RISK PERCEPTION, PSYCHOLOGICAL FACTORS AND INVESTMENT DECISIONS: A STUDY OF INDIAN INVESTORS

BY

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Dedicated

To

My Grandfather

ACKNOWLEDGEMENTS

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DECLARATION

I Sarni Jain enrollment number 20166002 hereby declare that the research embodied in this thesis entitled "Risk Perception, Psychological Factors And Investment Decision: A Study of Indian Investors" is an original research work done by me under the supervision of Prof. (Dr.) Sanjeev P. Sahni and Dr. Brajesh Kumar of Jindal Institute Of Behavioural Sciences for the award of Doctor of Philosophy from O. P. Jindal Global University, Sonipat, Haryana.

I hereby declare that this submission is my own work and that, to the best of my knowledge and belief, it contains no material previously published or written by another person nor material which has been accepted for the award of any other degree or diploma of the university or another institute of higher learning, except where due acknowledgement has been made in the text.

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THESIS COMPLETION CERTIFICATE

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THESIS COMPLETION CERTIFICATE

This is to certify that the thesis on **"Risk Perception, Psychological Factors and Investment Decision: A Study of Indian Investors"** submitted by **Ms. Sarni Jain**, in partial fulfilment of the requirements for the award of the Degree of Doctor of Philosophy is an original work carried out by her under our joint guidance. It is certified that the work has not been submitted anywhere else for the award of any other diploma or degree of this or any other University. In our opinion, this work has reached the standard fulfilling the requirements for the award of the degree of Doctor of Philosophy in accordance with the regulations of the University and the UGC Act, 2016.

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ABBREVIATIONS

BPT	-	Behavioural Portfolio Theory
DHS	-	Demographic and Health Survey
IGT	-	Iowa Gambling Task
IMI	-	Investor Mood Index
ISI	-	Investor Sentiment Index
KMO	-	Kaiser Meyer Olkin
PCA	-	Principal Component Analysis

EXECUTIVE SUMMARY

Rational investor tends to diversify their wealth among various investment avenues to maximize returns for a given risk. Investment avenues have an inherent risk associated to them and investors can either opt for high-risk avenues such as stocks, mutual funds for high return or can choose to invest in low- risk avenues such as banks, provident funds, insurance policies etc for relatively low return. Risk is intrinsic to all investment avenues and it is considered to be one of the important parameters while choosing a particular investment avenue. Behavioural finance studies individual investment behaviour by identifying and understanding the difference between the risk attached to a particular investment avenue and the way an individual perceives that risk. Recently, it has been found that the individuals' psychological factors like moods and sentiments affect the investors' choice of different financial assets. Moods affect the risk perception associated with the various financial assets whereas, economic environment affects the riskiness of an asset itself. Moods are transient in nature and specific to an individual. It has been found that good (bad) mood underestimate (overestimate) risk or overestimate (underestimate) return of an asset. Sentiments are individual's perception about future economic conditions based on currently available information may affect the risk-return relation of financial assets. This study tries to understand the effect of risk perception, moods and sentiments on investor's choice of different investment avenue. The study follows a survey approach and a questionnaire has been developed to collect the individual information on risk perception, moods, sentiment, sources of investment information and investors' demographic characteristics. The sample consists of 1216 investors from cities of India namely, Delhi, Chennai, Kolkata, Mumbai, Vadodara, Surat and Ahmedabad. To understand and measure the risk perception of Indian investors, we use Demographic and Health Survey questionnaire

on investment strategy. Using factor analysis, we divide the investors into two categories: risk taker and risk avoider. We also examine the relationship between demographic characteristics and risk perception by using chi-square and logit regression. It has been found that the demographic factors like gender, educational qualification, monthly income and the number of dependent family members impact risk perception of an individual investor. To explore the effect of moods and sentiment on investors choice, we develop specific set of questions to capture the moods and sentiment of Indian investors. Investor Mood Index and Investor Sentiment Index has been developed using principal component analysis and we relate demographic characteristics of an individual to moods and sentiments. Finally, the study examines the effect of risk perception, moods and sentiments on investors choice by using a choice model. It has been found that risk perception and moods significantly affect the investment decision of investors. The study will be helpful to investors, financial advisors and policymakers to have a better understanding of risk perception, moods and sentiments on their investment choice.

CHAPTER 1: INTRODUCTION

1.1 Background

Investment comes from the savings that the investor is willing to put for productive use of which he can enjoy the returns in future. These investments attract uncertainty, as the returns from these investments will be earned at a later stage. Investments are defined as conscious acts by an investor which helps him to attain a specific objective in future by forgoing some of his present income (Velmurugan, Selva, & Nazar, 2015). Investment is any savings or expenditure incurred now to gain at a time in future (Avram, 2009). Thus, investment involves the capability of an investor to judge, analyse his decisions.

Investment decisions are made by investors to diversify his money, which he does not require now, but may require in the near future. An individual investor will then decide to invest this money to fulfil the desired objective of maximization of returns by incurring minimum risk. This investment decision of choosing among the various investment avenues (risky versus less risky) and allocating funds are described as investor behaviour in literature.

Investor behaviour is explained as the study of the investor's thoughts, choices, explanations, reasons and his satisfaction from a particular choice and how these factors influence his experience (Solvic, 1972).

When an investor takes decision by considering the available investment avenue and weighing the risk and return associated with each one of them, these decisions are categorised as investment decisions. An Investment decision is a choice which an investor has to make when there are options amongst various investment avenues available to the investor, and the investor has to decide where to invest, for how long

he wants to invest, and how much of his present income will he invest (Kumar & Sajana, 2017).

In a financial market, there are various investment avenues available to an investor to invest his savings. Each investment avenue has different kind of risk and return attached to it. On the basis of risk and returns the savings and the investment avenues are differentiated. Investment avenues associated with high risk are stocks, mutual funds, real estate and with low risk are gold, bank deposits, post office deposits, insurance schemes etc (Subramaniam & Velanampy, 2016). An investor can either opt for high-risk avenues that attract high returns or can opt for low or medium risk avenues that attract him low/ medium returns. An investor can invest either his whole wealth or part of it either in one investment avenue or can diversify among various investment avenues. This becomes a challenging task, as this will determine the future returns that an investor will gain from his investment decision. So, while taking a decision it is assumed that the investor has all the desired information which is required to choose the appropriate investment avenues.

Traditional finance theorists argued that the investors are rational in their decision making and they process all the information which is available before reaching to a conclusion. This assumption of the rational investor was believed to be true as the investor would prefer to be better off than worse off. Thus, the traditional theorists believed that investors behave rationally, and their decision helps them to attain the highest level of utility i.e. highest satisfaction, given the investment choices that are available to them.

Since research has evolved over ages, more and more researchers are keen to study investment decisions to have a better understanding of the factors that influence

the decision-making process of an investor and help the investor to gain more than the desired returns by attracting minimum risk.

1.2 Risk and Risk Perception of Investors

Risk as a construct has attracted attention from all fields of research. The risk attached to certain choice is the probability of an unexpected event connected with a loss of some income (Bora, 2007). The amount of information either complete or incomplete is the extent of risk that an individual overlook. Therefore, risk is uncertainty and whatever we choose has some risk attached to it (Sarvar & Afaf, 2016). Hence, the consequences of our choices are what researchers frame as the risk. The greater the number of choices, greater is the risk attached to each one of them. The increased chances create complex possibilities that intervene with the decision-making ability of an investor.

This study will focus on risk from the point of view of investment. An individual investor before investing tends to acquire the information on risk, regarding its probability of occurrence of the damage attached to a particular choice. The rational agent in an economic model is assumed to have all the information before making a decision, but in reality, an individual has limited information in his hand and there is some kind of uncertainty with the decision an investor takes. This affects an investors' behaviour, therefore, the decisions of an investor cannot be categorized as rational. Because each individual investor thinks in a different way about risk from various investment avenue this affects his understanding and his way to perceives risk which in turn influences his behaviour either towards risky choices or less risky choices. Investment risk is the probability of the existence of losses in relation to the expected return on any particular investment. It can also be stated as the degree of the level of uncertainty of attaining the returns as per the prospects of the investor. The investor

balances between risk-return trade-off. Risk-return tradeoff is the desire between the lowest possible risk and the highest possible return. It is known that with low potential returns there is a low level of uncertainty. So, each individual investor decides how much risk are they willing to take for the desired return.

Risk is a measure of uncertainty and the way an individual investor perceives risk is called risk perception. The risk in the field of economics is studied from the perspective of an investor who is a decision maker. When an investor is not spending his money but deciding to invest, it attracts the element of risk. How an individual perceives risk is also an important factor in choosing the appropriate investment. In this way, the investor would know how comfortable he will be before he engages himself in a risky situation. Risk perception is more of subjective perception.

The way investors perceive risk we can categories investors in two categories: Risk avoider and risk seekers. Risk avoiders are those investors who perceive that there is high risk attached to a particular investment avenue and hence will avoid investing in avenues with high risk. On the other hand, risk takers are those investors who perceive that high risk is attached to high returns and hence will invest in those avenues where in spite of high risk they are tempted to attain high returns. Thus, investors on the way they perceive about investment risk can be labelled as risk avoider and risk taker. When an individual knows how he perceives risk an individual can then rank various investment avenues available to him and then can analyse the risk and return from each one of them.

Risk perception in the field of economics, psychology and interdisciplinary fields have gained importance because of the varied outcomes attached to it. It influences how an individual reacts to risky situations. Because risk is an integral component in all financial investments, as there is a possibility that the actual profit on

an investment may or may not be higher than the expected return. Hence, risk perception is one of the important factors that can influence the investment decisions of an investor (Kumar & Sajana, 2017).

1.3 Behavioural Finance

In the early economic theories, most of the stress was given to the free market, the idea of the invisible hand. The traditional theory of finance assumes that all people are rational and that they always optimize their investment decisions. These economists did guard themselves by explaining that standard models were easier to validate and in terms of relevance they were more workable. The traditional finance theorist believes that individual is rational but, an investor has neither the source nor the information which could explain the highs and lows in the market. There were many events in the near past where the concept of rational was deficient in explaining the situation of imbalance. Also, the neo-classical financial economics underdetermines the influence of social factors which affect investment decisions and thus were labelled as anti-behavioural. In short, the traditional economics generalizes a population by calculating, the unemotional being whose goal is to maximize often called at Homo Economicus. The work of sociologist, psychologists and cognitive psychologists were not considered as relevant in a standard economic framework.

Behavioural economics gained its importance when it was realized that there can be more valid explanations when the behaviour of these agents are considered an integral part of the model and by understanding them a more valid explanation can be framed. Behavioural Economics is one such field where the boundaries of economic and psychology are merged together. Researchers in this field try to unite economic theory with the empirical finding of psychology. There was a time when economists were in a fix whether to incorporate the new developments of psychology to gain more

insight about the economic process and economic agents and also when psychologists started to question the claim of economists and advancement in their theories to incorporate the fundamentals of psychology. When the economists were able to justify the human economic behaviour, which can be generalized then the theories of behavioural economics held an important place in psychology, economics, sociology and other interdisciplinary fields.

There are some human limitations that are displayed by economic agents in a market and when economics and psychology separately fail to explain then the theories of behavioural economics captures the attention of academicians, researchers, investment planners and policymakers (Mullainathan & Thaler, 2000). Thus, when there are limitations in the information processing system of an individual, the concepts of bounded rationality, bounded will power, bounded self- control gains insight and explains the deviations from the standard economic model (Mullainathan & Thaler, 2000).

Behavioural finance has become an emerging area of study under Behavioural Economics. Behavioural finance focuses on individuals' judgement under uncertainty which contributes to his effective investment decision making (Ritter, 2003). The behavioural aspect of the financial decision-making process gained importance after the works of Daniel Kahneman and Vernon Smith in 2002 when they were awarded Nobel prize for their work in the field of economic psychology and experimental economics. Behavioural finance builds from the limitations of the neo-classical model and its assumptions of rationality in consumer choice. It is evident from the work of behavioural economists like Daniel Kahneman, Amos Tversky and Richard Thaler (Barberies, 2018). Prospect theory explains how an individual deviate in his decision making when the choices are framed differently. Choices are influenced by prior beliefs

and incomplete information which might diverge the investors' attention to one sided interpretation (Kahneman & Tversky, 1979). Investment is made by an individual to earn a certain amount of income. Ones an individual participates in the decision making he bears the responsibility for his choice. Decision making involves choosing amongst the wide variety of investment avenues that are available to the investors. Each investment is related to some kind of risk. These investments can be either in high risky assets or in low risky assets. Thus, investment involves decision making under risk and uncertainty. This is one field of study which combines the behaviour of the individual investor and correlates with the theories in the field relating to risk, judgment and decision making.

This has led to rethinking amongst the new economist which had reason to believe in irrationality and their work also supported their stands. Since then behavioural finance has become a popular field of study which explains the irrationality in decision making under uncertainty. These theorists suggest that there are factors like overconfidence, representativeness, loss aversion survivor bias, anchoring effect, herding behaviour (Nofsinger, 2011; Solvic, 1972) and because of so many combinations or either few combinations can explain investor behaviour in a detailed way. Later, the psychological ideas were framed in a way to formalize and also testify the predictions. Since then many of the behavioural economists believe that behaviour of the agent does differ from the standard economic model and their studies also focus to identify behaviour that would explain in terms of the economic context.

Behavioural theories claim that investment decision making is a complex domain which compromises of rational as well as an emotional component rather than just focusing on either one. Individuals investors are not willing to change their investment plan very easily unless a luring return is suspected in future, which will

depend on his risk-taking tendencies. In financial markets, investors are customers or consumers. Even when the financial markets are not stable, the individual investor still keeps himself engaged in the initial investment plan.

Researchers in the field of behavioural finance claims that psychological factors do affect the decision-making capacity of an individual and that this affects their choice of investment avenues. It is the risk that determines the probability of return of an investment and the risk perception that influences risky decision making. The paradigm which shows that investor is rational lacks its explanatory power and hence it is questionable (Brennan, 1999). As an investor is not always fully informed and diversified. Thus, we can say that investor reacts not according to objective risk but according to perceived risk (Macgregor, Solvic, & Evensky, 1999).

1.4 Factors Affecting Risk Perception of an Investor

Financial goals of each individual are very different. It depends on his priorities and hence it is expected that individuals' investment choices differ from one individual to another individual. In spite of the difference in the objective of investment, there are some common factors that are involved when an investor perceives risk. One such factor that studied by the researcher is the influence of investor demographic characteristics on the perception of risk. Factors like inflation, a price hike of petrol/ diesel, unemployment, interest rate and exchange rate are also studied by an individual investor before he makes his mind about investing money in a particular investment avenue. Investment of an individual also depends on the time horizon, availability of money to invest and how he perceives risk. The socio-demography includes age, gender, monthly income and education level of an investor (Obamuyi, 2013; Rekik & Boujelbene, 2013). The study has been carried on bankers of Turkey (Islamoglu, Apan, & Ayvali, 2015), investors in Vietnamese stock market (Phan & Zhou, 2014) on

investors of Sri Lanka (Subramaniam & Velanampy, 2016). We cannot say that we can access an individual economic agent decision based entirely based on his risk perception. In this complex and rapidly changing environment, it is of great importance to have additional information of the other aspects of decision making also. This will help us to predict the behaviour of an individual economic agent precisely.

1.5 Psychological Factors and the Investors' Behaviour

One of the most important factors that influence the investment decision of investors and has recognized its presence in the field of research are the psychological factors like moods and sentiments which have a powerful impact on investor's investment behaviour and indirectly on investors decision making.

Moods are a brief state of feelings for a particular time which can influence investment decisions as it may affect expectations of future fundamentals by interacting with risk (Hirshleifer, 2001; DellaVigna, 2009; Baker & Wurgler, 2007). Moods and emotions do have a tendency to influence the decision-making process (Lodhi, 2014) characterized by overexcitement and overreaction (Mane & Bhandari, 2014). In general, we know that humans are a social being and they communicate information through emotions and mood. Nofsinger (2005) is of the view that social mood is an influencing factor which determines the investment decisions taken by investors. Moods are characterized as general to non-specific states which generally do not have any particular target. i.e. moods are free-floating feelings which are generally not linked to anything specific (Bagozzi, Gopinath, & Nyer, 1999; Siemer, 2005; Sizer, 2000). Moods, in literature, are found to affect decision making under risk. Positive mood affects the decision- making under risk. Various studies are done in controlled as well as uncontrolled environment to measure mood's effect on investment decision (Lepori, 2015).

The research on sentiments has brought new assumptions in the field of behavioural finance (Schinckus, 1999; Thaler, 1999). These assumptions explain the role of investors' economic sentiment. Investor sentiment is an important aspect of individual investment decision making. Financial theorist did not considered sentiments until late 1990s, hence, it is very recent that sentiments have been recognized in the field of finance. The researchers know try to study the indirect signals in the form of market sentiments, more broadly investor sentiments.

This creates a powerful impact on the decision making of an investor and often they either overestimate or undervalue the risk and returns. When this happens the effect of it more than momentary because it leads to actions that are non-random. These implausible events that are not random are what is explained with the help of research from the field of psychology which is commonly called biases and explains investors' reliance on sentiments. Information required for incurring financial transaction is neither completely available nor accessible with ease, which leads the investor with less information than required to invest in a particular avenue and this is where the biases affect the decision-making process of individual investment decisions.

During the time of decision making a human being experience, various factors like emotions and moods often called visceral factors. These visceral factors are discussed widely in the risk as a feeling perspective (Loewenstein, Weber, Hsee, & Welch, 2001), where scholars highlight by saying that these factors can sometimes dominate the thoughts while taking decisions where risk and uncertainty are involved. It is because of the visceral factors that people in a good mood are optimistic than people in a neutral or bad mood in terms of guesstimate and decisions (Muhammad, 2009). When an individual is happy, he will perceive less risk and more return from a risky investment, than when he is unhappy. A person always weights risk as less and returns

as more when he is happy and when he is sad, he attaches more weights to the risk and less to return.

Investors diversify their portfolio to reduce risk. The investor's decision to choose among high-risk avenues and low-risk avenues depends on factors like risk perception, moods, sentiments and also his demographic characteristics like age, gender, marital status, educational qualification, occupation, monthly income and number of dependent family members.

1.6 Theoretical Framework

Markowitz portfolio theory (Markowitz, 1952) suggests that an investor tries to optimally select a portfolio with a mix of risky and less risky assets. The investors minimize the risk and maximize the return from that portfolio. The investors also try to balance with the market portfolio which they think is efficient, by having a considerable amount of information about the securities. Thus, the investor grabs the risk-return opportunity to diversify his portfolio with multiple combinations of securities. But this theory reflects the idea of market efficiency, that security prices mirror all the information, and that investors basic intention are to maximize profit. Also, the efficient market hypothesis lays the concept of rational investors and few temporary irrational investors, which the theorist assumes that can be handled by experts. The traditional theories describe investor as rational whereas the investors are not always rational. The irrationality in investor behaviour is explained by prospect theory.

Daniel Kahneman and Amos Tversky in 1979 published a paper titled “Prospect theory- An Analysis of Decision under Risk”, which recognizes the decision making under risk concept. This theory is one of the pivotal works in behavioural finance. It explains the individual capacity when faced with a gain or loss situation. Prospect theory is a descriptive theory which explains the way people make choices when they

are faced with the circumstances of risk and uncertainty (Kahneman & Tversky, 1979). This theory is considered as the best example to explain the components of psychology in terms of behavioural economic theory (Barberis, 2013). The theory concludes on three major points. First, the risk perception of people depends on the nature of the prospect and how they are framed. Second, the certainty effect plays a role, when the investor is certain about the outcome, he may attach more weights compared to the probable situations where he assigns fewer weights. Thus, an investor becomes risk-averse in the gain situation and risk seeker in a loss situation. Thirdly, the value that people assign to in investment situation is to the gains and losses rather than to final assets. This happens in the evaluation and editing phase as explained by this theory. In the editing phase, the prospects are coded, combined, segregated and then removed by using the heuristics method and then the evaluation phase precedes. In this, the decision weight is attached to the outcome value and thus according to some reference point the gain or loss is determined. The weight to losses is assigned higher than the weight to gains depicting the loss aversion characteristic of an individual. The main difference between the expected utility theory and the prospect theory is that in utility theory, the utility function is taken but in prospect theory, the decision weights, which are a function of their probabilities are taken. This value function shows steeper loss function as compared to gain function (Seth & Chowdary, 2017). The three very famous concepts explained through this theory are loss aversion, framing and the dispositional effect. Because the investors are afraid of losing in future and hence, they sometimes behave irrationally.

