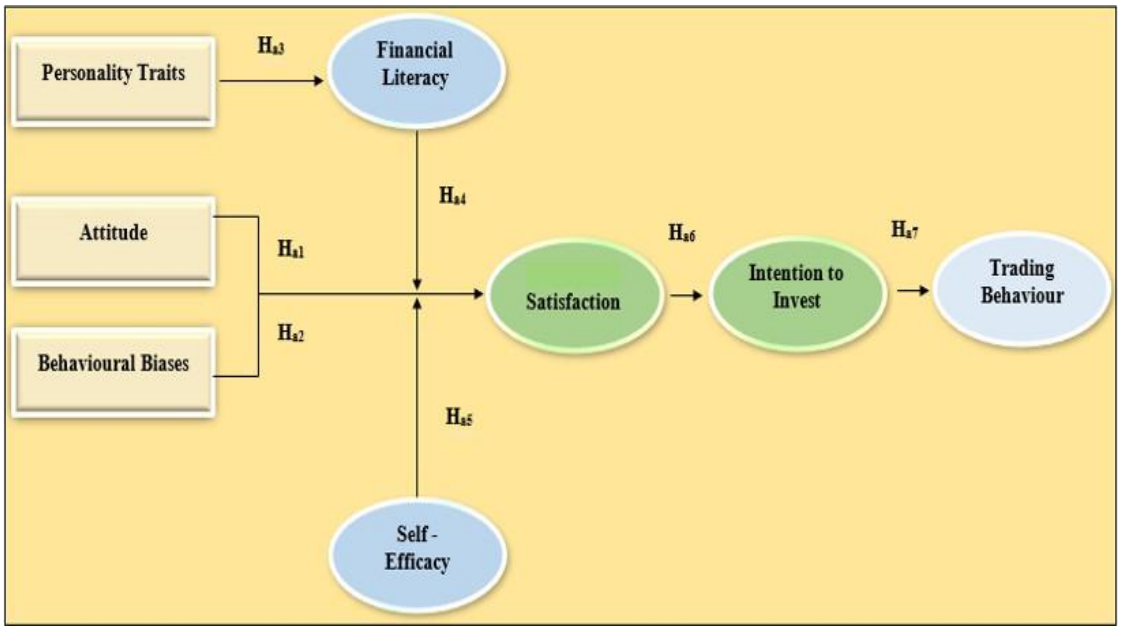
Individual risk preferences and perceptions of risk will also determine investment decisions as some investors might have a risk aversion or avoidance mindset. This way, they may likely go away from investing. Put another way, this might lead to an attitude that is more risk-averse and tends to avoid any riskier investment altogether. Others are capital-protective and will look for the safest and most conservative financial and investment options. Other psychological variables can also determine the intention to invest. Cognitive biases, emotional responses, and social influences all affect how investors perceive and think. The overconfidence bias could lead the investor to overestimate his ability and put himself at excessive risk, while loss aversion could make him avoid investments perceived to be risks, even if they may offer a higher return; familiarity and knowledge regarding derivative products play a big role in shaping their intention to invest. Investors who are enlightened about derivative, their mechanics, and their possible applications will be more confident to venture into this market. Indeed, their perception of the overall stability and reliability of the derivative market will influence their readiness to commit funds to investments in derivatives.

- **Trading Behaviour**

Emotions are another factor which affects the decisions of investors in a particular sphere. Fear, greed, and over-confidence can all swing decision-making to irrational or impulsive trading decisions. Cognitive biases such as anchoring, confirmation bias, and loss aversion can modify the perception of investment and therefore lead to deviance from rational decision-making by traders. Peer behaviour, social media sentiment, and cultural aspects while investing and trading also affect the behaviour of traders. Market knowledge, experience, and access to information are other influencing factors on the behaviour of retail investors.

3.9.4 Conceptual Framework of the Study

The researcher developed a conceptual model by combining variables identified within the existing literature. The figure below outlines these relationships within the model constructed for this study, Figure 3.6. In addition, the study discusses the relationships among some of the selected variables and develops hypotheses based on them.