Prospect theory can also be explained in terms of three value functions. Firstly, it defines the concept of adaption in relation to changes to wealth rather than levels of wealth. Secondly, the concept of loss aversion and thirdly the diminishing sensitivity

of both gain as well as the loss function. However other than the three above mentioned concepts it also highlights the importance of mental accounting to explain the choices made by economic agents.

Another theory that explains the investors' behaviour is the Behavioural Portfolio Theory (BPT) in which investors optimize their risk-return trade-off by evaluating the portfolio in form of a pyramid of assets, with each layer a specific goal is attached. Each layer has a separate risk attitude and goal conditions.

With the introduction of small psychological concepts, the behavioural economic concepts gain much importance like the concept of overconfidence. It is very evident that when the traders in spite of having less information will still trade with the confidence that they have the ability to make the right decision. This small concept of overconfidence explains a major anomaly of the financial market. There are a number of cases where the traders have faced huge loss because they have bought stocks which did worse than the stocks they sold. There are billions of such shares that are traded on an everyday basis but according to efficient market there should be virtually no trading because of rationality which is shared knowledge would have discouraged the investors to invest in stocks that fetch them losses (Mullainathan & Thaler, 2000).

1.7 Theoretical Premise

This thesis attempts to justify investment decision making of an investor by using theories from the field of economics, finance and psychology. The Markowitz theory explains about the rational decision making of an investor using the efficient market hypothesis. It explains that investor has all the required information before taking a financial decision. Thus, an investor when he has all the information and acts according, he is assumed to be a rational investor (Markowitz, 1952). Decision making is a part of cognition in human mind which helps to choose one preferred option from

various alternatives (Wang & Ruhe, 2007). The irrationality in decision making is seen when an individual takes the same decision repeatedly. This is because of the experiential process of decision making takes over the analytical process. The experiential process is characterized by intuition, emotions, feelings and learned experiences (Amsel, Close, Sadler, & Klaczynski, 2009). The experiential process can also be explained by the risk-as-feelings hypothesis. It simply states that affect i.e. feelings which an individual feel determines the decision making of an individual i.e. Humans have an emotional reaction to risk which is different from the actual risk attached to the decision. Thus, the irrationality in the decisions of an investor can also be explained by the feelings of an investor and these feelings are a result of his moods and emotions (Loewenstein, Weber, Hsee, & Welch, 2001).

The Iowa Gambling Task (IGT) also explains about the irrationality in the decision-making process of an individual. The IGT is based on the probabilistic learning which is tested by monetary rewards (Soshi, Nagamine, Fukuda, & Takeuchi, 2019). IGT suggests that initially the decisions are taken cognitively but with increasing number of trials the emotions and feelings of an individual colors his decision-making process, this is when the irrationality of an individual hampers the decision making of an individual. The irrationality in decision making is also explained by prospect theory through loss aversion and certainty effect (Kahneman & Tversky, 1979). Thus, the investment decisions of an investor involve rational as well as irrational decision making. Rationality happens when the cognition takes place. An investor calculates each option available to him and then takes a calculative decision but as soon as the trial become repetitive the decisions of an individual are overshadowed by feelings and so we can say that investment decisions of an investor are not only rational as explained

by traditional financial theory and also not only irrational as explained by prospect theory.

One unified theory which explains rationality and irrationality, and which is linked with the investment decisions using risk perception, moods and sentiments is yet to be formulated. This thesis uses the two broad theories that support the objective of the research: Markowitz portfolio theory i.e. Traditional financial theory and the Prospect theory i.e. Behavioural economics theory. The rationality aspect builds from the traditional theory and the irrationality aspect from the behavioural theory. The irrationality in decision making can be explained with the concepts of risk perception, moods and sentiments. Not much work has been done on measuring the psychological factors like moods and sentiments on Indian population. Also, this research work also focuses on studying demographic characteristics of investors based on their risk perception and psychological factors. The reasons for the particular choice of investment avenue will also be clearer when we connect it with the demographic characteristics of an investor.

It is very recent that, the researchers have started to acknowledge the prominence of incorporating behavioural and psychological factors into the existing traditional theories to have a clear understanding of the decision making of individual and of the markets where investment is involved.

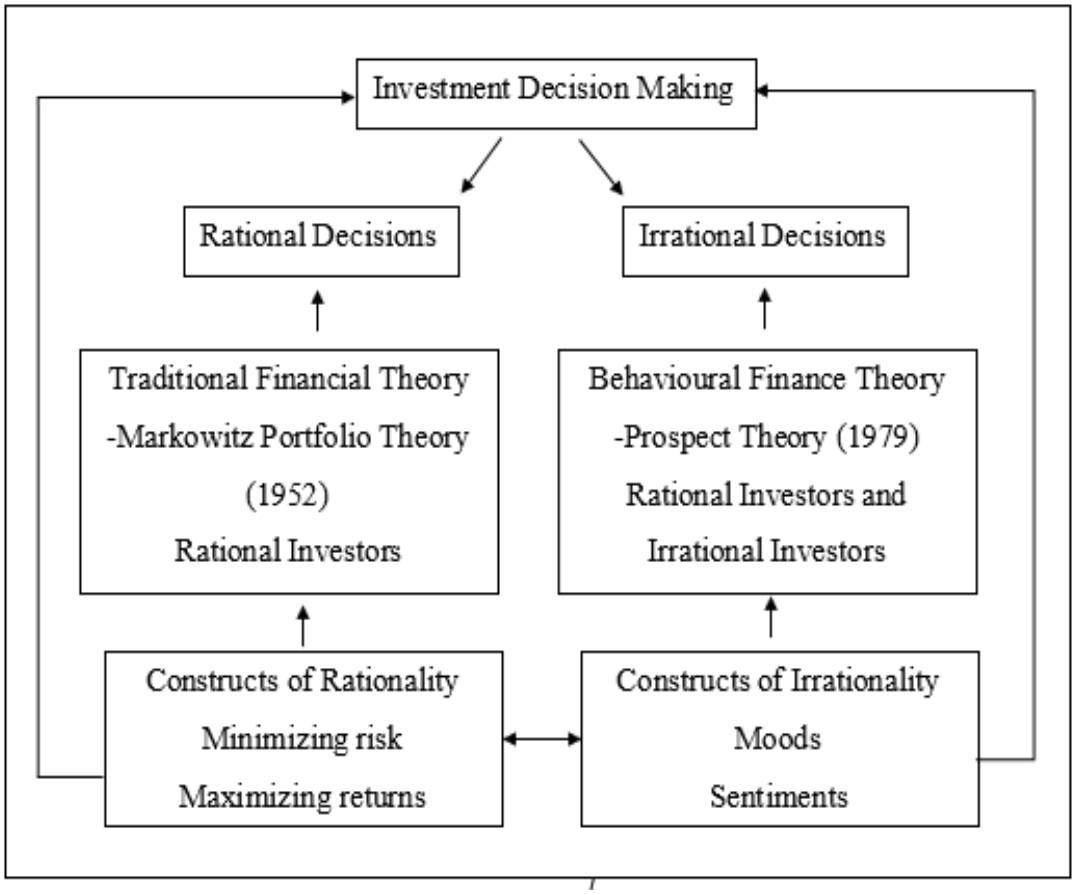

Figure showing the theoretical premise of the study

1.8 Business Problem

India is one of the emerging market economies of the world and may have a large number of prospective investors. Predicting investor behaviour has always been a challenge to all the researchers, investment planners and policymakers. An investor behaves according to the risk attached to particular investment avenue, his demography characteristics like age, gender, marital status etc. and also how he perceives risk, how his moods and the economic sentiments affect his decision making. The researchers have studied the risk associated with each investment avenues but very few studies explain how an investor perceives risk from various investment avenue. Also, the psychological factors have a dominant role in investment decision making which is not examined by many researchers in Indian settings. This study is unique as it uses the set of demographic characteristics to explain the risk perception of Indian investors and

also incorporates the psychological factors to explore the investors' choice to invest in risky versus non-risky investment avenues.

Thus, the business problem of this thesis is to identify the key factors that influence investment decisions of an investor. The instability in the economy can be tackled in a way and better economic policies can be made to regulate the savings of an investor, manage this risk-return trade-off depending on the objective of the investment. An investor's objective of minimizing the risk and maximizing the return can only be attained when we know exactly the factors that affect the investment decisions of Indian investors. This thesis discusses the relevance of studying demographic characteristics of an investor, risk perception, moods, sentiments, social and environmental factors to understand how individual investment decisions are taken. If we understand how risk perception, moods and sentiments affect the individual investment decision making and how they are interpreted in the financial markets it would help to have a deeper understanding of how decisions are formed. The lack of understanding of how investment decisions are shaped by moods and sentiments, calls for more empirical work to explore this paucity.

1.9 Statement of the Research Problem

Studies on Indian population focus on the objective risk of investors and silently ignores their risk perception. Risk perception is one of the factors that determines investment decisions, as these feelings of risk will affect the way information is integrated by the investor and this will affect the investors choice for risky versus less risky investment avenues. Investor demographic characteristics, age, gender, marital status, educational qualification, occupation, monthly income and number of dependent family member will affect the way an investor perceives risk. When we understand risk

perception in relation to his demographic characteristics, we can then only determine how there is a difference in risk perception among various investors.

Researchers in the field of psychology has studied mood of an individual in detail. The Affect Infusion Model (AIM) and the Mood Maintenance Hypothesis (MMH) have related moods and decision making. The mood of an individual in decision making is studied by scholars in laboratory settings (Chou, Lee, & Ho, 2007) and a very few focuses on constructs (Helliwell & Wang, 2013) which cannot be used to determine moods of Indian population. Hence, there is inadequate literature that describes the ways to measure the moods of Indian investor.

A number of attempts has been made by researchers to capture the economic sentiment which are influenced by various environmental factors (Nofsinger, 2005). The economic conditions of an economy may be on the upsurge, but an investor may still not be confident about the growing economic scenario. Thus, there is paucity of research that helps to calculate the optimism and pessimism of each investor individually.

In total the investors decision making is widely captured objectively that focuses on the risk that is attached to investment avenue and how investors belonging to different demographic characteristics interacts with them. The literature lacks in the explaining the feelings of an investor, how these feeling of an investor makes him different from other investors and how these feelings affect his interaction with risk. By studying the subjective perception of risk, moods and sentiments, towards the investment decision, a clear understanding can be derived which will help to clearly categorize investor who are risk seekers and who are risk avoider and their way of interacting with risk which influences their investment decisions.

1.10 Need of the Study

Investments help an economy to boost the economic growth of a country. Indian economy recorded a population of 1.37 billion in 2019 based on UN data and it is expected to rise. India's economy is growing at a fast rate as compared to other developing economies. More than 65 per cent of the Indian population is below the age group of 35 years. Younger population are enthusiasts and look for money creating opportunities and for employment. Major policies in India are focusing on creating youth employment so that they earn regular income and with regular income they will have a scope to save some money (Youth in India, 2017). Growth of Indian economy is also boosted by the 30% of household saving, which is a large contribution for the development process. If the savings of these people are channelized properly, they can help themselves as well as the economy to grow faster.

There are various investment avenues available to Indian investors where they can park their savings to acquire some returns in future. The investment decision of an investor affects not just himself but also, society, industry and economy at large.

This study captures attention of investors by highlighting the need to understand feelings i.e. psychological factors that influences the decision-making process of an investor. This study develops Investor Mood Index and Investor Sentiments Index which will help an investor to calculate his moods and sentiments correctly. If an investor in not able to correctly measure his risk perception, mood, sentiments there are chances that the investor can make wrong decisions and this will demotivate him to invest in other investment avenue in future and he might keep his savings in form of cash, which will not get converted into investment and this will hamper growth of his own money and also hamper the economic growth of a country.

An individual invests money in stocks which indirectly helps that company or industry to grow. So, proper channelization of savings is good not just for the investor but also the company as then only those savings will help the industry to grow and this will fetch good returns to the investor also. Thus, the calculative decisions whether to invests or not invest, how much to invest becomes the core of decision-making process. If the investment decisions of an investor are not studied and predicted accurately, this will cause a huge loss to the industry. The investment decision making has become one of the fiery topic of discussion not just in India but also in financial institutions like World Bank (Helms, 2006). Financial institutions are aware that India has an enormous market and will demand various investment options according to their varied needs and requirements.

It is important to have a clear understanding of financial markets so that the customer that is the investor can be cautious while making decisions which help him to divert these saving into more useful projects and helps him to grow in future.

Thus, this study highlights the importance of studying investment decision making which affects not just the individual but also the economy at large.

1.11 Rationale and Motivation

The study of individual investment behaviour is important because an individual's wellbeing is directly affected by his financial management and markets are affected by investor behaviour. Each investment has an opportunity cost and thus, while reaching a decision an investor has to weigh several things before, he finally chooses to invest in his selected options. Investors do not just get influenced by his demographic characteristics but also by his psychological factors like moods and sentiments, friends, family, internet, and also by the advice of their financial advisors. It would be unreliable to solely model the investment decision of an investor based on his demographic

characteristics. Hence, investors perception of risk and his/her psychological factors become relevant if we want to project a sound model of investor behaviour.

"The market is not a weighing machine, on which the value of each issue is recorded by an extent and impersonal mechanism- rather- the market is a voting machine, where countless individuals register choices which are the product partly of reason and partly of emotions" as said by Graham and Dodd (De Bondt, 1998). Each investor takes a decision in solidarity, but comprehensively it affects the financial markets. Thus, the decision of each investor influences the financial market. Financial markets and its functioning have been studied by many scholars yet, we have seen economies suffering from the financial crisis. This becomes challenging for both individual investors and financial service providers as they have to be more cautious in terms of selecting investment avenues and carefully looking at risk and return associated with it and also, focusing on factors like moods and sentiments that affects the investment decisions of an investor.

1.12 Outline of the Study

The main objective of this thesis is to review the factors that affect the investment decision of India investor. Along with the demographic factors; risk perception and psychological factors are explained by behavioural finance that affects the investment decisions of investors. To achieve the above mentioned objectives, this thesis does an exhaustive literature review on investment decision making done by various researchers, who discuss about various demographic factors like age, gender, marital status, educational qualification, occupation, monthly income, number of dependent family members, perception of risk, investors choice for risky or low risky assets and also on factors like moods and sentiments which affects the decision making of an investor. In this thesis, the logistic regression model was run to find out the effect

of the various independent variable on risk perception and the investors choice to invest in risky versus less risky investment avenues. This study tries to identify all the representative factors which are described by researchers but either has not been studied in cohesiveness or is studied less in the Indian context. The various methods used by researchers to explain investment decisions are also explained in the thesis. It was a challenging task to study the factors affecting Indian investors and their choice of investment avenues as Indian has vast cultural differences, varies in emotional context and the difference in ways the society interacts (Sathe & Handley-Schachler, 2006) . Thus, a major effort was put to unite the works of various scholars from diverse fields to give a comprehensive explanation of all factors that influence the investment decision of investors. The results are presented in chapter 4 of this study.

1.13 Contribution to the Study

This research leads to a general contribution to the field of investment decision making. The contributions of this study are as follows:

There are many studies that focus risk attached to investment avenues and how people interact with the risk, how investors choose investment avenues to fulfil their objective of maximizing returns and minimizing risk but very few studies focus on the way risk is perceived by an investor. This study attempts to capture the risk perception of Indian investors.

Each individual perceives risk differently. This study focuses on the investors and categorizes them as risk averse or risk takers on the basis of how they perceive risk, and then tries to find out the influence of each of the demographic factor i.e. age, gender, marital status, educational qualification, occupation, monthly income and number of dependent family members on the risk perception of Indian investors.

It is very recent that moods and sentiments have been recognized as influential factors which affect the investors' decision making. Studies have been done to explain the cognitive biases caused by these psychological factors i.e. moods and sentiments, which hampers the process of decision making. Through this study, we will explore the effect of moods and sentiments in the decision-making process of an individual and then we will try to establish a relationship between moods and sentiments and investment decisions.

The riskiness of investment avenue is a way to differentiate between risky assets and low-risk assets. An investor tries to diversify his wealth by investing in either a risky asset or a non-risky asset. This study will try to find out the effect of demographic characteristics and psychological factors on the investors' choice to invest in risky versus less risky investment avenue.

1.14 Organization of the thesis

This thesis consists of five chapters, which are as follows:

The first chapter is the introduction to the topic that includes the importance for studying investment decision of Indian individual investors, the factors that affect their decision making, how investor perceives risk, and how moods and sentiments have an impact on decision making. This chapter also discusses how investors perceive risk which affects their choice of investing in risky assets. It highlights the Indian investment scenario in relation to different investors and their demographic factors which affect their decision making. The first chapter explains the rationale and motivation to conduct this study together with the contribution of the study in various interdisciplinary fields.

The second chapter reviews the literature that studies investor behaviour and factors that affect the investment decision making as studied by various researchers.

This study also focuses on the extensive literature of various researchers who attempt to provide an in-depth review of essential parameters for the study. This section also highlights the various theories which explain investor behaviour in a detailed way. There is a critique of earlier existing theories which has been compared and contrasted in this section and support of the new theory is also highlighted with the relevant work in their fields. The various variables used to study mood and sentiments as inputs are also presented. This chapter also highlights the research gaps as a result of an extensive literature review. It explains the rationale of the study followed by the statement of the research problem, objectives of the study, research questions and scope of the study.

The third chapter discusses in detail methodology followed to answer each research question and basic concepts. This section explains each step of how the data was collected and which method will be appropriate to conduct the study. To fulfil the research objective of the study tests and models were chosen wisely depending upon the category of variables under study. The binary logistic regression models are used to explain the relationship between the outcome variable and the independent variable. It also explains the data sample and preparations done for analysis of primary data.

The fourth chapter discusses in detail the result and analyses of the data collected from the field. Each research objective was fulfilled and the relevant methods to reach to the conclusion has been framed. This chapter explains the profile of the respondents on the basis of each research objective which the study wants to achieve. The model design and analysis are explained step-by-step in this chapter. The results thus found are reported and interpreted in this chapter.

In the end, the fifth chapter concludes the thesis with additional remarks and further scope of the study. It put forth some potentially important research directions. References are given at the end to support the work.

CHAPTER 2: LITERATURE REVIEW

2.1 Definitions

An investor is a person who earns or receives money from parents or from a spouse on some timely basis and who invests in different investment avenues in anticipation that what he invests today will yield him/her with some return in future, keeping in account some risk attached to every investment avenue (Hornsby & Blumberg, 2013) .

For this study, the risk is considered as the intentional interaction with uncertainty which means that the individual is sure that the return from investing is not sure but still, he is willing to put his money in that investment.

Scholars from various disciplines have attempted to explain investor behaviour. Psychologists state investor behaviour as when individual characteristics of an individual affect his investment decisions. Sociologists explain investor behaviour as when an investor behaves in coherence with his surrounding environment. The concept of rationality and irrationality in decision making was introduced by economists to explain investor behaviour (Shanmugham & Ramya, 2012). But many a time investor ignore a certain type of information; this force him to make an irrational decision.

Moods are a brief state of feelings for a particular time which can influence investment decisions as it may affect expectations of future fundamentals by interacting with risk (Hirshleifer, Investor psychology and asset pricing, 2001; DellaVigna, 2009; Baker & Wurgler, 2007).

2.2 Traditional Economics versus Behavioural Economics

The traditional theories main stand was that agents are fully rational, and decisions are based on the complete available data which can be proven with the concepts of mathematical calculations. During the eighteen centuries, the classical

period of economics the concept of utility, satisfaction derived by consuming a good or service, was introduced. The concept of homo-economicus, maximization of the economic well-being of an individual based on self- interest and perfect information, was introduced by J.S Mill (Pompian, 2008). These theories are believed to find a solution to real-life financial problems based on numerical calculations.

This approach is applicable in logic when the investors and the markets have complete information such that the prices of the securities will be reasonably and thoughtfully priced. But in reality, there are markets which are largely inefficient and underreaction, overreaction are a few concepts that show some non-coherence with the traditional theories (Prosad , Kapoor, & Sengupta, 2015).

"People in standard finance are rational. People in behavioural finance are normal", as said by Meirstatman (1999).

The main theme of the evolution of behavioural finance from the traditional framework is as follows: the insufficiency of standard finance theories, the caveat between traditional theories and the market conditions and the unexplained anomalies of investment in the financial markets. (Prosad , Kapoor, & Sengupta, 2015). Hence, it becomes necessary to understand the anomalies in human judgement and decision making, so behavioural economics was used as a base to understand the economic process using the psychological foundations.

Behavioural Economics is the field of research which involves the insight from psychology to explain the economic process and also, to study in detail the behaviour of financial markets and its participants, a subfield called Behavioural finance came to the forefront to study the financial markets in particular. This field's core concepts are that individuals are influenced by their thought process and by the thoughts of other social beings which leads them making decisions based on not all the information but

on selective information. Barberies and Thaler (2003) were of a view that the rationality concept cannot explain the features of financial participants.

Behavioural economics provides a piece of much-rooted information on the psychology of the people who are dealing in the markets. The scholars in the field of behavioural finance suggest that investors are irrational i.e. normal and not rational. The means variance theory is not the only criteria for selection of assets and that risk alone is not the factor that determines the choice of the asset (Prosad , Kapoor, & Sengupta, 2015). The decision making of an individual is also influenced by the environment in which he lives, and that social psychology helps to explain this.

The concept of emotions, morals, moods did exist from a long past. In the book, Theory of Moral Sentiments and Wealth of Nations by Adam Smith introduced the concept of the invisible hand, morals of individuals that guides them to make a financial decision considering social and economic factors. Researchers also highlight the influences of emotions especially happiness which clouds the decision making of an investor. Simon (1959) put-forth the concept of bounded rationality, which explains that individuals do not have the complete information and that the mind exhibits cognitive limitations. The concept of human judgement and its consequences in decision making is explained here. An individual measures risk is in the percentage of total assets (Prosad , Kapoor, & Sengupta, 2015). The concept of cognitive dissonance when an individual feel unhappy and tries to apprehend by changing his own feelings. The concept of normative approach, descriptive and prescriptive approach has led to a vast field of knowledge that explores how the decision is taken and how they can be improved. Out of all these theorists claiming the impact of psychology in decision making, the seminal works that led to the recognition of it is done by Daniel Kahneman

and Amos Tversky, who introduces the concept of prospect theory which is considered as the strength of behavioural finance.

The approach of rationality was the pillar of financial decision makers only until it proved not significant in explaining the market conditions in real. The assumptions of the traditional theories are characterised as oversimplified (Prosad , Kapoor, & Sengupta, 2015). These assumptions of these traditional models are normative, explains how it ought to be rather than being descriptive, explaining how they actually are.

This new field of research i.e. Behavioural Economics provides a framework of understanding that, humans are disposed to irregularities which effect that particular individual, financial advisors and policymakers at larger. It helps to identify the miscalculations involved in the financial decisions made by society at large and individual in particular (Camerer, 2014). It explains that individual when they receive new information they act accordingly, changing their decisions based on the new information, which gets them maximum satisfaction i.e. maximum expected utility.

The works of Miller (1977), Mullainathan & Thaler (2000) and Camerer (2014) all highlight the literature from behavioural economics and behavioural finance which focuses on irregular returns, internal and external factors and the difference between earning by skill versus earning my luck. The rationality of investors is affected by certain other factors which also affect the decision-making process of an individual. The factors that affect are described as socio-demographic factors by the researcher and recently acquired knowledge from the psychology of an investor. Thus, all of these factors simultaneously affect the decision making of an investor.

2.3 Irrationality

Markets and investors irrationality have co-existed since their inception. The concept of irrationality is explained by many researchers through the example of the

market or by their social experiments. The best example and very famous that caught the attention of the investor is of Tulip Mania (Shiller R. , 2000). This new flower grabs the attention of people and they all started to invest in this exotic flower. The price of the flower was ones exorbitantly high, compared to its original price. But soon the markets collapsed, and prices plunged down leading to heavy losses of investors. This is an example of the erratic behaviour of investors.

From the field of psychology, James-Lange, Cannon Bard and Schachter-Singer explains about emotion and how it affects human responses. These responses are towards stimuli and often lead to simultaneous experiences which are depicted in behaviour. An investor also interacts socially, and the decisions of an investor can be sometimes based on some events having specific experience. The specific events can hamper the rational decisions of an investor.

Other events like these raised a question in the mind of few economists who had started now to think whether investors are really rational? The new evolved fields of economics and psychology now believe that there are observable deviations from the framework of traditional financial theorist**.**

2.4 Investment Avenues

Investment decisions involve the choice of an investor which includes, where to invest when to invest, how much to invest and what to expect from various financial products (Das S. K., 2011). Bhavani & Shetty (2017) in their study focused on investment avenues like life insurance policies, bank deposits, mutual funds and equity and found out that demographic variables like age, gender, education and occupation influence the selection of investment avenue.

Mutual fund as an investment avenue is studied by Sindhu & Kumar (2014) to find out the factors that influence the risk perception of investors investing in mutual

funds. Mutual fund providing companies should try and introduce various options in their products so that there is a combination of schemes which an investor can choose if he has to fulfil his various goals.

The literature often we will find that investment is also categorised into physical assets and financial assets. Physical assets include gold, real estate, car, antiquities, whereas financial assets are fixed deposits, saving deposits, PPF, mutual funds, shares, debenture, stocks etc. For, Indian investors' there are wide variety of investment options that are available to him like: national saving certificate, insurance schemes, bank fixed deposits, bonds, government securities, real estate, gold etc. (Apparao & Kishore, 2015; Bhushan, 2014; Gupta & Jain, 2008; Mane & Bhandari, 2014). The most preferred investment avenue is fixed deposits followed by shares and insurance scheme (Apparao & Kishore, 2015) but Mane & Bhandari (2014) found that gold and land were the most preferred once but according to Samundar & Burghate (2012) bank deposits and for Shah & Dalvadi (2016) equity market.

Investors are aware of traditional and safe financial products, but their awareness is low. So, Investors still invest in traditional and safe investment avenues (Bhushan, 2013; 2014). There are various numbers of factors that affect the choice of investors among various investment avenue (Lodhi, 2014). The common factors were the company's stock, expected stock split/ capital increase/ bonus, dividend policy, expected corporate stock, expected corporate earnings and get-rich-quick (Obamuyi, 2013). When an individual investor underestimates the risks and lacks the necessary knowledge for evaluating stock prices, then it is the social impact on opinions that derives an investors decision. Hence, the stock market can be influenced by social mood (Shiller,1984).

Mutual funds are not with associated with high risk as they give an opportunity to small investors to pool together their saving, invest in the capital market and pass the benefit to the group of small investors (Walia and Kiran, 2009, 2012; Kumar, 2011). So, a small investor does not have to track the market on a regular base (Sindhu & Kumar, 2014). Investors are dependent on financial advisors for making investment decisions (Diacon & Ennew, 2001). It requires a high level of understanding for investment products.

From the vast literature so far, it can be concluded that gold, bank deposits are considered as safe and less risky investment avenues and Indian investors prefer to invest more in less risky investment avenues but for a investors there has been a shift from less risky to risky investment avenues.

2.5 Factors Affecting the Investment Decision

Investment is a kind of deferred consumption, with the aim of getting returns in future (Mane & Bhandari, 2014). Various factors which affect investment decision can be categorized into socioeconomic, demographic (Geetha & Ramesh, 2011; Jain & Mandot, 2012; Mane & Bhandari, 2014), attitudinal factors (Apparao & Kishore, 2015), familiarity, satisfaction and opinion (Davar & Gill, 2009; Bhushan, 2013, 2014) Investor behaviour is also governed by some of the behavioural factors (Shah & Dalvadi, 2016). Investors invest because they want wealth maximization, children's welfare and contingency management (Shah & Dalvadi, 2016), for future, capital appreciation, regular returns, speculative gains and tax benefits (Apparao & Kishore, 2015). Also factors like the return that gives the most temptation to the investor to invest in various avenues available to him (Lodhi, 2014) followed by income/ profit (Apparao & Kishore, 2015).

Increasing household income and higher is the saving rate (Geetha & Vimla, 2014). Investment also depends on the duration of return, safety, liquidity, protection against inflation (Lodhi, 2014; Mane & Bhandari, 2014). Stocks are highly risky because of the investors who become greedy or fearful which makes them over-optimistic or over-pessimistic in their investment decisions (Shah & Dalvadi, 2016).

2.5.1 Demographic characteristics that affect the investment decision of investors.

When an investor is making a choice between various investment avenues his behaviour is influenced by many factors. Socioeconomic factors and how investors perceive risk is what influences the investor behaviour the most. Financial advisors also take into consideration these factors before giving advice to their client.

Age of investors.

Different categories of people perceive risk differently. The variable age is significantly studied by various scholars and is considered one of the most important factors that affect the investment choices of an investor. It is assumed that as the age of the investor increases his tendency to take risk increases until a certain age. "The investors act irrationally" (Shiller R. , 2000) it depends on age, gender and monthly income (Gender differences in investment behaviour, 2006). Scholars conclude that an investor who has attained the age of 20 years to 30 years can make sound financial decisions. 50 years is reportedly marked as a maximum year or peak years and then sharply after 70's and 80 years old.

Scholars have found that age is an important factor which influences an investment decision (Geetha & Vimla, 2014; Chaturvedi & Khare, 2012). 35 and below are moderate risk takers and prefer to invest in insurances. Between age group. Of 36-54 invest for children's education and select those avenues that are less risky like insurance and pensions. And 55 and above invest in bank, gold and insurances

(SuyamPraba, 2011; Lodhi, 2014; Mane & Bhandari, 2014). Rana, Murtaza, Noor, Inam-u-din & Rehman, (2011) found out that as the person reaches his retirement his risk aversion increases.

Obamuyi (2013) conducted a study on socio-economic characteristics of investors investing in the Nigerian capital market and concluded that age, gender, marital status and educational qualification significantly influences the investment decisions. Some scholars even argue that besides the age of the investor, it is also the experience in the financial market that determines his investment decision making.

Gender of investors.

Women differ from men its terms of their investment behaviour. They are more conservative decision makers when the decision is about investing money. Even when women have the familiarity with a particular investment avenue, and have multiple times invested in the same avenue, still they ready to avoid the risk i.e. become risk aversive. Scholars also studied the investment behaviour of different gender with respect to mutual funds as an investment avenue. When women and men compared on the basis of the most recent and riskiest mutual fund investment decision, it again proved that women are less risk-seeking than men. There is a common belief that women are more risk-averse (Vyas & Moonat, 2012).

Very few percentages of India women actively participate in the labour force, because of this fact there is a wide gender gap in salary structure, and this can be one reason that women are more risk aversive than men. One more reason for this can be that women invest a very small portion of their wealth as compared to men, so they are considered to be more financially risk aversive.

Gender influences the investment decisions of investors. Males have higher financial awareness as compared to females (Joyce, Lasaosa, & Tong, 2010; Bashir,

Ahmed, Jahangir, Saeed, & Shafi, 2013; Bhushan & Medury, 2013). Between males and females, there is a huge variation in the willingness to take the risk. Women are considered to be below average risk takers or average risk takers. There is often seen a change in the investment preferences for males as well as females. For females change in the marital status, the arrival of a child, or death of family member but males on the other hands because of nearing the age of retirement or sudden financial gain. Contrary to males', for females' divorce has been an important factor for her financial involvement (Gender differences in investment behaviour, 2006).

Purohit & Chutani (2016) are of a view that mutual fund is the are ideal investment avenues for women, as they are less risky provides good returns and also liquid. This is one of the very few studied that I found have focused on women, working and belong to the urban sector, which studies their attitude towards mutual funds. They found that women prefer investing for one to three years in less risky investment which yields a high return, also they prefer taking help of brokers and agents for choosing their investment options (Dwyer, Gilkeson, & List, 2002).

Gender as a factor that influences investment decision is considered important in behavioural finance. The difference is also seen in the way financial information is processed and how this information directly influences the investment decision of people belonging to a different gender. The difference in the risk aversion between genders is not just seen in investment behaviour but also in shopping through an online channel. And also, men pay more attention than females and are more aware of different investment avenues (Eckel & Grossmann, 2008).

Various studies conducted in Central Asia have shown a consistent result (Coleman & Eccless, 1997; Ragab & Omran, 2006). Study done by Mane & Bhandari (2014) is the only study which concluded that it is the women who decide for the family.

The investment decision is affected by gender and saving level (Gunay & Demirel, 2011) along with income and years of investment (Shah & Dalvadi, 2016).

The extensive work on gender and choice of investment avenues can be concluded by saying that women are fewer risk takers, they will confine themselves to lower risk, even when they have familiarity and then income to invest, and they will confine themselves to less risky avenues.

Educational qualification of investors.

Investment choices of individual investors have also been compared with education as a factor. An investor is assumed to be more conscious and learned when he has a higher degree of knowledge. It is believed that higher the education, more is the knowledge about various investment avenues and thus the decision can be very thoughtful.

Level of education influences awareness level of youth (Mane & Bhandari, 2014). Investors who are graduates and postgraduates are moderate risk takers, so they invest in insurances, banks; who are just school level pass invests for exigency and retirement, hence they are risk-averse. Investors with higher education qualifications opt for short term-investments (Akhtar, Rehman, & Hunjra, 2011). Age, gender, marital status and educational qualifications significantly influence investment decisions of Nigerian Stock investors (Obamuyi, 2013) and Columbo Stock market (Udeepa, 2015).

Occupation of the investors.

Researchers have focused on various occupations of respondents like students, people belonging to salaried class (Bhushan, 2013; 2014), self-employed and retired (Mane & Bhandari, 2014). But all the researchers have not yielded similar results. Some scholarly work also reveals that for working adults there is no significant effect of age, gender, income, marital status and employment status (Sood & Medury, 2012) and that

Investment in the stock market is not influenced by demographic attributes (Shah & Dalvadi, 2016). Investment decisions can be influenced by educating investors about business finance (Lodhi, 2014).

Monthly income of the investors.

Risk aversion is assumed to reduce as the income of the investor rises. When an individual earns high per capita income he/ she invest more and person who is not financially independent do not invest much as the need for both the class of people will differ. Investors with less than Rs.1 Lakh are risk-averse and invest in insurance, between 1-2 lakh has the aim of creating wealth, between 2-3 lakh some are moderate risk takers and very few are risk-averse, and more than 3 lakhs fall in both the categories of a risk taker and risk-averse (Mane & Bhandari, 2014). With the increasing number of years spent in investing it increase income per annum (Shah & Dalvadi, 2016). As it increases the experience of investor and he can be able to invest in such investments which are less risky, and which yield more return.

2.5.2 Risk perception.

According to Solvic (1987), "Psychology of risk is the ability to predict and explain what kind of people will perceive dangerous and to be how much dangerous". Financial investments have volatility between actual and expected returns. Each investor has to choose amongst various investment avenues and the risk attached to each one it.

Risk is understood in different ways by different scholars. In finance and economics, the risk is defined when an outcome of a decision has some probability of occurrence attached to it. There is no universal definition of risk which is accepted by scholar throughout ("Risk perception: Theories", n. d.). However, researchers believe that when an individual put himself in a situation of which the outcome can be

unexpected and even land him in a hazardous situation is called a risky behaviour. The study of risk perception and investment decision has become an important topic in the emerging field of behavioural economics and behavioural finance (Arruds, Moraes, & Oliveris, 2015).

Risk, as defined by the National Safety Council (2003), is "a measure of the probability and severity of adverse effects". Thus, risk brings with the outcome of which we are not certain or sure about. Each time the investor has to decide among various investment choices he looks at the probable difference between the actual return and the expected return as risk is an inherent feature of all investment choices. The attitude of an investor towards the risk determines an individual investor's decision making. The investor can either perceive more risk from a risky investment avenue of he can perceive less risk from the same investment avenue. The risk perception among individual differs according to the risk-taking tendency of that investor. Perception is considered to be progression which searches to explain the sensory information so that each individual can make his final choice based on his past experience and how confident is he with the present knowledge (Sindhu & Kumar, 2014).

The behaviour towards risky investment avenues is also determined by how he perceives risk and how he interprets it. How an investor perceives risk determines his actions in the financial market. Risk perception is the way in which an investor evaluated the risk attached to financial assets (Sindhu & Kumar, 2014). Investor choices are based on his concerns regarding return determined by his financial experiences. It can be rational or an irrational belief, which is held by an individual or by a society which influences their decision making. Each investor takes risk according to his risk tolerance, his expectation of returns and the objective by which he is investing.

Risk perception is defined as the emotional state, fears, opinions, judgements and experience about the factors like chances of the suffering of loss, acquaintance about particular investment avenues, the impulsiveness of returns and diversification of portfolios (Sindhu & Kumar, 2014).

Our portfolio selection depends on the way we perceive risk. According to Kahneman and Tversky (1979) often people are risk averse i.e. they avoid risk. Singh & Bhowal (2010) were of a view that in the behavioural finance literature has a rising issue of the effect of risk perception on investor behaviour. Risk perception is based on experiences and concerns of an investor, and the way he thinks about risk (Deb & Singh, 2016; Riaz, Hunjra, & Azam, 2012; Sindhu & Kumar, 2014). Risk perception is a belief that moulds an individual to take risky or less risky investment decisions. Investors' behaviour is influenced by risk perception. A study conducted by Deb and Sing (2016) concludes that there is an inverse relationship between risk perception of bank employees and their volume of investment in mutual funds. Bank empl (Fischhoff, Solvic, Lichtenstein, Read, & Combs, 1978)oyees consider equity shares riskier than mutual funds (Singh & Bhowal, 2010). On the basis of risk that a person is willing to take, an investor in classified into risk taker and risk-averse (Lodhi, 2014).

An individual how he perceives risk depends on his judgments, beliefs, feelings, cultural values and attitude etc. Other than this also a lot of qualitative factors like huge losses, the uncertainty of outcomes, effective response and familiarity can also influence the perception of risk. Thus, it is argued that the perception of risk depends on the level of knowledge and uncertainty of the outcomes (Fischhoff, Solvic, Lichtenstein, Read, & Combs, 1978; Macgregor, Solvic, & Evensky, 1999).

Risk perception is affected by cognitive biases and societal influences and so different people perceives risk differently. Risk perception is also linked to loss

aversion by Kahneman and Tversky (1979), which says that losses have more effect than gains. Diacon and Ennew (2001), in his study, did not define risk. So, the individuals can explain their own understanding of risk, by the choices he describes with the help of a questionnaire. Depending upon the severity, degree of control, knowledge and immediacy of effect the respondents replied about their understanding of financial risk. Also, through the questionnaire, an effort was made to find out the perceived risk-return trade-off.

Risk aversion and Financial Literacy in various developing countries are studied by various researchers (Geetha & Vimla, 2014). Risk perception affects portfolio selection (Shah & Dalvadi, 2016). Investors are risk-averse because of the following factors like age, sex, race, religion, unemployment and economic crisis Also, Education, marital status, number of children, have less effect on risk perception. The studies conclude that risk aversion and financial literacy affects the investment decision of investors participating in Pakistan stock market (Aren & Zengin, 2016; Badshah, Hakam, Khan, & Saud, 2014). It is argued that short term investments are riskier than long term investments (Lodhi, 2014).

The investors before investing consider the rate of return on that investment and also risk attached to it. With a high-risk investment, more returns are expected (Kumar & Sajana, 2017). Investors who are risk takers are of a view that higher the risk, higher will be the return from that particular investment avenue. The investor makes different estimates of the returns depending on the risk attached to it. Miller (1977) explained this with the help of short selling's that investor gets involved in while dealing with risky securities.

The concavity of utility function is risk averse as explained by expected utility theory (Seth & Chowdary, 2017). As a rational investor will maximize his utility which

he calculates by assigning probabilities to the weighted sum of expected utility. The concave utility function explains the declining utility function as the wealth increases.

Factors affecting risk perception.

There are three factors that are assumed to affect the risk perception of individual investor they categorised into three levels: macro level, meso level and micro level. The macro level includes the factors that are structural in nature level, the meso level includes the factors that represent at a community level and micro level factors that effect at the individual level ("Risk perception: Theories", n. d.).

The factors that influence the investor decisions at a structural level i.e. macro level are the economic policies and structure of the financial institutions. These can have a major impact on the way how investor perceives risk. If the structure of an economy is such that it promotes confidence and safety in its market, the individual investor's perception of risk will in this way be influenced.

There are factors that influence at community level i.e. meso level. Like the family settings, relatives, friends and colleagues that influence the way an individual investor perceives risk. This can lead the individual to take a decision not influenced by his experience or expertise but coloured by the thoughts of his surroundings. Often when an individual spends most of his time among those people who are investing in avenues with high risk the individual also invests in similar securities because his peers are investing in it. He loses his ability to accurately weigh the risk attached to each investment avenue. Because of the desire of recognition amongst the peers motivates him to perceive less risk from a high-risk investment avenue.

The factors that influence at the individual level i.e. micro level like investors knowledge about the various investment avenues. It is believed that investors involve in less risky assets when he has less information about it, but his choices are reversed

as soon as he thinks he has the sufficient knowledge about particular investment avenue and thus gets involved in assets that are categorised as high risk. At this level it is only the individual's knowledge, his expertise and assessment that drives his behaviour. The anxiety of an investor is lessened when they think they have personal control over the choices in terms of investment and this leads his behaviour to engage with higher risk. Optimism biases also influence investor behaviour at this stage. Optimism bias in when an investor thinks that he is less likely to be in a negative event as compared to other individuals who are also investing in the same investment avenue.