Source: Complied Data

Figure 3.6 Multidimensional Behaviour of Retail Investors in Derivative Market

3.10 Data Analysis Techniques

After ensuring that the data were reliable, the use of both descriptive and inferential statistics was applied to the analysis. The study employed a range of analytical tools, including:

- **Descriptive Statistics**

Descriptive statistics are simply numerical measures for the summarization and description of the key features of a dataset. Common descriptive statistics include the "mean, median, mode, range, variance, and standard deviation". This tool is used to analyse investors' preferred sectors for trading in the derivative market.

- **Analysis of Variance**

ANOVA is a statistical method used to test the equality of means across three or more groups by comparing their variances. In this study, ANOVA is utilized to analyse how different socioeconomic factors influence investors' awareness of derivative market terminologies.

- **Multivariate Analysis of Variance**

MANOVA is a statistical method used to examine the simultaneous effects of multiple independent variables on two or more dependent variables. In this study, MANOVA is

employed to analyse how various socioeconomic factors influence the level of satisfaction experienced by investors while trading in the derivative market.

- **Mean Ranking**

Mean Ranking is a statistical method used to rank data based on the average scores or means of each group or condition. It involves calculating the mean score for each group on a particular variable and then arranging the groups in ascending or descending order based on these means. It is used in this study to rank the factors influencing trading in derivative market and for the problems faced while trading in Derivative market.

- **Factor Analysis**

Factor analysis is a method of interdependence technique mainly utilized in extracting the underlying structure that might exist among the variables within a study. It analyzes the relationships, and correlations between variables, by extracting groups of variables, termed as factors, which have very strong interrelations between themselves. These factors are then thought to represent independent dimensions of the data. If the objective of reducing variables is to help in coming up with some new composite measures, alternatively, the identified dimensions may find a correspondence in a theoretical framework of conceptual guidance behind the analysis. Confirmatory Factor Analysis (CFA) is a statistical methodology used for the validation of the measurement model by testing how the observed variables are aligned along hypothesized latent constructs. It estimates the fit between observed data and expected relationships among variables.

- **Multiple Regression Analysis**

It is a statistical method used to observe the effects and the magnitudes of multiple "independent variables on a single dependent variable", utilizing the principles of correlation and regression. This technique helps in identifying the potential relationships or shared variance between the predictor (independent) variables and the criterion (dependent) variable. It is widely used to study the relationship between one dependent variable and several independent variables, making it one of the most commonly applied multivariate statistical methods.

- **PLS-SEM Analysis**

Partial least squares structural equation modelling is a statistical technique that applies to modelling observed and latent variables within a structural equation modelling framework. Not only does it allow the testing of hypotheses, but it also facilitates the identification of causal relationships among the variables. In this study, the model was developed to assess how

variables such as Attitude, Personality Traits, and Behavioural Biases, along with moderating factors like Self-Efficacy and Financial Literacy, influence Investment Intention, which subsequently affects Trading Behaviour.

This research utilizes Smart PLS 4 to construct both measurement and structural models. In addition to SPSS and Smart PLS, Microsoft Excel was employed for the graphical representation of the results.

Table 3.3 Overview of Statistical Tools Employed

Objectives	Hypotheses	Tools Applied
1. To know the preferences of retail investors in Derivative Market	**Descriptive Statistics**	
2. To analyse the awareness of retail investors in derivative trading	**H_{8a}** – There is a significant mean difference between Gender and Awareness towards Derivative Market Terminologies **H_{9a}** – There is a significant mean difference between Age and Awareness towards Derivative Market Terminologies **H_{10a}** – There is a significant mean difference between Education Qualification and Awareness towards Derivative Market Terminologies **H_{11a}** – There is a significant mean difference between Annual Income and Awareness towards Derivative Market Terminologies	**ANOVA**
3. To evaluate the satisfaction gained and challenges faced by retail investors in derivative trading	**H_{12a}** – There is a significant mean difference between Investors and Satisfaction in the Derivative market **H_{13a}** – There is a significant mean difference between Gender and Satisfaction in the Derivative market" **H_{14a}** – There is a significant mean difference between Age and Satisfaction in the Derivative market **H_{15a}** – There is a significant mean difference between Educational Qualification and Satisfaction in the Derivative market **H_{16a}** – There is a significant mean difference between Marital Status and Satisfaction in the Derivative market	**MANOVA** **Mean Score**