Situated Rational Theory- The individual investor cannot adjust himself to a constant level of risk, because he does not have full knowledge. Hence, high risk-taking behaviour is extremely irrational as compared to rational behaviour (i.e. safe behaviour). But when an investor is seeking high risk from a choice it is considered rational as a reward for that risk is too high and the investor has justification that is explanatory. This concept is primarily explained by situated rational theory. This theory expounds the engagement of high-risk behaviour of an individual to his societal and psychological factors. An investor does not just take his perception while deciding but also considers the actions and norms which govern his peers. This can direct the investor's behaviour towards investing in high risky investment avenues, perceiving less risk and high returns only because it is recognised by friends and colleagues. This theory can be extended to social actions. When society at large is engaged in a particular activity those actions or choices are not considered unsafe because society as a group of investors does not attach risk to that choice and because the investor thinks that such number of people cannot be wrong at the same time. This motivates the investor to act in coherence the society he is surrounded by.

Habituated Action Theory- Theorist argue that when the outcomes of risky choices are not undesirable for a consistent time an individual often undertakes that the risk attached to it has decreased and hence less risk if perceived with that choice. So, when an investor over a period of time choose high risky investment avenues without incurring a loss he comes desensitized to the risk attached that investment avenue and hence an investor falls in the trap of vicious circle which can put his investments in danger of bigger losses (Kasperson, et al., 1988).

Solvic (1987) defines emotions as the main cause of risk perception. "Risk perception is defined as the subjective judgements which relates to how much people know about and understand risks". Perception of risk is formed on the knowledge and experience which is attained from the environment around (Bairagi & Chakrorty, 2018). After comparing amongst the various investment avenues women's risk perception is more as compared to men and thus, they invest less in risky assets (Wang, Keller, & Siegrist, 2011)

In terms of research that has happened in India which studies risk perception of investors are few. Walia & Kiran (2012) studied the preferences of an investor in relation to their risk perception in Indian markets. Based on how investors perceive risk, they are categorised into risk seeker, and risk avoiders. How an investor accurately calculates the risk depends on his personal quality and the way he perceives risk. Kaplanski, Levy, Veld, & Merkouova (2012) conducted a study on 2,226 samples by floating a questionnaire to find out a single measure that is used by investors to measure risk. They found that there are multiple measures that are used by investors to perceives risk. Also, the market rate of return of their investment was the most important determinant that influenced their perception of risk (Sindhu & Kumar, 2014). To determine a situation as risky or less risky is on the ability of investor.

The investor's risk perception also determines the profit that he is expecting to return and the strategies which will help the investor to enter the security market. The risk-return perception is studied in context on mutual funds by Vyas & Moonat (2012) to find out the ways adopted by investors which can help them to ease their selection choice. For Taiwanese investor gender and risk, the perception has no significant relationship but investors with little experience had perceived high-risk stocks

Hence, risk perception becomes an important factor which affects the investment decision of an investor. There is a lot of difference between a naive investor and financial expert, in the way they perceive risk. There are researchers who have studied the habits of investors. Sulaiman (2018) concluded that women and men differ a lot in their risk-taking behaviour (Eckel & Grossman; 2008, Bhavani & Shetty, 2017). The literature also introduced the concept of risk tolerance which is considered very similar in the field of finance, however with respect to psychology risk tolerance is an investor's capacity to consent to a certain quantity of risk. When an individual cannot perceive the risk correctly can lead him towards a high- risk tolerance level. This high-risk tolerance level can even enhance investors' behaviour towards high-risk investment avenues. If an investor is prone to this irrational behaviour for a constantly long time, then it can become a habit which would eventually clue the investor towards risky choices depicted by his investment behaviour leading to the assumption of higher risk tolerance level which would determine the risk perception ability of individual investor.

The scholars studying impacts of psychological foundations on economics believe that decisions of an investor are influenced by factors like emotions and feelings. This study focuses on the vast field of study that focuses on research in relation

to risk-taking behaviour and tries to discover the reasons which force an investor to engage with investment risk

2.5.3 Psychological factors that affect the decision making of the investors.

Researchers have also focused their attention on personality traits that are very prominent, and which can be measured by using a well-designed structured questionnaire. Faith is one such factor which is identified as a bias which influences the rationality of investors (Joo & Durri, 2018). Financial advisors and wealth management professionals also focus on investor psychology effects investor behaviour (Bhavani & Shetty, 2017).

There are additions to five personality traits that affect the decision making of an investor. The newly recognised one is faith. Faith along with pessimism, optimism, heuristics, confirmation and herd behaviour together accounts for explaining the irrationality in investor behaviour (Joo & Durri, 2018).

Psychologists assume that an investors personality has the tendency to evolves with time, the process can be slow or fast, but wholly depends on the period of time and on situations and circumstances that an investor has to face (Stendardi, 2006). Hence, psychologists assume that personality and various traits of it can influence the way investor take his decisions. Researchers argue that happy people predict the risk and return differently. All the investors do not act in the same way. There is some influence of the feelings in decision making. Investors' decision making is studied from different concepts, from risk-return trade-off, the objective of investment and also by the sentiment creating factors like feelings, moods and sentiments (Kaplanski, Levy, Veld, & Merkouova, 2012).

Moods of an individual.

Moods and emotions do tend to influence the decision-making process (Lodhi, 2014) characterized by overexcitement and overreaction (Mane & Bhandari, 2014). In general, we know that humans are a social being and that the communicate information through emotions and mood. Nofsinger (2005) is of the view that social mood is an influencing factor which determines the investment decisions taken by investors. Also, he related it to optimism and pessimism which he characterized as extreme moods. It is argued in the literature that social mood impacts the stock market very fast (Prechter, 1999).

Moods are momentary feelings which may vary from time to time (Hirshleifer, Investor psychology and asset pricing, 2001). Moods being "vast and inconclusive", effects the decision making of an individual (Bolen, 2007). The biases in the cognition are often associated with the mood of an individual. The expectations, thoughts and attributes influence the way we judge a situation and these situational judgements affect the mood of an individual.

We know that, when people are in a good mood, they may be more optimistic than people who are in a bad mood. There can be situations in which the decision is taken merely under the influence of emotions rather than the depth of information that they have in their hands. Thus, these kinds of emotional influences may affect the evaluation of risky decisions. So, a person in a good mood can invest in risky investment avenues like stocks and person with a bad mood can invest in less risky avenue like a fixed deposit.

Moods are characterised as general to non-specific states which generally do not have any particular target. i.e. moods are free-floating feelings which are generally not linked to anything specific (Bagozzi, Gopinath, & Nyer, 1999; Siemer, 2005; Sizer,

2000). Moods affect decision making under risk. Positive mood affects the decision-making under risk (Lepori, 2015). Various studies are done in controlled as well as uncontrolled environment to measure mood's effect on investment decision. In controlled environment moods are induced with the help of music or sounds, short stories, movie clips, sipping bitter coffee (Johnson & Tversky, 1983; Au, Chan, Wang , & Vertinsky, 2003; Chou, Lee, & Ho, 2007; Isen & Patrick, The effect of positive Feelings on the risk taking: When the chips ar down, 1983).

But in uncontrolled environment moods are measured as proxy for weekend comedy movie attendance (Lepori, 2015), day of the week (Helliwell & Wang, 2013), Olympic gold medal, sunshine, hours of daylight (Hirshleifer & Shumway, 2003), sports result, religious holidays; (Kamstra, Kramer, & Levi, 2003; Al-Hajieh, Redhead, & Rodgers, 2011; Edmans, Gracia, & Norli, 2007), hours of the day and local weather (Keller, et al., 2005) to find out effect of mood in risk aversion which can affect portfolio choices of an investor. On weekends individuals feel happier and excited than on weekends. This has been shown by Helliwell & Wang (2013) while explaining the weekend effect i.e. when the amount of time spent with friends and family is more on weekends as compared to weekdays and it helps to reregulate your mood.

Ryan, Bernstein, & Brown (2010) focus on a weekday versus weekend experience on mood and well-being. Freedom and Leisure are associated with weekends, which revitalises an individual whereas weekdays are associated with limitations and unhappiness. In North America, some of the songs and name of the restaurants include the term weekend in their titles to attract people, as this term is associated with happiness. There is weekly cyclicity in mood, which follows two patterns, the weekend effect associated with more positive and less negativity than the rest of the week. Even the Blue Monday phenomenon (BMP) puts forth that in

comparison to other days of the week, Monday is the worst. Sheldon, Ryan, & Reis (1996) also in their study concludes that the weekend effect extends to other indicators of well-being. But there was one study in the literature that found no significant difference between weekend or blue Monday effect. But still, studies on week effects on mood are few (Ryan et al, 2010). Lepori (2015) studied the effect of mood on American investor's decisions which affected U.S stock returns.

Affect infusion model (AIM) and Mood Maintenance Hypothesis (MMH) are two competing theories in literature which state that positive mood influences decision -making under risk. AIM explains that positive mood is pre-requisite for risk-prone behaviour whereas MMH maintains that people in a good mood tend to be more cautious when in a risky situation and try to protect their good state. (Forgas & Bower, 1987; Chou, Lee, & Ho, 2007, Isen and Patrick, 1983; Isen and Geva, 1987).

Several studies are done by researchers on investors investing in various stock markets like Vietnam (Phung, Mai, & Nguyen, 2016), Czech Republic, Finland, Russia, Sweden (Friberg, 2007), Finland (Kaustia & Rantapuska), US stock market (Lepori, 2010). Various proxies are used by various researchers to study mood and its impact on investors' decision behavioural finance explains the irrational behaviour of investors which can affect investment decisions. It explains how to affect i.e. moods and emotions can influence the decision-making process of investors in a way incorporating realistic assumption (Hirshleifer & Shumway, 2003; Cao & Wei, 2005).

In the literature, various studies have used emotions and mood interchangeably and thus for this study moods and emotions will be used interchangeably. A model was developed by Forgas (1995) which measures that decision making is dependent on emotions and that this dependence on emotions increases with the complexity of situations increases. Charles & Kasilingam (2015) were of a view that an emotional

cycle of investors starts and ends with optimism and they explained by using 14 emotional swing variables as research variables which are as follows: excitement, thrill, euphoria, anxiety, denial, fear, desperations, capitulations, despondency, depression, hope, relief etc. And that investors are characterised as positive, negative and neutral based on the influence of emotions.

Emotions are an essential component of reasoning. It is argued that the ability to reason rationally, is destroyed if there are lack of emotions in decision making (Damasio, Tranel, & Damasio, 1990). The outcome of any investment can be a success or a failure depending upon the way they investors use emotions. Emotions can be categorised as destructive or constructive. If investors are educated about their emotional swings, they can be successful investors (Charles & Kasilingam, 2015).

There are a great number of researches that shows feelings significantly influences decision making in the context of risk and uncertainty (Schwarz, 1990; Forgas, 1995; Isen, 2000; Loewenstein, Weber, Hsee and Welch, 2001). The primary objective of this research is to study different mood variables relevant to Indian settings and also study its influences on investor's investment decision.

Sentiments of individuals.

Sentiments, as defined in literature, are an individual's estimates about future economic conditions. These expectations affect the way an individual perceives risk and return from a given investment avenue. Optimism causes investors to overestimate their probability of success and underestimate the risk attached to their investment decision. Humans are social beings who interact among each other often called as social interactions. Social mood or social emotions are highly influenced by social interactions. An individual's beliefs, ideas and decisions are highly correlated with that of the environment around him. And thus Nofsinger (2005) economic optimism is

highly dependent on social optimism. General epidemic model by Shiller (1984) explains the diffusion of mood through the population.

Because in society it takes time, for one's mood to diffuse to others so the collective decisions that depend on this mood transfer can take time to appear. If there is a positive mood in society it leads to productive activities negative mood becomes the reason for unproductive activities. Happy mood is associated with hope, happiness and optimism which even leads to overconfidence when it reaches the peak. A sad mood is associated with fear, pessimism, and conservatism. (Nofsinger, 2005). Prechter (1999) was of the view that the type of popular movies and laws that have been enacted and debated can be helpful in identifying social mood. Also, the nature of financial economic decisions can be determined by social moods (Nofsinger, 2005)

Optimism and pessimism are feelings that explain an individual's expectations towards the future. To attain the desired goal, an investor shapes his behaviour according to his risk-taking capacity. When a person has more positive feelings and expects a good outcome, we call him an optimistic person contrary to a pessimistic person who experiences more negative feelings and expects bad outcomes (Scheier, Carver, & Bridges, 2001).

2.5.4 Environmental and other factors.

When investors decision making rests on how others behave is called herd behaviour. India is a country where family structure is given more importance. So, the investment decisions also are influenced by relatives, friends and the environment where the person works or stays. Investors trade shares on impulse and on tips from friends and colleagues without even planning or researching on it (Muhammad, 2009).

The "Buy on the rumour and sell on the news" (BRSN) is a kind of behaviour that Peterson (1999) mentions while explaining the behaviour of an investor. The BRSN

is in contrast to the efficient market hypothesis because of news of security the prices of stocks and equity shares are quickly adjusted by the investors and he does not delay his adjustment in response to a future positive event.

Income level, Education level and workplace activity affect the financial literacy of UAE Investors (Al-Tamimi & Kalli, 2009). Financial literacy is not affected by age of investors. But there is a significant relationship between gender and financial literacy, which shows that females have lower financial literacy than men. But financial literacy definitely impacts the investment decision of UAE Investors.

Also, in a case given by the World Bank, savings is understood in a better way by those who are more financially literate (Kefel, 2010). Investors who belong to the high-income group and holding higher educational qualifications and working in banks or any field of finance or investment has a higher financial literacy level than others (Al-Tamimi & Kalli, 2009). Thus, we can say that financial literacy can be increased by the development of new financial products, Changes in political, demographic, economic factors and because of the complexity of financial markets (Al-Tamimi & Kalli, 2009). The investors' family could also influence his choice of decision, his tolerance to financial risk which indirectly determines his investor behaviour.

2.6 Sources of Information for Deciding Amongst Various Investment Avenue

It is because of news, media, conversation with family, friends and financial advisors that we form mental frames. Mental frames here are the perception of the value of various investment avenues (Shiller, 2000). A small number of shares are traded initially on the recommendations from friends and relatives. And if that trade fetches a good return then the investors follow the advice of friends and relatives and based on their recommendations buys more shares as compared to the first time (Maheran, Awag, & Ya, 2003). Thus, an investor gets trapped in short term returns overlooking risk and

undermines the long-term investment plan. De Bondt (1998) found that because people judge a book by its cover, so highly reputed companies are overpriced because investor thinks if a company is on the cover of the magazine covering major business will be a bonus investment than the companies that have stated losses.

According to Nofsinger (2011) stock market is like a system of human interaction. There are a lot number of investment avenues that are available for investors to park their unutilized fund, so that, they can harvest some yield from them in future, considering there is risk attached to each investment option. Some of the investments are considered highly risky and others as less risky. Highly risky investment avenues are those with which the probability of getting a higher return is attached to high risk and less risky are those with which the probability of getting a lower return but with surety that there is less risk attached to it.

If the investor has all the information regarding all investment avenues he can choose according to his needs and nature (Apparao & Kishore, 2015; Baker & Haslem, 1973). It is believed that social interactions and influences the decision of investors (Barber & Odean, 2000). Internal as well as the external forces affect the way an investor takes his investment decisions. External forces have impacted the investment decision drastically. Nofsinger (2005) was of the view that investors before investing discuss with family members, friends and neighbours and this, in turn, affects their investment decisions. The term "attention cascade" is given by Shiller (2000) to media as it has this capacity to instigate investors' decisions for a long time.

The investment decision of an investor depends on demographic factors, social factors as well as economic factors. The investors consult their family, friends, and financial advisors before investing money. Because of the influence of rational and irrational factors that affect investment decisions, so the investment is considered as

complex decision-making behaviour (Shanmugham & Ramya, 2012). It is believed that social interactions and influences the decision of investors. (Shiller, 2000; Barber and Odean, 2000). Studies are done to determine the social factors such as herd behaviour, internet, economic news, that affects the investors' decision.

Also, there are a lot of studies to measure the relationship of social interaction, media and internet with that of trading behaviour of investors (Shanmugham & Ramya, 2012) and it was found that social interaction determines the trading behaviour of investors, while media influence less and internet does not affect the trading behaviour of investors. But with the rise of the internet which has opened the world for each individual and the way it has made an impact on each individual show, that it affects the most. Thus, media along with the internet has a key role in influencing the decision of investors. Sources may be media (print/ published) newspapers, information my friends or relatives, brokers or agents, internet etc (Apparao & Kishore, 2015).

Studies are conducted to determine social factors such as herd behaviour, internet, economic news, that affects the investors' decision. A smaller number of studies are carried out to find out behavioural models to study investment behaviour. Media also has this peculiar characteristic that it is one-sided and hence it is less effective than interpersonal conversations as it provides transfer mood and emotions through the information being conveyed. It was found that the probability of information transfer from word of mouth is more among fund managers who worked in the same city ((Hong, Kubik, & Stein, 2005).In Taiwan**,** because of the increased use of digital information, investors are now ready to invest in risky investments (Shyan-Rong, 2011). And also help from professional advisors is also preferred (Lodhi, 2014).

Religion, rumours, loyalty to the company's products /services, opinions of family members, expected losses (Obamuyi, 2013), the government has a share in the company, insider's information and rumours (Udeepa, 2015)in other investments were among the least influencing factors, But Al-Tamimi & Kalli, (2009) found a strong effect of religion on investment decision.

Out of all the sources through which investment information is available most preferred is friends and relatives followed by newspaper and brokers (Apparao & Kishore, 2015). And that Internet has paved way for online traders who are less sophisticated and are easily moved by sentiments of the market.

The investors who consult their experts at the time of decision-making shows that investor wants to critically analyze his options and chooses the one which best suits his personality and hence, they choose to consult the brokers and other analysts. Investors' choices towards the investment avenues and the way he perceives the risk is studied by many scholars. The variables often studied in the literature more are age, gender, education and income and also on factors like lifestyle and demographic attribute to predict the individual investment choice. One more factor that contributes to the investment decision is race. Difference in White and Black men who participate in financial markets, as white men have risky portfolios. Self-confidence has also been studied as a factor responsible for the choices of investors. Barber and Odean (2011) found that in terms of investment decisions, men are more confident than women.

2.7 Inferences from the Literature

The demographic variables like age, gender, marital status, educational qualification, occupation, monthly income and the number of dependent family members influence the decision making of an investor. Only a few demographic factors like age, gender, marital status, monthly income are considered at large to explain

investors' decision making. (Bairagi & Chakrorty, 2018; Das & Jain, 2014). Thus, the need to study the demographic factors in Indian setting becomes of importance.

Little attention is paid on the educational qualification, occupation of investor and the number of family members that are dependent on the investor. These demographic characteristics also influence the investment decision making of an investor. It is believed that higher education increases the accuracy of estimating risk and return attached to various investment avenue. Occupation becomes one of the major sources of income for an investor. Different occupations have different commitments to be made in terms of expenditure and savings and thus each investor belonging to different occupation will perceive risk differently (Shukla, 2016). With the increasing population of India, the number of mouths that has to be fed are also increasing which increases the expenditure of an individual. If an investor is the sole bread earner of the house, the majority of income will go on the household expenditure and less will be left for saving. The investor will automatically invest in those investment avenues that give him sure returns while incurring less risk (SuyamPraba, 2011). But these all studies have covered only some part of India and a there is a paucity of studies that takes into account whole India and its Investors rather than belonging to one particular region.

The psychological variables like moods and sentiments influence the way choices are framed which in turn affects the decisions that are made (Virlics, 2013).By understanding these factors much more inferences can be drawn on various choices of the decision maker. But there is a paucity of literature on India that explains the moods and sentiments of Indian individuals and how it affects their decision making of investors (Kaplanski, Levy, Veld, & Merkouova, 2012). These all studies have been done outside India and there us dearth of studies that measure moods of Indian

investors. Studies by Shegal, Sood, & Rajput (2009) explains about the Consumer Sentiment Index and do not highlight about measuring Investors economic sentiments.

The literature falls short of one theory that can explain rationality as well as irrationality of an investor. The research builds on the traditional financial theory and add to the new constructs of moods and sentiments to explain about the investor decisions. The economic theory explains the rationality concept by measuring the risk return trade off and the behavioural finance theory explains the irrationality then is measured by moods and sentiments. Because this work is building on the existing theory which in itself is inadequate in explaining the investment decisions so there is already a dearth of studies that support the investment decisions using concept of both rationality and irrationality. This work shall open the way for scholars in the field of behavioural economics and behavioural finance to explore the concepts of both rationality and irrationality simultaneously.

It is very recent that the researchers from various other fields have tried to integrate psychology of investor with his decision making to overcome the shortcomings of the studies and tried to integrate various psychological factors to give reasonable and practical explanations the investors choices.

2.8 Research Gap

Investors in emerging economies like India are very different from the investors of the developed market economies. As per the researcher's knowledge, there are very few studies that have done a comprehensive literature review on the demographic characteristics of the investors and their investment decision in the Indian context (Gopalkrishan, Mathur, Rath, & Vats, 2017).

There were many studies that examined the relationship between risk perception and demographic variables but there seems to be no consensus on the extent to which of these factors drive the investor's risk perception (Gupta & Jain, 2008)

A study of literature on investment decision depicts that there is a risk attached to various investment avenues. The choice of individual investors varies from one another because each investor perceives different risk from different investment avenue. Thus, the choice of the investor depends on the risk attached to each investment avenue. In the Indian context, the investment differs because of the way Indians perceive risk from each avenue if different. Studies in this domain fall short to explain the influence of socio-demographic variables on the choice of investment avenues depending on the risk attached to it (Kapteyn & Teppa, 2011).

Moods and sentiments have proved to affect the investor's decisions, but only a few studies were found which focused on effects like feelings and not moods and sentiments of Indian investors. Also, the studies that focus on moods, done outside Indian context, are carried out in controlled settings, but often an investor decides in an uncontrolled environment. It was found that there are lack of appropriate constructs for the mood which can measure the investment decision of Indian investors (Kaplanski, Levy, Veld, & Merkouova, 2012; Chen, Chong, & She, 2014).

Out of the very few studies that focus on factors that affect investment decision they have restricted to t-test and ANOVA in terms of inferential statistics. Studies focusing on investment decision based on factors influencing the choice of investor lacks the appropriate model which can explain the effect of each individual factor as well as all the factors overall (Bhavani & Shetty, 2017; Bhushan, 2014).

2.9 Research Objectives

To examine the effect of demographic factors (age, gender, marital status, educational qualification, occupation, monthly income and number of dependent family members) on risk perception.

To examine the relationship between moods and sentiments of an investor.

To explore the dominant sources of investment information which influences the investment decision of an individual

To examine the effect of demographic factors risk perception, moods and sentiments on the investor's choice of risky versus less risky investment avenues.

2.10 Research Questions

Based on the research objectives mentioned above, the main quest is to understand the factors that affect the investment decision making of Indian investors. The research questions answered through this research are as follows:

1. What is the relationship between demographic factors (age, gender, marital status, educational qualification, occupation, and the number of dependent family members) and risk perception?
2. What is the relationship between moods and sentiments of investors while making investment decisions?
3. What are the dominant sources of investment information which influence the investment decision of individual Indian investors?
4. What is the relationship between demographic factors (age, gender, marital status, educational qualification, occupation, and the number of dependent family members), risk perception, moods and sentiments and investors choice of risky versus less risky investment avenue?

2.11 Research Hypothesis

A hypothesis is defined as, "set of propositions to be proved or disproved." (Kothari, 2004). A hypothesis is to be tested and is a predictive statement. A well-framed hypothesis is one that can relate the dependent variable to independent variables. "Hypothesis is a formal statement that presents the expected relationship between an independent and dependent variable" (Creswell, 2003).

2.11.1 Age of investors and their risk perception.

A number of researchers have tried to find out the effect of age and choice of investment avenues on the basis of risk attached to it. In recent studies by (Sireesha & Laxmi, 2013)) on the Indian population, they found out that age acts as a significant factor in choose a particular investment avenue. As the age increases investors start to invest in risky assets but after a certain point the level of risk-taking decreases (Lewellen, Lease, & Schlarbaum, 1977; Jain & Mandot, 2012; Jamshidinavis, Chavoshani, & Amiri, 2012; Das & Jain, 2014). But, Korniotis & Kumar, (2009) found that with increasing age the knowledge about investment increases, but investment skills deteriorate. It is not clear whether the with increasing age the tendency to choose risky assets increases or decreases. To assess the relationship between the age of the investor and their risk perception, we test the following hypothesis:

H_o: *There is no significant relationship between age of investors and their risk perception.*

2.11.2 Gender of investors and their risk perception.

Behavioural finance tries to explain the difference in investment decisions among gender. Men and women are almost equally involved in financial decision making but we have often seen gender differences in choosing risky assets. Bhushan and Medury (2013) concluded that women in comparison to men are willing to take

less risk. Investors have a different level of risk tolerance. Women investors have been risk-aversive when it comes to choosing investment avenues (Sireesha & Laxmi, 2013; Das & Jain, 2014; Jain & Mandot, 2012; Geetha & Ramesh, 2012; Jamshidinavis, Chavoshani, & Amiri, 2012). We have seen a change in trend in a developing country, from financial sector dominated by males to females becoming at par with them and thus seeing a change in trend in investment scenarios (Jawaheer & Manual, 2016). To assess the relationship between the gender of investor and their risk perception, we test the following hypothesis:

Ho: There is no significant relationship between gender of investors and their risk perception.

2.11.3 Marital status of investors and their risk perception.

In comparison to a single male, single female invests a smaller proportion of income in investment avenues so as to avoid high risk. Women having children chooses less proportion of income in risky assets (Eckel & Grossman, 2008). Jianakoplos & Bernasek (2007) concluded that black women who are single have a high tendency to invest in risky assets as compared to single white women, single men and married couples. To assess the relationship between the marital status of the investor and their risk perception, we test the following hypothesis:

H_o: There is no significant relationship between marital status of the investors and their risk perception.

2.11.4 Educational qualification of investors and their risk perception.

Education provides the means towards the end. As the education attainment increases the more is the knowledge an individual is believed to have. Verma (2008) was of a view that investment complexities are understood better when a higher level of education is achieved. The amount of risk and return undertaken has to be decided

by the investor for which substantial knowledge is required (Patterson, 2002). People with education attainment above graduation prefer to invest in risky avenues like stocks and mutual funds ((Das & Jain, 2014; Jain & Mandot, 2012; Jamshidinavis, Chavoshani, & Amiri, 2012; Geetha & Ramesh, 2012). To assess the relationship between the educational qualification of investor and their risk perception, we test the following hypothesis:

H_o: *There is no significant relationship between the educational qualification of investors and their risk perception*.

2.11.5 Occupation of investors and their risk perception.

In our study occupations like student, self-employed, government employee, private employee and retired are taken into consideration. The choice of risky assets varies with the security of job and income earnings from them. Verma (2008) was of a view that students, self-employed and people who are in professional jobs prefer mutual funds more. Mutual funds and stocks are considered to be risky and thus retired individuals do not invest in that. Occupation as a factor which determine the choice of investment decision has be widely studied and concluded that individuals with different occupations choose investment avenues that best suits their income and their return from them (Das and Jain, 2014; Geetha & Ramesh, 2011; Harikanth & Pragathi; Jain & Mandot, 2012; Jamshidinavid et al., 2012). Occupation has an impact on investment decisions is very prominent in term of bank deposits. Towards equity, professionals are more attracted as compared to individuals in government jobs. Ranganathan (2006) concluded that mutual funds is preferred investment avenues with self-employed and employed investors as they consider is also in the form of tax concessions

Moreover, individuals looking for investment avenues with tax benefits as well. Mutual funds and life insurance both have tax benefits but because awareness is low,

so investors opt for life insurance more in comparison to mutual funds (Bhavani & Shetty, 2017). To assess the relationship between the educational qualification of investor and their risk perception, we test the following hypothesis:

H_o: *There is no significant relationship between the occupation of investors and their risk perception.*

2.11.6 Monthly income of the investors and their risk perception.

Income is considered one of the important factors to govern a household. It is so required to fulfil the daily need of an individual. When the income increases more of the income in hand is for disposal and thus an individual can do multiple things with the income other than what is required for daily fulfilling of need. Harikanth & Pragathi believed that with the increase in income, the tendency and willingness to take risk increases Individuals with low income do not have a buffer stock to compensate for loss and hence they choose investment avenues with less risk (Jagongo & Mutswenje, 2014). Because of low income, there is less flexibility in their financial planning and hence less of income at disposal. To assess the relationship between the monthly income of the investor and their risk perception, we test the following hypothesis:

H_o: *There is no significant relationship between monthly income of investors and their risk perception.*

2.11.7 Number of dependent family members and their risk perception.

The investment decision of an investor is highly influenced by the family structure of that investor. Family structure affects an investors' attitude towards risk which influences his/ her the savings and investment decisions (Hanewald & Kluge, 2014; Jagongo & Mutswenje, 2014). To assess the relationship between the number of the dependent family member of investor and their risk perception, we test the following hypothesis:

H_o: There is no significant relationship between the number of dependent family members of investors and their risk perception.

2.11.8 Risk perception of investors and investors' choice of risky versus non-risky investment avenues.

Risk is integral to the decision-making process of an individual. How an individual perceives risk from a given investment avenue will influence the way he invests his money. The decision of an investor to invest in stock and equities is thus influenced by the way an investor perceives risk. To assess the relationship between risk perception of investor and their choice to invest in stocks and equities i.e. risky versus less risky assets. We test the following hypothesis:

Ho: There is no significant relationship between the investor who is risk seeker and their choice of risky versus non-risky investment avenue.

2.11.9 Moods and sentiments of investor and investors' choice of risky versus non-risky investment avenues.

Positive mood indicating happiness is also a factor which determines the investment choice (Isen & Patrick, 1983). In literature there are two controversies as Affect infusion model (Forgas, 1995) says that positive people take more risk as compared to people with negative mood whereas Mood Maintenance hypothesis states that people with positive mood tend to maintain their mood and so they take calculative judgement as and hence do not take a high risky decision. (Isen & Patrick, 1983). Investors make choices according to their mood (Delis & Mylonidis). Also, as investors grow old there can be less effect of moods and emotions on their investment choices (Dhar & Zhu, 2006; Feng & Seasholes, 2005; Goetzmann & Kumar, 2008). To assess the relationship between the mood and sentiments of investor and investors choice to

invest in risky investment avenues i.e. stocks and equities, versus less risky investment avenues. We test the following hypothesis:

H_o: *There is no significant relationship between happy mood of an investor and their choice of risky versus non-risky investment avenues.*

Ho: *There is no significant relationship between sad mood of an investor and their choice of risky versus non-risky investment avenues.*

Ho: *There is no significant relationship between optimistic investor and their choice of risky versus non-risky investment avenues.*

This chapter concludes that there are very few studies that incorporate demographic as well as the psychological factors influencing investment decisions and highlight the dominant sources of information that may affect the decision making of an individual investor. The recent researchers have suggested integrating the psychological factors with the demographic factors to have a detailed information on the factors that affect the investor's decision making. The research gap highlights to identify the factors, above mentioned so that investors risk perception and investors choice of risky versus non-risky investment can be clear.

CHAPTER 3: DATA AND METHODOLOGY

3.1 Introduction

This chapter elaborates the research design and methodology which is used by the researcher to conduct this research. It includes research aim, research design, sampling, data collection procedure, data collection instruments, data analysis procedure, coding and screening of data.

3.2 Research Aim

This study aims to examine the factors that affect the investment decision of investors. The demographic factors like age, gender, marital status, educational qualification, occupation, monthly income and dependent family members and their effect on risk perception of investors, and then the effect of psychological factors like moods and sentiments, risk perception along with the demographic characteristics on the investors choice to invest in stocks and equities is studied.

3.3 Research Design

According to Kothari (2004), a research design is, "a plan that described how, when and where data are to be collected and analysed". Each research is done with a specific objective that should be fulfilled. The research design helps the researcher to plan and execute his idea in a well- established pattern. The two significant research designs as explained by Malhotra & Dash, (2011) are exploratory research and descriptive research. Once a research problem is identified, it becomes necessary to define how to solve that problem. If there is some pre-defined information or knowledge or characteristic of the group, then that method descriptive research design is the best to use. However, when the researcher does not have enough idea of how to solve the problem but keeps exploring more about it in the process, this kind of research design is called exploratory research design. In exploratory research design, there are

no predefined rules or protocols which are to be followed by the researcher (Kothari, 2004).

This research follows a descriptive research design to find out the effect of factors that influence the investment decisions of individual investors. This study will focus on gathering information about the present conditions and will use that to outline and interpret the results of the study.

3.4 Sampling Design

Samples are those individuals who are chosen for the study because we cannot gather data from the whole population, so it is advisable to select some sample from the population which genuinely represents the population, to get satisfactory results. It helps to save many resources, i.e. money, time and energy. A sample design helps to obtain a sample from the population in a planned way. For a study, the most crucial thing is to define the target population (Kothari, 2004). The target population for this study are the individual investors across India, and thus it constitutes a finite population but with a vast number. The sampling unit for this study are cities with more than 5% of the population who are active investor, i.e. mainly those who invest in stocks and equities as we also want to check for the psychological factors like moods and sentiments which can be measured for a decision which is taken very frequently. The cities like Delhi, Mumbai, Chennai, Kolkata, Chandigarh, Vadodara, Surat and Ahmedabad are shortlisted for this study. The sample for this study are those investors who are investing their income, are active investors meaning they often check their investments and actively takes part in monitoring his financial conditions so that he/she can earn the maximum return considering the volatile market of risk. Active investors are chosen because they act promptly to changing market conditions and are not passive in their investment strategies (Sharpe, 1991). The size of the sample to be chosen from

the universe is in congruence to Yamane's formula. A total of 1629 samples were approached out of which 1216 agreed to be a part of the research. The larger the sample, the more accurate the sample estimates be. Profile of the samples is tabulated in Table 1. Special considerations were placed that the sample selected is representative, with small sampling error and the sampling design which viable with cost and time. For this research, a simple random sampling approach is used to select the sample.

3.5 Research Instrument

A close-ended structured self-administered questionnaire is distributed to the respondent to obtain the responses which will help the researcher to explain and interpret the result and also to generalized on the target population. A good questionnaire is one in which is self- explanatory and involves the least amount of participation of the person conducting the survey. A close-ended questionnaire is preferred by the researcher, as it helps the respondents to choose between various well-defined categories; however, an option of others is added to the question where the need was felt so that no information of the respondents is unattended. Close-ended questions help the researcher to collect the information what is required and needed and can be coded and analyzed properly (Kumar, 2011). The close-ended questions include questions which collect nominal and categorical data. Also, some part of the questionnaire uses data 7-point Likert scale where the respondents choose the most desired options against the statements (Malhotra & Dash, 2011).

The close-ended questionnaire which is developed by the researcher (see appendix) to capture the responses of the investors is divided into 5 sections which are as follows.

Section A captures the demographic characteristics of the respondents like age, gender, marital status, educational qualification, occupation, monthly income and

number of dependent family members and also the questions about basic investment patterns of an investor which includes sources of investment information and the investment avenues that an investor invests.

Section B is restricted to investors who invest in stocks and equities. The questions are framed to know the buying and selling behaviour of an investor.

Section C is framed particularly to capture the moods on Indian investors. Statements are farmed to measure the general feeling of an investor, how he perceives weather, feelings attached to the result of the sport and how an investor feels during a festival. The respondents can choose among 5 preferences about their feelings ranging from very bad (1) to very good (5).

Section D captures sentiments of an economy as experienced by the investor. The statements from the Consumer Sentiment Index are taken as reference and it measures the economic sentiments of an investor.

Section E measures the risk perception of an individual investor. The statements from the Demographic and Health Survey questionnaire is used to measure the risk perception investors. The respondents can mark their preferences on the 7-point Likert scale.

3.6 Data Collection Procedure

Quantitative approach expounds on variables and structural equations that are modelled to recognize the strength of several variables when taken collectively (Creswell, 2003). The quantitative approach is carried in two forms either by experiments or through surveys. As the quantitative approach is needed for large scale assessment, hence this study will follow a quantitative approach.

This study uses a survey method to gather information about the respondents. It uses a structured self-administered questionnaire to collect the data from the sample, which the researcher can then generalize about the broader population.

The scope of the survey is limited as compared to the census, but it helps to precise the scope. Surveys prove to be helpful in capturing the public opinion may it be for political parties, consumer demands and also studies the behaviour of individuals. The survey includes questions, selection of instruments, questionnaire design, sample selection and analysis method. A good survey gives the result that is reliable, precise, unbiased and accurate. This type of approach is helpful because it is objective in nature and large quantities of data can be collected in a numeric form and yields statistical data. The data collected through this study is quantifiable, and hence the generalizability of data to a large population is possible. And thus, the results will be clear and can provide quantitative measure which can be used by financial advisors and policymakers.

Before circulating the questionnaire among the investors their consent was taken, also the anonymity in the respondents' data was maintained throughout the study. In this way the researcher applied privacy and confidentiality with the survey responses.

3.7 Description of Variables

For carrying out good research and to fulfil its research objective, it is important to categories variables into dependent and independent.

Dependent variable: For the first model, which measure the effect of demographic characteristics of respondents on the way an investor perceives risk, risk perception is the dependent variable. In the second model where we examine the effect of demographic characteristics on the investors choice to invest in stocks and equities.

Independent variable: Demographic variables, i.e. age, gender, marital status, educational qualification, occupation, monthly income and the number of a dependent

family member are the independent variables for the first model. For the second model, we will be using risk perception, Investors Moos Index, Investors Sentiment Index along with the demographic characteristics of investors to examine the investors' choice to invest in stocks and equities. We are doing this to depict a clear picture of the actual scenario of factors that affect the investment decisions of the investors.

3.8 Data Screening

The data collected for the study is first entered into Microsoft Excel and then exported to SPSS. SPSS 23.0 version is used to analyse the result for this study. SPSS recognizes data as nominal, ordinal or ratio data and, therefore the coding of the data is crucial to perform higher statistical analyses on the data. After the successful completion of the data collection, the data is entered using proper codes.

3.8.1 Coding of variables.

Measurement is a composite and a demanding task. In it, we assign numbers to the objects or observations, here the level of measurement is a functional rule which helps to assign numbers. For aspects like age, monthly income it is easy to assign numbers as they can relate to a standard unit of measurement. But variable like mood and risk perception they are abstract, and measurement are not standardized, and we always thrive to predict the result as accurately we can. (Kothari, 2004). When we use some rule to map aspect of a domain on the aspect of range it is called measurement. For the purpose of this study, we use domain specific and also range specific measurement. In demographic variables i.e. age, gender, marital status, educational qualification, occupation, monthly income and number of dependent family member we use the range specific code.

We assigned a number to each category of age i.e. under 30 years as 1, 31-45 years of age as 2, 4-60 years of age as 3 and more than 60 years of age as 4. In this way,

we convert the categorical data into numerical data. In gender variables, 1 is assigned for males, 2 for females and 3 for others. In Marital status, 1 is assigned for singles, 2 for married and 3 for the divorced/ widow. In the educational qualification, 1 is assigned to people having educational qualification up to higher education, 2 for graduation and 3 for post-graduation and above category. In Occupation 1 is assigned to students, 2 for homemakers, 3 for self-employed, 4 for a government employee, 5 for private employee and 6 for retired. Under monthly income, 1 is assigned for monthly income less than Rs. 30,000, 2 for Rs. 30,001- 60,000, 3 for Rs. 60,001- 1,00,000 and 4 for more than Rs. 1,00,00. In the number of dependent family members, 1 is assigned to no dependent family member, 2 for 1-3 dependent family members, 3 for 4-6 dependent family members and 4 for more than 6 dependent family members.

However, the question that covers the choice of investment avenue by the investor, is domain specific. The respondents had to choose whether they invest in a particular investment avenue or not; 1 for Yes and 0 for No, and for all other sections of the questionnaire it ordered specific. The respondent's inequalities were set between the choices. The respondent had to mark their choice depending on how much they agree to the statement or not. The Mood questions were assessed on a 5-point Likert scale, and the questions on risk perception were assessed on a 7-point Likert scale.

3.8.2 Missing data

After coding of the data is done, the missing values were analyzed with the help of SPSS preliminary frequency output, as reported in Table 1. Missing data occurs when a respondent wishes not to disclose some private information or he/she may have skipped it by chance (Soley-Bori, 2013). In this study, it is found that the data was missing arbitrarily, and a no clear pattern of the missing values could be observed from the data. The percentage calculated for the missing values were all under 5% and even

less and according to Tabachnick & Fidell (2014) when the missing values is less than 5%, the result which will be produced by the study will be identical, and no major fluctuation in the results will be observed if the missing values are eliminated. The reporting of missing value is important to remove any biased reporting of the data (Tabachnick & Fidell, 2014). Scholars agree that there is no single best method for handling missing data, as it varies with the type of data and the analyses (Graham, 2009). For missing value treatment for this study, the guess estimation is used as the data that is missing could easily be guessed taking other demography characteristics of the sample into consideration.