Table 3.3 Overview of Statistical Tools Employed

Objectives	Hypotheses	Tools Applied
	H_{17a} – There is a significant mean difference between Annual Income and Satisfaction in the Derivative market	
4. To assess the Attitude, Personality Traits, Behavioural Biases, Financial Literacy and Self – Efficacy of the retail investors on the trading behaviour	**Confirmatory Factor Analysis Multiple Regression Analysis Structural Equational Model**	
5. To examine the effect of Attitude, Personality Traits and Behavioural Biases on derivative trading of retail investors with the moderating role of Financial Literacy and Self-Efficacy	**H_{a1}**: Attitude affects the satisfaction in derivative market **H_{a2}**: Behavioural biases significantly affect the satisfaction in derivative market **H_{a3}**: Personality Traits influence trading behaviour satisfaction in derivative trading through Financial Literacy **H_{a4}**: Financial Literacy moderates the relationship between attitude, behavioural biases and satisfaction in the derivative market **H_{a5}**: Self – Efficacy moderates the relationship between attitude, behavioural biases and trading behaviour **H_{a6}**: Satisfaction in derivative trading significantly affects the intention to invest **H_{a7}:** Intention to invest significantly affects the Trading Behaviour of retail investors in the derivative market	**Structural Equational Analysis**

3.10 Operational Definitions

- **Hedgers**

Hedgers are individuals or organizations who enter financial transactions to protect themselves against the risk of price fluctuations of securities commodities, and currencies. They use derivative instruments like options and futures contracts.

- **Speculators**

Investors who risk financial losses in the hope of reaping gains from short-term changes in the prices of securities, commodities, or currencies after speculation are called speculators. They mostly use leverage and market trend analysis and predictions for their trades.

- **Arbitrageurs**

Arbitrageurs are persons who play with price discrepancies of an asset at two or more markets simultaneously, buying at low and selling out high in one, aiming to reap the rewards of price inefficiency, without any risk involved. Thus, provided with high price estimates available from different markets, their mandate is to sell.

- **Margin Buyers**

The margin buyers are investors who borrow money from a brokerage house for the purchase of securities as a tool of leverage hoping that such borrowing will amplify rather than deflate profits.

- **Personality Traits**

Personality traits are relatively enduring patterns of thoughts, feelings, and behaviours that describe an individual's unique ways of interacting with the world. It influences the perception of the situation and the decisions made in that situation or between other people. These include openness, conscientiousness, extraversion, agreeableness, and neuroticism. These personality traits play a dominant role in determining an individual's behaviour in different contexts and situations.

- **Openness**

Openness is the degree to which a person experiences creative and imaginative things, curious and open to new experiences. Highly open people are imaginative, adventurous, and welcoming of novel ideas and different perspectives. Those low in this trait prefer routine, familiarity, and practice over novelty and experimentation.

- **Conscientiousness**

Conscientiousness is the degree to which one is organized, responsible, and reliable. Extremely conscientious individuals are orderly, goal-oriented, and particular and often thrive in an ordered environment. Lower degrees of conscientiousness may point toward a preference for spontaneity or a tendency to be impulsive.

- **Extraversion**

Extraversion is a scale that describes the extent to which a person is outgoing, energetic, and sociable. High extraversion involves such qualities as enthusiasm, assertiveness, and sociability, whereas lower extraversion, or introversion, often characterizes the more reserved, reflective, and solitary individual.

- **Agreeableness**

It is the tendency to show understanding, cooperation, and compassion for others. Where those having less agreeableness are likely to be more confrontational, competitive, and sceptical, highly agreeable ones are compassionate, trustworthy, and altruistic.

- **Neuroticism**

Neuroticism involves emotional stability and the ability to feel anxious, depressed, or irritated. People high in neuroticism become sensitive to stress and may experience moods easily, whereas the opposite is true for people with low neuroticism- being more emotionally resilient and stable.

- **Attitude**

Attitude refers to a holistic judgment or sentiment or perception, whether positive or negative, that an individual holds concerning anything or anyone; influences the individual's behaviour, choices, and reactions to things, and often sums up a set of thoughts, feelings, or previous experiences.