3.9 Data Analysis Method

The data collected by the self-administered questionnaire is analysed to get useful information about the respondent's preferences. The methods so adopted are descriptive statistics, chi-square analysis, correlation, factor analysis and logistic regression.

3.9.1 Descriptive statistics.

The data of the respondents is explained with the number and percentage of respondents falling in each demographic characteristic. Table 1 shows the basic demographic profile of respondents, Table 6 shows the number of respondents and their percentage in each category of risk perception i.e. risk taker and risk avoider, Table 14 shows the number and percentage of respondents as divided by three categories of mood, Table 15 shows the respondents as divided by their economic sentiments i.e. optimism and pessimism and finally Table 17 shows the number and percentage of respondents as categorised on the basis of their choice to invest in stock and equities or not.

3.9.2 Correlation.

Correlation helps to explain the association of two variables. It helps in establishing the co-occurring relationship. The correlation measures the strength of the association and the direction of the variables. This is explained by the correlation coefficient, which ranges between -1 to +1. The signs with the coefficient explain whether there is a positive relation or a negative relation between the variables and the number shows the strength of the association. (Walliman, 2011; Gogtay & Thatte, 2017).

3.9.3 Chi-square method.

A chi-square test of independence of attributes is done to explore the relationship between the various factors undertaken for the study. In this study, the chi-square test is run in the first model between the various demographic characteristics and the risk perception of investors and in the second model the chi-square test is run by taking the demographic characteristics, risk perception, Investors Mood Index and Investors Sentiment Index.

3.9.4 Dummy variable.

Dummy variables are used to contrast the different categories of independent variables. This is done when the independent variable is categorical in nature. While running the test, the researchers define a baseline category and then uses this category to compare with all other categories. The number of dummy variables is one less than the categories of the independent variable. This helps to examine the differences within the category with respect to the dependent variable (Tranmer & Elliot, 2008).

3.9.5 Logistic regression.

Logistic regression can be used when there is explanatory variable is binary in nature. It can be either quantitative or qualitative. In general, R^2 measures goodness of

fit but R^2 statistics in logistic regression measures the effect size. Effect size in logistic regression explains the power of the independent variable by which they can predict the dependent variable. It is recommended that logistic regression is better when the sample size is large (Bewick, Cheek & Ball, 2005). The large sample size helps to explain the explanatory variable better.

For running the binary logistic regression dummy variables should be created for each of the categorical independent variables (Bewick et al., 2005).

The binary logistic regression model is formulated as follow:

$$\text{L}= ln\left[\frac{Pi}{[1-pi]}\right] = \beta_0 + \beta_1 X_i + \varepsilon_i \qquad \text{.....}(i)$$

In equation *(i)* the P_i is the probability of the category of the selected dependent variable, and x_i is the independent variable. Therefore, the parameter β_0 gives the log odds of an independent variable perceived to have affected the dependent variable (when $X_i = 0$) and β_1 shows how the odds differ from other categories of the dependent variable (when $X_i = 1$).

In this binary logistic regression model we will test the categorical independent variables i.e. demographic factors (age, gender, marital status, educational qualification, occupation, monthly income and number of dependent family members) on the dependent variable i.e. risk perception which is a categorical variable with two categories risk takers and risk avoiders, it is depicted in equation *(ii)*.

$$\begin{aligned} Pr[Y = 1] = \alpha &+ \beta_1\, Age + \beta_2\, Gender + \beta_3\, Marital\ status \\ &+ \beta_4\, Educational\ Qualification + \beta_5\, Occupation \\ &+ \beta_6\, Monthlth\ income \\ &+ \beta_7\, Number\ of\ family\ members\ that\ are\ dependent + e \end{aligned}$$

....(ii)

For calculating moods and sentiments of an investor, investor mood index will be created which will help to calculate moods of investors accurately. First, the mood variables will be sought if there is a correlation between the variables then a composite index will be prepared to capture and categories moods.

For calculating sentiments of an investor, the consumer sentiments index as prepared by the University of Michigan and RBI to confer the sentiments of the economy will be used. The consumer sentiment index is calculated using the method mentioned by CSI. The respondents are categorized into two categories, Optimist and pessimist. Respondents who score greater than 100 falls in the category of optimistic investors and below 100 falls in the category of pessimistic investors. Researchers use consumer sentiment index in parallel to the confidence of people in the level of spending they are engaged or will engage in. If the consumer feels more positive, it shows confidence in the financial conditions of the economy. Keeping the confidence, it is expected they will increase the money they will be spending and investing assuming a high return from their investments also. The Consumer Sentiment Index covers a range of questions inferring about the current and next six-month business conditions, their current and next six months' future employment conditions and about their total family income for next six months (Abdirahman, 2017). Thus, for fulfilling objectives, either one method of analysis or more than one type of analysis will be used to reach the desired conclusions.

This chapter explains in detail the research process that the researcher will undertake to fulfil the objectives of the study. All the elements are described well in this chapter. This chapter lays the foundation of the research design, sample and sampling techniques, how the data will be selected and how the questionnaire will be distributed and what consideration will be kept in mind while undertaking the research

and also how to analyse the result after its collection is what this chapter explains in details. Overall methodological approach, approach fits the overall research design, a specific method of data collection, and how the result will be analysed is discussed in this chapter.

3.10 Empirical Models

To achieve the objective of this study the following methods will be undertaken to explore the relationship between the dependent and the independent variable. We study the major objectives of this study as follows:

3.10.1 Risk perception and demographic characteristics of the investors.

To measure the effect of demographic characteristics i.e. age, gender, marital status, educational qualification, occupation, monthly income and number of dependent family members on the risk perception we first do the factor analysis on the statements of Demographic and Health Survey (DHS) questionnaire. When we establish that the risk perception of individuals can be categorised int two categorise we then run the chi-square test on all the demographic characteristics and risk perception of investors. After finding out the independence of attributes between the variables we then model risk perception and demographic characteristics of an investor using the logistics regression model.

3.10.2 Moods and sentiments of an investor.

To explore the effect of moods and sentiments Indian investors, we first develop the Investor Mood Index and Investor Sentiment Index. We run factor analysis on the variables that form the Investor Mood Index and find out each variable fall under one factor i.e. mood. We then use the principal component analysis and construct Investor Mood Index (IMI). Investor Sentiment Index (ISI) is developed using the statements from the Consumer Sentiment Index, but the difference here is we use the statement to

find the sentiment of the individual investor. We then find out the correlation between IMI and ISI to establish that moods and sentiments are feelings as experienced by an individual.

3.10.3 Sources of investment information.

To examine the dominant sources of investment information that an investor seeks and gets motivated to invest in particular investment avenues, we use the simple bar chart to describe the sources of investment information according to the demographic characteristics of an investor.

3.10.4 Demographic characteristics of an investor, risk perception, moods and sentiments of investor and his choice to invest in stocks and equities.

To explore the effect of demographic characteristics of investors, risk perception, moods and sentiments of an investor on his choice to invest in particular investment avenue we first run a chi-square test to examine the independence of attributes among the variables under study. We then model the choice of an investor to invest in risky versus less risky investment avenues with the demographic characteristics of an investor, risk perception, moods and sentiment using a logistic regression model.

CHAPTER 4: RESULTS AND DISCUSSION

4.1 Introduction

This chapter deals with the result of estimation of risk perception, factors affecting risk perception, estimation on moods and sentiments and factors affecting investors' choice of different investment avenues. The data is collected from the cities of India, namely Delhi, Chennai, Kolkata, Mumbai, Bangalore, Vadodara, and Ahmedabad. A total of 1629 respondents have been approached out of which 1216 respondents agree and participate in this study, and hence the response rate of the investors for this study is 74.64 %.

4.2 Preliminary Data Analysis

4.2.1 Demographic Profile of the Respondents

The basic description of data explains the number of respondents in each category and subcategory of the various variable and it is presented in Table 1.

Table 1: Demographic profile of the participants

Demographic factors	Demographic sections	N	%	Missing	Total
Age	Less than 30	139	11.4	8 (0.7%)	1208
	31-45	512	42.1		
	46-60	530	43.6		
	More than 60	27	2.2		
Gender	Male	955	78.5	7 (0.6%)	1209
	Female	249	20.5		
	Other	5	0.4		
Marital Status	Single	163	13.4	11 (0.9%)	1205
	Married	1030	84.7		
	Divorced	12	1.0		
Educational Qualification	Up to Higher Secondary	211	17.3	6 (0.5%)	1210
	Graduation	703	57.8		
	Post-Graduation and above	296	24.3		
Occupation	Student	23	1.9	4 (0.3%)	1212
	Homemaker	30	2.5		
	Self- employed	511	42		
	Government Employee	332	27.3		
	Private Employee	309	25.4		
	Retired	7	0.6		
Monthly Income	Less than 30,000	67	5.5	14 (1.2%)	1202
	30,001-60,000	333	27.4		
	60,001-1,00,000	454	37.3		
	1,00,001 and above	348	28.6		
No. of family members that are dependent	None	203	16.7	12 (1.0%)	1204
	1-3 Members	512	42.1		
	4-6 members	318	26.1		
	6 members and above	171	14.1		

Over the entire sample, we observe the following characteristics: 11.4% of the respondents are under 30 years of age, 42.1% are between 31-45 years of age, 43.6% are between 46-60 years of age and only 2.2% are above 60 years of age. About 78.5% of the respondents are females, 20.5% are females and only 0.4% belong to other categories. 13.4% of the respondents are unmarried or are single, 84.7% are married and only 1% are either divorced or widow. Also, 17.3% of respondents have attained education till 12th standard, 57.8% are graduates and 24.5% holds a post-graduate degree or above. Subsequently, 1.9% are students, 2.5 % are homemakers, 42.2 % are self-employed, 27.5 % are government employee, 25.4 % are a private employee and only 0.6 % are retired. Also, 5.5 % of the respondents earn less than Rs. 30,000 per month, 27.4% earn between Rs. 30,001-60,000 per month, 37.3 % earn between Rs. 60,001-1,00,000 per month and 28.6 % of respondents earned more than Rs. 1,00,000 per month. In addition, 16.7 % of the respondents have no dependent family member, 32.1 % have 1-3 members of the family who are dependent, 26.1 % have 4-6 members who are dependent and 14.1 % of the population have 6 or more dependent family members.

4.3 Risk Perception and Demographic Characteristics of Investors

An investor has to choose between various investment avenues based on their risk preferences. Investor's choice to invest in risky avenues not only depend on the risk associated with the assets but also on the risk perceived by the investor (Kumar & Sajana, 2017). There are many factors that affect risk perception of an investor which further influences his investment choice. Factors like interest rates, returns, liquidity, safety, confidence in an investment avenue, investors' future expectations, growth of an economy are some of the factors that affect risk perception and the investment decisions of individual investors. Equally important is the effect of the demographic

characteristics like age, gender, marital status, educational qualification, occupation, monthly income and number of dependent family members on the risk perception of individual investors. Not many researchers have studied the risk perception of Indian investors. So, this study identifies the demographic variable and studies its effect on risk perception of investors.

In this section, we estimate the risk perception of Indian individual investors using the DHS questionnaire. The investor's response has been captured using 6 statements as mentioned in Table 3. Then factor analysis on the survey responses has been performed and we obtain two factors with an eigenvalue greater than one. Kaiser-Meyer-Olkin (KMO) test, communalities and factors loading for each statement are reported in Table 3. The principal component analysis estimates the correlation coefficient between the statements of the DHS questionnaire and the factor variables (Lee, Rosenthal, Veld & Merkoulova, 2015). After getting the two factors, we estimate the risk perception of Individual Investors which has been explained in the subsequent section.

4.3.1 Estimation of risk perception

The Demographic and Health Survey (DHS) questionnaire uses six statements which capture investors' investment strategies. Three statements focus on investors' aversiveness to risk and the other three statements focus on investors' choice to engage with risk. The investors are asked to rate on a 7-point Likert scale ranging from 1 (strongly disagree) to 7 (strongly agree). DHS questionnaire is used by various researchers to measure the risk aversion. Kapteyn and Teppa (2011) uses the questionnaire to estimate the risk aversion and portfolio choice of households. Lee et al. (2015) use the DHS questionnaire to study the risk aversion of investors and his stock market expectations. Statements 1, 2, and 4 focus on the investor's perception of

risk-free investments and statements 3, 5, and 6 focus on the investor's perception of risky investments. We use the principal component analysis and the statements loaded on two components namely, risk aversive and risk taker. The approach to use principal component analysis and factor analysis on the survey responses is an effective way to measure the risk aversion level of investors (Kapteyn and Teppa, 2011).

Table 2: KMO and Bartlett's Test for risk perception

Kaiser-Meyer-Olkin Measure of Sampling Adequacy.		.676
Bartlett's Test of Sphericity	Approx. Chi-Square	874.647
	df	15
	Sig.	.000**

** Significant at 1% level

Table 2 represents the Kaiser Meyer- Olkin (KMO), the measure of sampling adequacy for this study. The KMO value for this study is 0.67 which indicates the factor analysis is useful with the data. The chi-square value for Bartlett's test of Sphericity is 874.64 which is significant at 1 %.

Table 3: Descriptive statistics for statements of risk perception

	Mean	**Std. Deviation**	**Communalities**
I think it is more important to have safe investments and guaranteed returns than to take a risk to have a chance to get the highest possible returns.	4.14	1.794	.589
I would never consider investments in shares because I find this too risky.	3.13	1.844	.616
If I think investment will be profitable, I am prepared to borrow money to make this investment.	3.74	1.698	.460
I want to be certain that my investments are safe.	4.39	1.604	.497
I get more and more convinced that I should take greater financial risks to improve my financial positions.	3.64	1.715	.633
I am prepared to take risk to lose money, when there is also a chance to gain money	3.96	1.725	.541

Table 3 presents the descriptive statistics: the mean, the standard deviation and the communalities for the responses of the individuals for the statements in the DHS questionnaire to measure risk perception. We include all six statements and then run a principal component analysis (PCA) and find two-factor with an eigenvalue greater than one. Table 4 explains the information deducted by the factors and the percentage of the variance explained by both the factors. The total variance explained by the two components with the Eigenvalue greater than 1 is 55.60 %. The rotated component matrix indicates the two factors that are extracted. They are named as risk takers and risk avoiders as shown in Table 5.

Table 4: Total variance explained of risk perception factors

S. No	Factors risk	Eigen Value	Percent of Variance Explained	Cumulative %
1	Risk Aversive	2.080	34.66	34.66
2	Risk Taker	1.256	20.93	55.60

Table 5: Rotated component matrix for components risk perception

	Component	
	1	**2**
I think it is more important to have safe investments and guaranteed returns than to take a risk to have a chance to get the highest possible returns.		.739
I would never consider investments in shares because I find this too risky.		.758
If I think investment will be profitable, I am prepared to borrow money to make this investment.	.677	
I want to be certain that my investments are safe.		.694
I get more and more convinced that I should take greater financial risks to improve my financial positions.	.788	
I am prepared to take risk to lose money, when there is also a chance to gain money	.712	

After the principal component analysis on the DHS questionnaire on Indian individual investors, we divide the Indian investors into two categories on the basis of their risk perception. The statements 1, 2, and 4 depicts the risk averseness of an investor whereas statements 3, 5, & 6 depicts the risk tolerance of an investor. The two categories thus attained of the investors are called risk takers and risk avoider. A person who is a risk taker will perceive less risk attached to a particular investment avenue as compared to risk avoider who will perceive more risk. Thus, it seems that a risk taker will choose risky investment avenues and risk avoider will choose investment avenues which are associated with less risk.

4.3.2 Demographic characteristics of the Indian individual investors' and their risk perception

The demographic characteristics and relationship with risk perception are described with the help of the table, diagrammatic representation, chi-square and logistic regression. The bar graph helps to diagrammatically compare the categorical data whereas chi-square explains the independence of attributes. We also use logistics regression to understand the relationship between demographic characteristics and risk perception. Table 6 shows the basic demographic characteristics and their risk perception.

Table 6: Demographic characteristics and risk perception

Demographic factors	Categories	N	% of investors who are risk taker	N	% of investors who are risk avoider	Total
Age	Less than 30	101	72.7%	38	27.3 %	139
	31-45	353	68.3%	164	31.7 %	517
	46-60	360	67.5%	173	32.5 %	533
	More than 60	16	59.3%	11	40.7 %	27
Gender	Male	721	75.0 %	240	25 %	961
	Female	106	42.4 %	144	57.6 %	250
	Other	3	60 %	2	40 %	5
Marital Status	Single	128	77.6 %	37	22.4 %	165
	Married	696	67 %	343	33 %	1039
	Divorced	6	50 %	6	50 %	12
Educational qualification	Upto Higher Secondary	109	51.7 %	102	48.3 %	211
	Graduation	517	73 %	191	27 %	708
	Post-Graduation and above	204	68.7%	93	31.3 %	297
Occupation	Student	19	82.6 %	4	17.4 %	23
	Homemaker	1	3.3 %	29	96.7 %	30
	Self- employed	390	76 %	123	24 %	513
	Government Employee	202	60.5 %	132	39.5 %	334
	Private Employee	215	69.6 %	94	30.4 %	309
	Retired	3	42.9 %	4	57.1 %	7
Monthly Income	Less than 30,000	25	37.3 %	42	62.7 %	67
	30,001-60,000	185	55.1 %	151	44.9 %	336
	60,001-1,00,000	335	72.7 %	126	27.3 %	461
	1,00,001 and above	285	81 %	67	19 %	352
Number of family members that are dependent	None	155	76.4 %	48	23.6 %	203
	1-3 Members	432	83.1 %	88	16.9 %	520
	4-6 members	152	47.2 %	170	52.8 %	322
	6 members and above	91	53.2 %	80	46.8 %	171

Table 7: Chi-square between Demographic Characteristics and Risk perception

Demographic Factors	χ^2 Value	Df	Sig. Value
Age	2.379	3	0.497
Gender	97.62	2	0.000**
Marital Status	9.232	2	0.010**
Educational Qualification	34.27	2	0.000**
Occupation	86.49	5	0.000**
Monthly Income	86.99	3	0.000**
Number of dependent family members	142.57	3	0.000**

** Significant at 1% level.

A chi-square test of independence of attributes is performed to examine the relationship between various demographic characteristics of Indian individual investors and risk perception. Chi-square is performed to examine the significance of the association between two attributes (Kothari, 2004). We remove the categories with sample less than 31 to avoid any kind of biases in the results (Hogg, 2009). The categories thus removed are, people who are more than 60 years of age; category others in gender variable; category students, homemakers and retired in occupation variable. A total of 43 data entries were eliminated before running the chi-square test. Thus, the sample size of 1173 was taken for further analysis.

Age of investors and risk perception.

In Table 6 and Figure-1, age of investors is reported under four class intervals i.e. under 30 years of age, 31-45 years of age, 46-60 years of age and more than 60 years of age. We find that 72.7% are risk taker and 27.3% are risk avoiders under 30 years of age; 68.3% are risk takers and 31.7 % are risk avoiders who are between 31-45 years of age. Also, 67.5 % are risk takers and 32.5 % are risk avoiders who are between 45-60 years of age. There are only 27 respondents who are more than 60 years of age, 59.3 % are risk takers and 40.7% are risk avoiders.

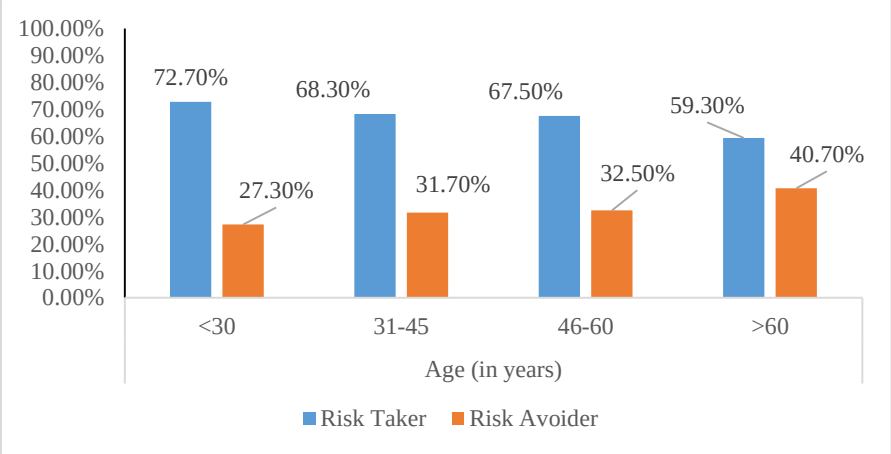

Figure 1. **Age and risk perception**

The literature in finance and economics on investor behaviour explains the effect of age on the investment decisions of an investor. In this study the chi-square test for age and risk perception is found not to be significant, χ^2 (3, N = 1173) = 2.37, p >.01, as shown in Table 7, It means that age is not a significant factor that influences the risk perception of Indian investors. The results of the chi-square are in congruence with the results obtained by binomial logistic regression, shown in Table 8. Age as an independent variable does not significantly affect the dependent variable, i.e. risk perception (categorical variable). The results of logistic regression are explained in the later section.

The age may be a principal factor that determines the investor behaviour and his preferences for a particular investment avenue, but for Indian investors, it seems that age does not affect risk perception of investors. The results of this study are supported by the study of Geetha and Ramesh (2011) which concluded that age does not have a relation with risk perception. However, the effect of age on risk perception is not studied in much detail by the researchers because they focus much more on the investment patterns. Studies by several researchers show that age plays a significant role in impacting the decision of investors to choose among various investment avenues. (Das & Jain 2014; Harikanth & Pragathi, 2012; Palanivelu & Chandrakumar,

2013; Patel & Modi, 2017; Shinde & Zanvar, 2015). The common investment pattern that has been found by the researchers is that as the age of investors increases the preferences of to invest in high-risk investment avenues increase, but this preference takes a shift from high to low-risk investment avenues as soon as they start approaching retirement age. (Rana, Murtaza, Noor, Din & Rehman, 2011). While this the case with the preference of investment avenues, risk perception has been

Gender of respondents and risk perception.

Gender of the investors is also considered as one of the demographic factors that may influence the risk perception. In Table 6 and Figure-2, the gender of respondents in reported under three categories i.e. Males, Females and others. The majority of the respondents in this survey are Males. One of the reasons for such a high number of male respondents, in our survey, is because, in India, males are considered to be bread earners in the family and hence, they may have the power to decide and allocate the money for investment. We find that 75% of the male respondents are risk takers and 25% are risk avoiders. Even though the female participation in the labour force is low in India, we are still able to find female investors for the study. As reported in Table 6 and Figure-2, out of 250 female respondents 42.4 % are risk takers and 57.6% are risk avoiders. In the gender category for others, there were only 5 respondents and 60% are risk takers and 40% are risk avoiders.

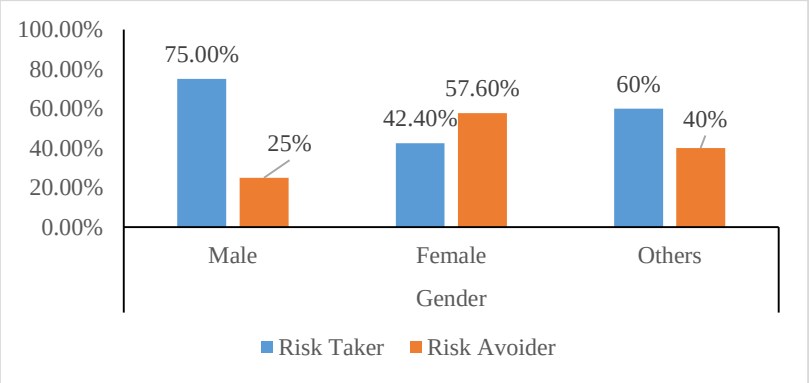

Figure 2. **Gender and risk perception**

Men, women and people belonging to the category of others are equally involved in financial decision making, but we often see there is a difference among gender when they are interacting with risk. In the literature gender as a variable that affects investment decisions have been studied widely (Patel & Modi, 2017). Much of the studies have not included the other category of gender in their research. It is because there are not many investors who are ready to reveal their gender and even if there are few who reveal, the sample size is not much, and hence we have to exclude them from higher-order statistical analysis.

The chi-square test for gender and risk perception for this study is found to be significant χ^2 (2, N = 1173) = 97.62, p <.01 as shown in Table 7. Hence, we reject the null hypothesis and state that gender does affect the risk perception of Indian investors. It is also evident from the result shown in Table 4, where the males are 3.5 times more risk takers than females who are risk takers - indicating that males are more risk takers as compared to females. The result of this study is similar to the studies that conclude that women invest in low- medium risk investment avenues.

Females are less risk tolerant as compared to Males (Croy, Gerrans & Speelman, 2010). Because females are less risk-tolerant, so they invest in avenues that have low to the medium risk attached to it, signifying that women are cautious and conservative in their choice for investment avenues (Arti, Julee & Sunita, 2011 and Watson & McNaughton, 2007). One of the reasons for the low tolerance of risk or risk-aversiveness among women as compared to male may because of the low participation of women in the labour force and the gender gap in income distribution. Women are conservative about their income because they may have either less financial knowledge and experience in handling the savings and investments. Lusardi and Mitchel (2008) concluded that financial literacy among older women is much less as compared to the

males of the same age category. Also, when it comes to planning for retirement women plan less than men, and it is also because of the low financial literacy among women. If financial education is taught through seminars and workshop women will modify their behaviour towards savings and investment. (Clark, d' Ambrosio, McDermed & Sawant, 2003).

Marital status of respondents and risk perception.

Marital status is also a dominant factor that affects the risk perception of investors. Table 6 and Figure-3 represents the respondents under the demographic characteristics of the respondents. We find that in the Single category 77.6% are risk takers and 22.4 % are risk avoiders. 1039 respondents are married, of which 67 % of the respondents are risk takers and 33 % are risk avoiders. There are 12 respondents who belong to the category of divorced/ widow out of which 50% are risk takers and 50% are risk avoiders.

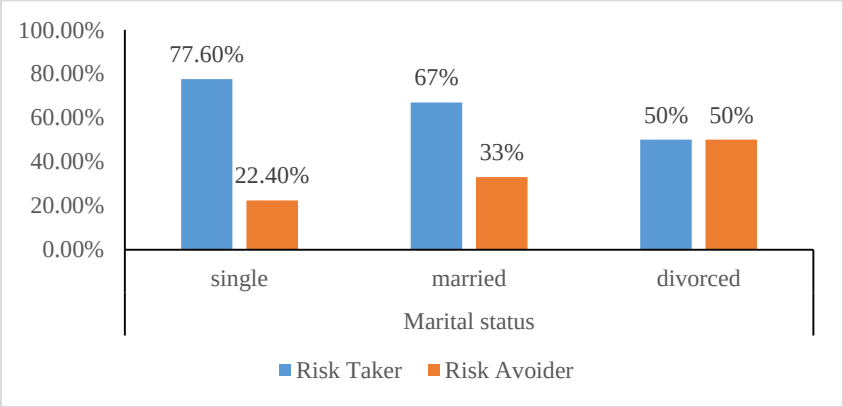

***Figure 3*. Marital status and risk perception**

The chi-square test for marital status and risk perception for this study is found to be significant, χ^2 (2, N = 1173) = 9.232, p <.01 as shown in Table 7. Thus, the marital status of investors significantly affects the risk perception of investors. The investor who is single are risk takers as compared to a married investor who has his family responsibility on him (Bhavani & Shetty, 2017). The singles are at more liberty to spend

their money in their desired way because they have no financial responsibility to shoulder, whereas married individuals have more of family responsibility and hence prefer to invest in avenues that have assured outcomes. Married investors choose to invest in avenues that generate a steady income with certainty rather than irregular income.

Educational Qualification of respondents and risk perception.

Education qualification of the investors is also considered important as it affects the way risk is perceived by them. It is believed that an investor who has more knowledge will be more calculative with the risk that is attached to a particular investment avenue. Table 6 and Figure-4 represent the three categories of educational qualification. There are 211 respondents who hold a higher secondary education degree of which 51.7 % are risk takers and 48.3% are risk avoiders. In the Graduate category, 73% are risk takers while 27% of them are risk avoiders. In the investor category of Post-graduate and above, 68.7 % are risk takers while 31.3 % are risk avoiders.

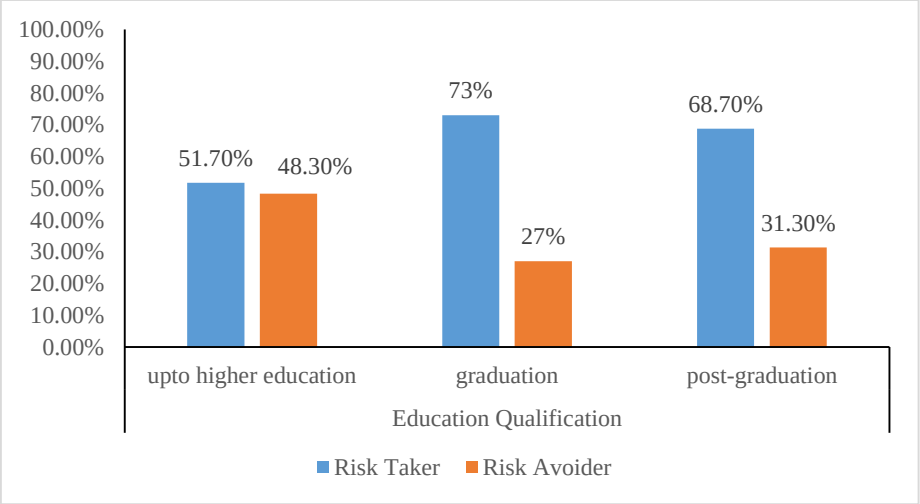

Figure 4. **Educational Qualification and risk perception**

The chi-square test for educational qualification and risk perception for this study is found significant, χ^2 (2, N = 1173) = 34.27, p <.01 as shown in Table 7. We reject the null hypothesis and state that educational qualification does affect investors'

risk perception. The investor with a higher education qualification can assess the nature and intensity of investment risk in a more refined and calculated way as compared to investors who do not have higher educational qualifications. There is a consensus among scholars studying investor behaviour and investment decisions that tendency for taking risk increases as an investor's education qualification increases (Finke and Huston, 2003; Harikanth & Pragathi, 2012 and Mittal & Vyas, 2009). Risky portfolios should be held by investors who have higher educational qualification as compared to investors who do not hold higher educational qualifications (Geetha & Ramesh, 2012).

Occupation of respondents and risk perception

Occupation is another important demographic characteristic of an investor which determines his/her risk perception. Table 6 and Figure-5 represent risk perception of Investors on the occupation. There were only 23 respondents who are students and out of which 82.6 % are risk takers and 17.4 % are risk avoiders. The study also reports 30 respondents who are homemakers. We include them in the survey because they are getting the regular income which they have the freedom to spend or invest. These respondents were investing their money for some future gains and hence they are included in the survey. 3.3 % of the homemakers are risk takers whereas 96.7 % are risk avoiders.513 investors are self-employed, of which 76% are risk takers and 24 % are risk avoiders. In the investor category of government employee 60.5% are risk takers and 39.5% who are risk avoiders. Out of 309 respondents who are private employee, 69.6 % are risk takers and 30.4 % who are risk avoiders. Also, from investors who are retired 42.9% are risk takers and 57.1% are risk avoiders.

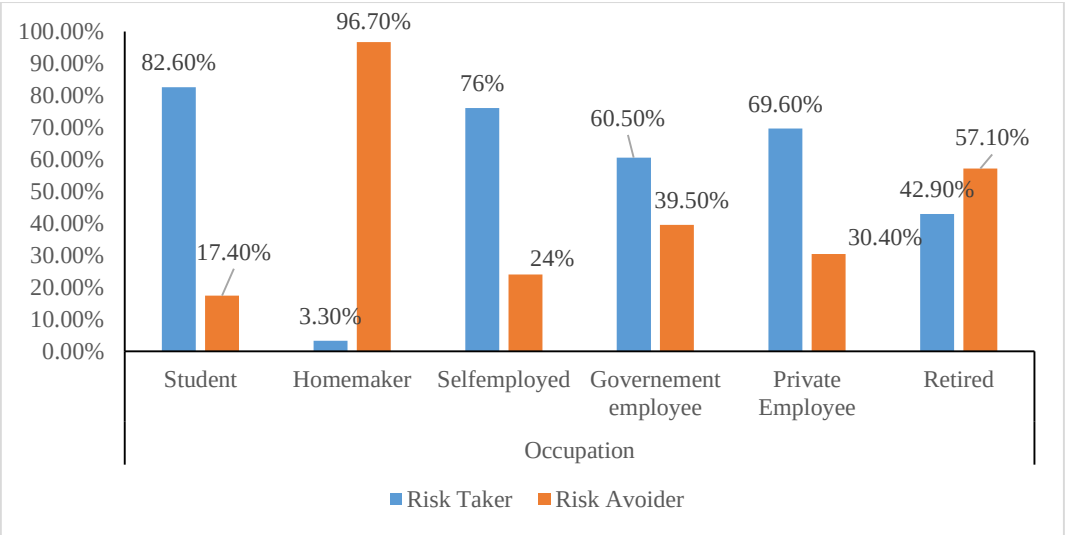

Figure 5. **Occupation and risk perception**

The chi-square test for occupation and risk perception for this study is found significant, χ^2 (5, N = 1173) = 86.49, p <.01 as shown in Table 7. So, we reject the null hypothesis and state that the occupation of an investor significantly affects the way investor perceives risk.

From the study, it is clear that students because they are studying and are not earning a regular income, are risk averse. All the respondents who are homemakers are risk averse because they are directly not employed and is dependent on males or their family for investment. If we take into consideration other occupations with regular monthly income, there are basic three categories- individuals who are self- employed, government-employee and private employee. The individuals who are self- employed and private employee and earn less than Rs. 30,000 per month are mostly risk- averse as compared to investors earning more Rs. 30,000. The risk averseness comes from the fact that the income earned is less and there are also other needs to be taken care of. A low monthly income discourages them to interact with uncertainty. However, this is not true for people who are government employees and earn a monthly income of less than Rs. 30,000 the proportion of risk takers to risk avoiders is the same. The reason for this

can be government jobs are more stable jobs than being self-employed or privately employed. Also, we can say with affirmation that, the individuals who earn monthly income more than Rs. 30,000 are all risk takers. It is apparent from the fact that more the money individual earns, the more he will be ready to engage in risk. Only when an individual's basic need is fulfilled, he will be ready to engage in risk. It is explained by the life cycle model that elucidates that when the income of the individual is high, he will save more. The choice of his saving will depend on his risk perception.

A self-employed individual is assumed to perceive risk differently from a person who is either a government employee or a private employee. The factors that affect the risk perception of government or private employee are his knowledge and confidence. (Deb & Singh, 2018). However, the results of this study are in contrast with the result of Chavali and Raj (2016) who claims that occupation does not affect the investment decisions of an individual.

Monthly Income of respondents and risk perception.

Monthly income is considered to be one of the most important demographic characteristics which affect the risk perception of investors (Das & Jain, 2014). Four class intervals have been taken to categories respondents on the basis of their monthly income, i.e. under Rs. 30,000, Rs. 30,001-Rs. 60,000, Rs. 60,001- 1,00,000 and more than Rs. 1,00,0001. We find that 37.3% are risk takers in comparison to 62.7% who are risk avoiders in income interval less than Rs. 30,000. Out of 336 respondents who earn a monthly income between Rs. 30,001- Rs. 60,000, 55.1% are risk takers as a compared to 44.9% who are risk avoiders. In the income interval of Rs. 60,000- Rs. 1,00,000, 72.7% are risk takers and 27.3 % are risk avoiders. Out of 352 respondents who earned more than Rs.1,00,000 per month 81 % are risk takers and only 19 % were risk avoiders.

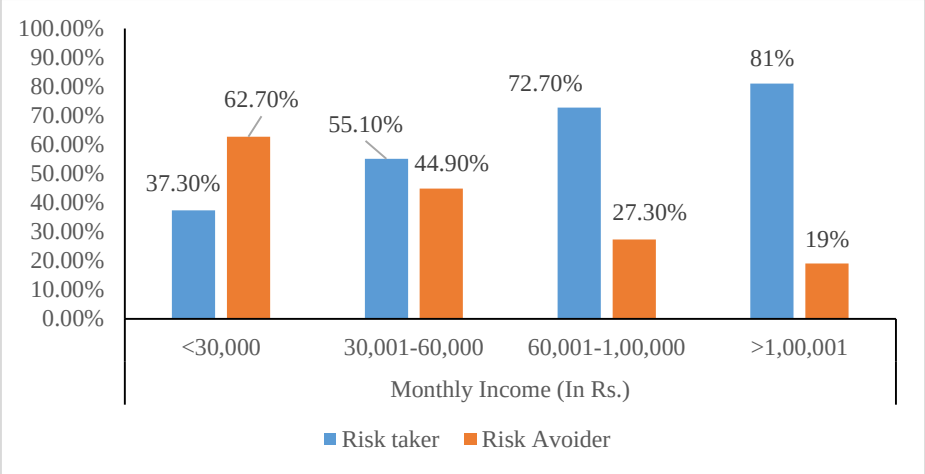

Figure 6. **Monthly income and risk perception**

The chi-square test for monthly income and risk perception for this study is found to be significant with, χ^2 (3, N = 1173) = 86.99, p <.01 as shown in Table 7. We find that the monthly income of an investor significantly affects the way investors perceives risk. As the monthly income of individual investor increases after a certain point, the investors become risk. After a certain age the preference to take risk changes and the potential earning cascades (Baruah & Parikh, 2018).

Risk Aversion is believed to reduce as the investor's income level rises (Bhavani & Shetty, 2017). Risk-taking behaviour is directly related to the income of an investor. (Deaves, Veit, Bhandari & Cheney, 2007). People with low-income invest in the post-office which are considered to be less risky investment avenue and do not invest in avenues with high risk with a fear of losing money. With less monthly income more of the money is dedicated to fulfilling the daily expenditure and hence less money is available which could be saved or invested.

Number of dependent family members of the respondents and risk perception.

The number of dependent family members of the respondents is also a crucial factor that determines an investor's risk perception. The more the number of dependent family members more is the responsibility of the respondent. The expenditure of the

respondents thus increases, and less money is available for saving and investment. Also, an individual who has more responsibility will not choose risky investment avenues as he has more commitments to fulfil and does will invest wisely in investment avenues that give him sure returns. Table 2 and Figure-7 represent the four categories of the number of dependent family members. Out of 76.4 % of the respondents who has no member of family dependent on them are risk takers and 23.6 % are risk avoiders. 502 respondents have 1-3 members of the family who are dependent of which 83.1 % are risk takers and 16.9 % are risk avoiders. 322 respondents have 4-6 members of the family who are dependent of which 47.2 % are risk takers and 52.8% are risk avoiders. Also, 53.2% are risk takers and 46.8% are risk avoiders when the investor has more than 6 members of the family dependent on them.

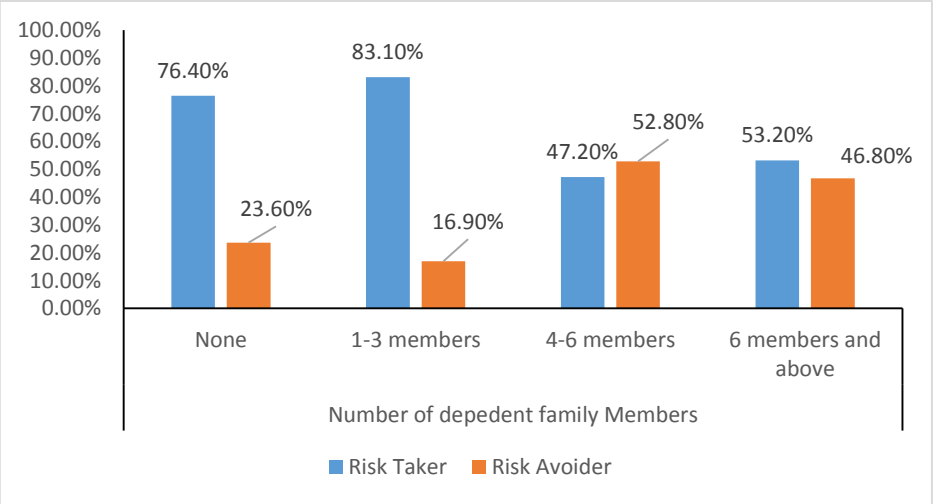

Figure 7. **Number of dependent family members and risk perception**

The chi-square test for the number of dependent family member and risk perception for this study is found to be significant with χ^2 (3, N = 1173) = 142.57, p <.01 as shown in Table 7. When we see the number of the dependent family member and how they perceive risk, it is clear that with 3 or less dependent family member the investors are risk takers in all income categories, and they should invest in high risky assets. However, as soon as the number of dependent family member increases from 3,

the investors in all income categorise become risk avoiders. On the other hand, only in the category where the investors' monthly income is more than Rs. 1,00,000 where the results show that investors are risk takers. Deb and Singh (2016) study investors' decision to invest in mutual funds with the number of dependent family members of the investor and find that family size plays an important role in choosing the appropriate investment avenue. The joint family system is more prevalent in India. The more the number of dependent family members more will be the need for money to support their consumption needs less money will be available for investment purposes. Niranjan and colleagues (2005) find that the average family size in India is 5.24. The investor with a greater number of dependent family members is risk aversive because of hefty financial commitment towards the family (Collard, 2009). This result is consistent with the above hypothesis, when family members dependent more the investors are risk takers and that may be because of the factor their consumption demand is met and they have excess money to invest.