- **Risk Attitude**

Risk attitude refers to an individual's propensity to take or avoid risks when making decisions, particularly in uncertain situations. It is a critical factor in financial behaviour, business decisions, and personal life choices

- **Money Attitude**

Money attitude refers to an individual's beliefs, values, and behaviours toward money and its management. It shapes how people earn, spend, save, and invest their financial resources.

- **Behavioural Biases**

Behavioural biases are essentially psychological shortcuts that might lead us to sometimes too predictable errors in our decisions. Such biases might creep into various dimensions of decision-making, starting from investment pickings, risk evaluation, and even personal interactions.

- **Herding Behaviour**

Herding behaviour is an expression used in finance where people tend to imitate the decisions or behaviours of a larger group, most of the time without rationalizing their knowledge or judgments. This phenomenon results in possible market bubbles or crashes within financial markets when investors follow a herd into certain assets under the mistaken impression that others are better or more knowledgeable than them.

- **Heuristics**

Heuristics refer to mental shortcuts or rules of thumb, which simplify the process of making decisions. Although they may be useful in making fast judgments, they can sometimes result in biased or irrational judgments. Some examples of heuristics are the availability heuristic and representativeness heuristic.

- **Overconfidence**

Overconfidence is that tendency to overestimate one's knowledge, abilities, or control over outcomes. In terms of investing, overconfidence can lead to excessive risk-taking or underestimating potential losses since investors have a feeling of being more skilful or knowledgeable than are.

- **Mental Accounting**

Mental accounting is the process by which people separate, categorize, and then treat money differently depending on its source or use instead of viewing it as an essentially fungible resource. For instance, one can consider a tax refund to be "extra" money and spend it more liberally than regular income even though they both are the same.

- **Loss Aversion**

Loss aversion is the psychological phenomenon in which people find the pain of losses to be greater than the pleasure that they derive from equivalent gains. This can result in poor decision-making, often staying too long with failing investments in hopes that things get better or avoidance of all risks to avoid taking a loss.

- **Financial Literacy**

Financial literacy is the knowledge and skills that a person needs to make sound and prudent decisions regarding their finances, showing a critical understanding of concepts involving budgeting, saving, investing, managing debt and any other such matter that impacts financial prosperity.

- **Self – Efficacy**

Self-efficacy is the belief in one's ability to succeed in a variety of tasks or situations, which translates into motivation, effort, and perseverance in the face of obstacles and hurdles. All this will eventually define one's success and further personal growth.

- **Intention to Invest**

Intent to Invest It refers to a subject's intended willingness to commit resources towards financial assets or ventures based on factors like perceived returns, risk tolerance, financial

goals, and current market conditions influencing their investment decisions and portfolio composition.

- **Trading Behaviour**

Trading behaviour refers to all the activities and decisions that trading investors apply when buying, selling, or holding any financial assets. Behaviour is determined by such factors as market trends, economic indicators, psychological biases, and others, which influence trading strategy and outcomes in finance.

3.11 Ethical Consideration

Ethical considerations in research are essential to the protection of both the human participant and the scientific inquiry. At the core lies respect for autonomy, which requires informed consent by participants, assurance that participation is voluntary, and establishment of privacy and confidentiality factors. Ethical considerations in research are important to maintain public confidence and uphold scientific integrity, as well as protect the rights and welfare of those who are going to be involved in the research. Additional permission from the Stock brokering companies is drawn to collect the data. Data privacy and confidentiality are strongly maintained and strictly observed, and all information collected will only be used for purposes of this study. Since the research was on human subjects, ethical guidelines for the research came to be of great importance during the process. Antecedent approvals had been sought from the Institutional Human Ethical Committee (IHEC) through detailed reports on the methodology of gathering data for the proposed research titled "Determinants of Trading Behaviour of Retail Investors in Derivative Market - A Multidimensional Approach." The number for the Ethical Grant is **AUW/IHEC/COM-22-23/XMT-06.**

Appendix – 2 contains records of all permissions being obtained. Institutional Human Ethical Committee, Avinashilingam Institute for Home Science and Higher Education for Women, Coimbatore, has enabled the research to benefit from the high standards of research through peer review. Therefore, this study maintains institutional as well as participant group-approved ethical authenticity.