4.3.2 Logit regression on demographic characteristics of investors and risk perception

To understand the effect of demographic characteristics of the respondents on their risk perception we also do logit regression. The dependent variable in this model is the investors risk perception which is categorized into two categories i.e. risk takers and risk avoider. We create dummy variables for each of the categorical independent variables to find the effect of each demographic characteristics on the way risk is perceived. Dummies for the reference category of each categorical variable is excluded in equation. The logistic regression is explained below:

$$L = ln\left[\frac{pi}{[1-pi]}\right] = ln(odds) = b_0 + b_1A_1 + b_2A_3 + b_3\ G_1 + b_4\ MS_1 + b_5\ EQ_{2+}\ b_6\ EQ_3 + b_7\ O_3 + b_8\ O_{5\ +}\ b_9\ O_{6+}\ b_{10}\ M_1 + b_{11}\ M_3 + b_{12}\ M_4 + b_{13}\ FM_1 + b_{14}\ FM_2 + b_{15}\ FM_{3+} + \varepsilon i. \quad \ldots\ldots(iii)$$

Where,

A_1 = 1, when age is less than 30 years, else =0.

A_3 = 1, when age is between 46-60 years of age, else =0.

G_1 =1, when gender of the respondents is Males, else =0.

MS_2= 1, when the respondent is married, else =0.

EQ_2= 1, when the respondents hold a graduate degree, else =0.

EQ_3= 1, when the respondent holds a Post-Graduate degree and above, else =0.

O_3= 1, when the respondent is Self-Employed, else =0.

O_5= 1, when the respondent is a Private Employee, else =0.

M_1= 1, when the respondent earns a monthly income Up to Rs. 30000, else =0.

M_3= 1, when the respondent earns a monthly income between Rs. 60,001-Rs. 1,00,000, else =0.

M_4= 1, when the respondent earns a monthly income Rs. 1,00,001 and above, else =0.

FM_2= 1, when number 1-3 members of family are dependent, else =0.

FM_3= 1, when number 4-6 members of family are dependent, else =0.FM_4= 1, when 6 or more members of the family are dependent, else =0.

In our model, the dependent variable takes two categories: risk re categorized as 1 and risk avoiders who take value 0.

For independent variable 31-45 years of age group, females, married, educational qualification up to higher education, government employee, Rs. 30,001 - Rs. 60,000 and more than 4 dependent family members were taken as the reference category for the logistic regression. As explained earlier, we also remove the categories with sample less than 30. The categories which are removed are: people who are more than 60 years of age; others in gender variable; students and homemakers and retired in occupation category. Thus, the results from the logistic regression explained in Table 8 and are depicted in equation *(iv).*

Table 8: Binary logistic regression and risk perception

		B	S.E.	Wald	df	Sig.	Exp(B)
Age	Under 30 years	.112	.312	.129	1	.719	1.119
	46-60	.022	.158	.020	1	.887	1.023
Gender	Male	1.264	.175	51.976	1	.000**	3.539
Marital Status	Single	.651	.290	5.023	1	.025*	1.917
Educational Qualification	Graduation	.806	.193	17.439	1	.000**	2.238
	Post-Graduation	.666	.222	8.970	1	.003**	1.947
Occupation	Self- Employed	.837	.173	23.403	1	.000**	2.311
	Private Employee	.247	.186	1.758	1	.185	1.280
Monthly Income	Under Rs. 30,000	-.553	.340	2.652	1	.103	.575
	Rs. 60,001-Rs. 1,00,000	.906	.180	25.207	1	.000**	2.474
	More than Rs. 1,00,000	1.258	.206	37.442	1	.000**	3.517
Number of dependent family member	None	1.486	.267	30.877	1	.000**	4.420
	1-3 members	1.781	.218	66.668	1	.000**	5.937
	4-6 members	-.107	.212	.256	1	.613	.899
	Constant	-2.804	.324	74.838	1	.000	.061

** Significant at 1% level. *Significant at 5%

$$L = ln\left[\frac{pi}{[1-pi]}\right] = ln(odds) = \text{-0.280} + 0.112\ A_1 + 0.22\ A_3 + 1.264\ G_1 + 0.651\ MS_1 +$$

$$0.806\ EQ_2 + 0.666\ EQ_3 + 0.837\ O_3 + 0.247\ O_5 - 0.553\ MI_1 + 0.906\ MI_3 +$$

$$1.258\ MI_4 + 1.486\ FM_1 + 1.781\ FM_2 - 0.107\ FM_3. \qquad \ldots\ldots (iv)$$

There is a positive relation of all the independent variable i.e. age, gender, marital status, educational qualification, occupation, monthly income, number of dependent family members with the dependent variable i.e. risk taker. However, in the subcategory of the independent variable, monthly income variable (people who earn less than Rs. 30,000) and the number of dependent family members (people who have 4-6 members of a family who are dependent) have a negative relation with the dependent variable i.e. risk taker.

In logistic regression interpretation is in terms of odds ratio and hence the exponential B [Exp (B)] is used to interpret the results. When log likelihood is more than one, the amount of change in odds for every one-unit change in the independent variable is positive. When the log likelihood is equal to one there is no change in the odds and so there is no change in the independent variable, and when the log likelihood ratio is less than one there is a decrease in the independent variable.

From Table 8, the log likelihood of Males, singles, graduates, post-graduates, people who earn monthly income between Rs. 60,000- Rs. 1,00,000, people who earn more than Rs 1,00,000 and people who have less than 4 dependent family members is significant, and it affects the way investors risk perception. Males are 3.53 times more risk takers than females. Singles are 1.91 times more risk takers than married individuals. Graduates are 2.238 time more risk takers than people who have just a higher education degree. Individuals who hold a Post-Graduation degree or above are 1.94 times more risk takers than people who just have a higher secondary education degree. Self- employed individuals are 2.31 times more risk takers than people who are

government employee. People who earn a monthly income of between Rs. 60,001- Rs. 1,00,000 are 2.47 time more risk takers than people who earn Rs. 30,000- Rs. 60,000. People who earn a monthly income of more than Rs.1,00,000 are 3.51 times more risk takers than people who earn a monthly income or Rs. 30,001- Rs. 60,000. Individuals who do not have any family member dependent on them are 4.42 time more risk takers than individuals who have more than 6 dependent family members. Individuals who have 1-3 members of the family who are dependent are 5.937 times more risk takers than individuals who have more than 6 dependent family members.

Thus, we conclude, there is no change in risk perception across various ages of investors. However, gender and marital status significantly affects the risk perception. The effect of education on risk perception is more when an individual holds a degree more than class 12^{th}. As educational degree higher than graduation do not influences the risk perception much of an investor. The self-employed investors are risk loves because they are liberal in deciding about their investment. The monthly income of investors effects risk perception highly. Even a small change in monthly income of investor from Rs.30,000 to Rs. 60,000 there is a change in risk perception of investors and finally the less the number of family members the investors' risk perception will be less.

4.4 Moods and Sentiments of an Investor.

Moods and sentiments of an investor forms a part of psychological factors that affect investment decisions. To examine the effect of moods and sentiments on the investment decision of Indian investor we develop Investor Mood Index and Investor Sentiment Index, which is explained in subsequent section.

4.4.1 Investors Mood Index.

Moods play a significant role in forming a decision and Scholars have recommended on ways to regulate mood by moderating the feelings resultant from a situation (Tahyer, 1996). Mood regulation is recommended so that the decisions of individuals are not coloured and hence prevents them from forming a bias opinion. Cognitive psychology claims that moods are short-lived, and they influence the way information is processed about a common event. Even the Mood Congruent Judgement effect assess mood state based on different judgement task. (Mayer et al. 1992).

The measurement of moods and sentiments are complex (Grable & Roszkowski, 2008). So, it becomes important to understand the mood through the feelings attached to the situation. The literature on financial behaviour of investors describes certain situations that affect the decision making of an investor.

In Indian settings, the relevant situations that are found from literature are the general feelings state, how an individual perceives weather, feel of sports result and the festival feel. (Devakumar & Anuradha, 2017 and Kaplanski et al., 2012).

Estimation of Investors Mood Index.

We employ the four variables i.e. the general feeling state, perceived weather, sports result feel and festival feel to the capture the moods of an individual. In all the cases, the available choices were ordered from 1 which represent bad mood to 5 which represents good mood. Thus, the higher the value of the individual from the questions on mood, the better the mood of the investor. Kaplanski et al. (2013) in their study to predicts the stock expectations of Happy investors versus Unhappy investors. Non-economic factors were used to measure the moods of the investors. Sports result and Winter Blue effect to predict the difference in stock expectation of an investor is used to predict the stock expectations of investors. Similar but our own statements that are

relevant more to Indian context are developed and used for our survey. To check whether all the four statements predict the mood of an investor, we use Principal Component Analysis (PCA) on these four statements.

Table 9: KMO and Bartlett's Test for moods of investors

Kaiser-Meyer-Olkin Measure of Sampling Adequacy.		.690
Bartlett's Test of Sphericity	Approx. Chi-Square	569.196
	df	6
	Sig.	.000**

**Significant at 1% level

Table 9 represents the Kaiser Meyer Olkin (KMO) measure of sampling adequacy for measuring moods of the investor. The KMO value for measuring the mood of investors for this study is 0.69 which indicates that factor analysis will be useful with data. The chi-square value for Bartlett's test of Sphericity is 569.196 which is significant at 1%.

Table 10: Descriptive statistics and statements describing mood of an investor

	Mean	Std. Deviation	Communalities
General feeling	3.40	1.354	0.590
Perceived weather	2.87	1.368	0.244
Game result feel	3.31	1.746	0.491
Festival Feel	3.57	1.545	0.567

Table 10 presents the descriptive statistics: the mean, the standard deviation and the communalities for the responses of the individuals for the statements.

Principal Component Analysis (PCA) is done by using all the four statements which measure the mood of an individual. We obtain one component with an eigenvalue greater than one. Table 11 explains the information deduced by that one component and percentage of the variance as explained by that factor. This one

component explains 47.29% of the total variance in the model. Table 12 shows the factor loading of each of the variable under one component labelled as mood.

Table 11: Total variance explained for mood component

S. No	Factors	Eigen Value	Percent of Variance Explained	Cumulative %
1	Mood	1.892	47.29	47.29

Table 12: Component matrix for moods

	Component
	1
General feeling	.768
Perceived weather	.494
Games result feel	.701
Festival Feel	.753

The loading of all four statements on the one component reconfirms that all the statements that are general feeling, perceived weather, game result feel and festival feel measure the same construct that is mood.

The Investors Mood Index is constructed using the first principal component correlation matrix of the original mood creating variables which are explained in equation *(v).*

$$IMI = 0.768\ General\ feeling + 0.494\ Perceived\ weather + 0.701\ Game\ result + 0.753\ Festival\ feel. \quad \ldots\ldots(v)$$

To account for the fact, that mood in all probability is pretentiously affected by all other variables like general feeling, perceived weather, sports result and festive feel. If the correlation among the construct is positive, then we use only one mood variable i.e. Investors Mood Index and will not then use each mood creating factor separately.

If we use the mood creating factors separately it will reduce the significance of the result each time, we perform a test using the same variables.

Correlation between various constructs of mood.

Table 13: Correlation between various constructs of mood and IMI

		General feeling	Perceived weather	Game result feel	Festival feel	IMI
General feeling	Pearson Correlation	1	.245	.360	.414	0.834
	Sig. (2-tailed)		.000**	.000**	.000**	.000**
	N	1216	1216	1216	1216	1216
Perceived weather	Pearson Correlation	.245	1	.148	0.197	0.263
	Sig. (2-tailed)	.000**		.000**	.000**	.000**
	N	1216	1216	1216	1216	1216
Game result feel	Pearson Correlation	.360	.148	1	0.365	.717
	Sig. (2-tailed)	.000**	.000**		.000**	.000**
	N	1216	1216	1216	1216	216
Festival feel	Pearson Correlation	.414	.197	0.365	1	.734
	Sig. (2-tailed)	.000**	.000**	.000**		.000**
	N	1216	1216	1216	1216	1216
IMI	Pearson Correlation	.834	.263	.717	.734	1
	Sig. (2-tailed)	.000**	.000**	.000**	.000**	
	N	1216	1216	1216	1216	1216

**Significant at 1 % level (2- tailed)

As can be seen in Table 13, a positive correlation between the four constructs of mood and also with Investors Mood Index. General feelings and perceived weather, game result feel, festival feel significantly correlated with each other. The correlation of each construct with other is in between weak to strong correlation and each one has some effect on an individual's mood.

Furthermore, the general feelings and IMI are very strongly positively correlated, r (15) = 0.83, p <0.01, game result and IMI are strongly correlated, r (35) = 0.71, p < 0.01, festive feel and IMI are strongly correlated, r (45) = 0.73, p < 0.01. This shows that all mood generating variables are correlated significantly at 1% level. Thus, the association between the mood creating variables and the individual mood is not a relic but is a result of the cross-correlation between the mood creating variables.

For further analysis, we will use single variable IMI to study the effect of mood on investors' choice. The IMI ranges from 1.96 to 15.03. The moods of an investor are categorised as Happy, Sad and Neutral. If an individual score between 1.96- 8.52 we categorise them as Sad, between 8.53- 11.37 we categorise them as Neutral and if the score is more than 11.38, we categorise them as Happy. Thus, higher the IMI, the happier the individual.

Table 14: Demographic characteristics of investors and mood

Demographic factors	Categories	N	% of investors who are Happy	N	% of investors who are Sad	N	% of investors who are Neutral	Total
Age	Less than 30	61	43.9 %	31	22.3%	47	33.8 %	139
	31-45	161	31.1 %	187	36.2 %	169	32.7 %	517
	46-60	178	33.4 %	186	34.9%	169	31.7 %	533
	More than 60	10	37 %	4	14.8%	13	48.1 %	27
Gender	Male	317	33%	327	34%	317	33 %	961
	Female	93	37.2%	79	31.6%	78	31.2%	250
	Other	0	0%	2	40%	3	60 %	5
Marital Status	Single	164	38.8 %	45	27.3%	56	33.9%	165
	Married	342	32.9%	359	34.6%	338	32.5%	1039
	Divorced	4	33.3 %	4	33.3%	4	33.33%	12
Educational qualification	Upto Higher Secondary	71	33.6%	71	33.6%	69	32.7%	211
	Graduation	240	33.9%	236	33.3%	232	32.8%	708
	Post-Graduation and above	99	33.3%	101	34 %	97	32.7%	297
Occupation	Student	11	47.8%	4	17.4%	8	34.8%	23
	Homemaker	8	26.7%	12	40 %	10	33.3%	30
	Self- employed	168	32.7%	179	34.9%	166	32.4%	513
	Government Employee	120	35.9%	105	31.4%	109	32.6%	334
	Private Employee	101	32.7%	106	34.3 %	102	33%	309
	Retired	2	28.6%	2	28.6%	3	42.9%	7
Monthly Income	Less than 30,000	22	32.8%	20	29.9%	25	37.3%	67
	30,001-60,000	105	31.3%	100	29.8%	131	39%	336
	60,001-1,00,000	158	34.3%	167	36.2%	136	29.5%	461
	1,00,001 and above	125	35.5%	121	34.4%	106	30.1%	352
Number of family members that are dependent	None	68	33.5%	61	30 %	74	36.5%	203
	1-3 Members	198	38.1%	162	31.2%	160	30.8%	520
	4-6 members	91	28.3%	126	39.1%	105	32.6%	322
	6 members and above	53	31 %	59	34.5%	59	34.5%	171

Demographic characteristics of investors based on their moods.

Table 14 explains the demographic characteristics of investors based on their moods. Moods are divided into three categories: Happy, sad and neutral.

Age of investors and mood.

Table 14 and Figure-8 represents the age categories as divided by the moods of the individual. Under 30 years of age, 43.9% are happy, 22.3% are sad and 33.8% are neutral in their feelings. Out of 517 respondents who are between 31-45 years of age, 31.1% are happy, 36.2% are sad and 32.7% are neutral. 533 respondents who are between 47-60 years of age, 37% are happy, 14.8% are sad and 48.1% are neutral. Out of 27 respondents who more than 60 years of age, 37% are happy, 14.8% are sad and 48.1 % are neutral in their feelings.

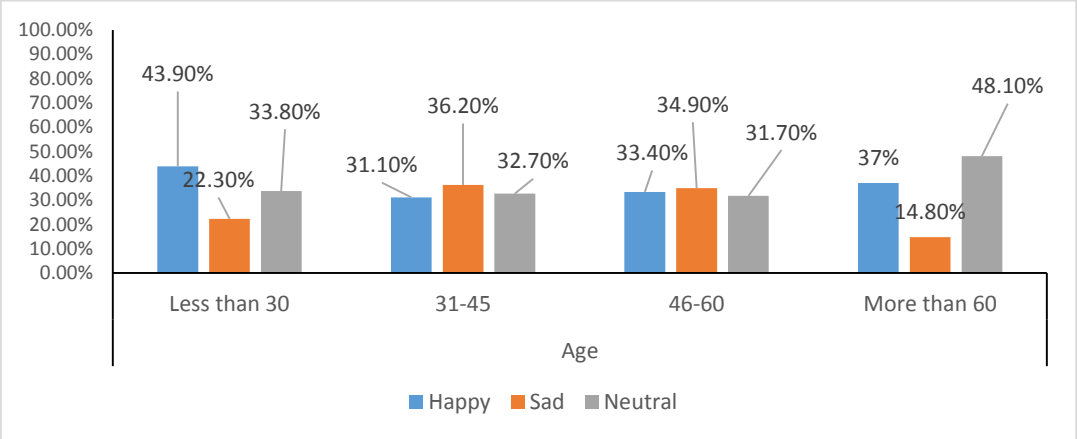

Figure 8. **Age and Moods**

Gender of investors and moods.

Table 14 and Figure-9 represents the gender categories as divided by the moods of the individual. The majority of the respondents in are males and 33% of them are in a happy mood, 34% are in a sad mood and 33% are neutral in their feelings. 250 respondents are females, out of which 32.9% could be categorized as happy, 34.6% as sad and 32% as neutral. There are only 5 respondents in other category, out of which 40 % falls under sad and 60% are neutral in their feelings.

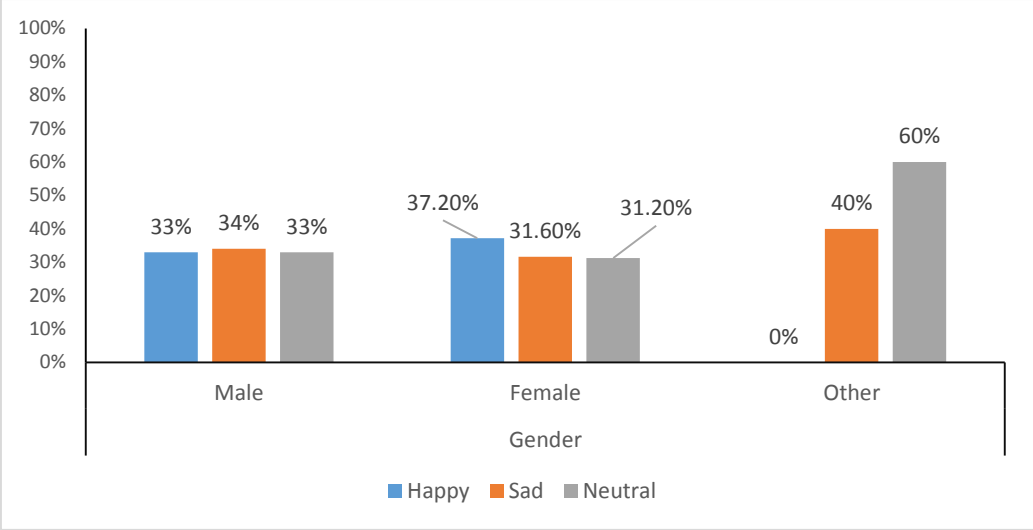

***Figure 9*. Gender and moods**

Marital Status of investors and mood

Table 14 and Figure-10 represents the marital status categories as divided by the moods of the individual. Out of the total 165 respondents who are single, 38.8% are happy, 27.3% are sad and 33.9% are neutral. From respondents who are married, 32.9% are happy, 34.6% are sad and 32.5% are neutral. Out of 12 respondents who are divorced, 33.3% are happy, 33.3% are sad and 33.3 % are neutral.

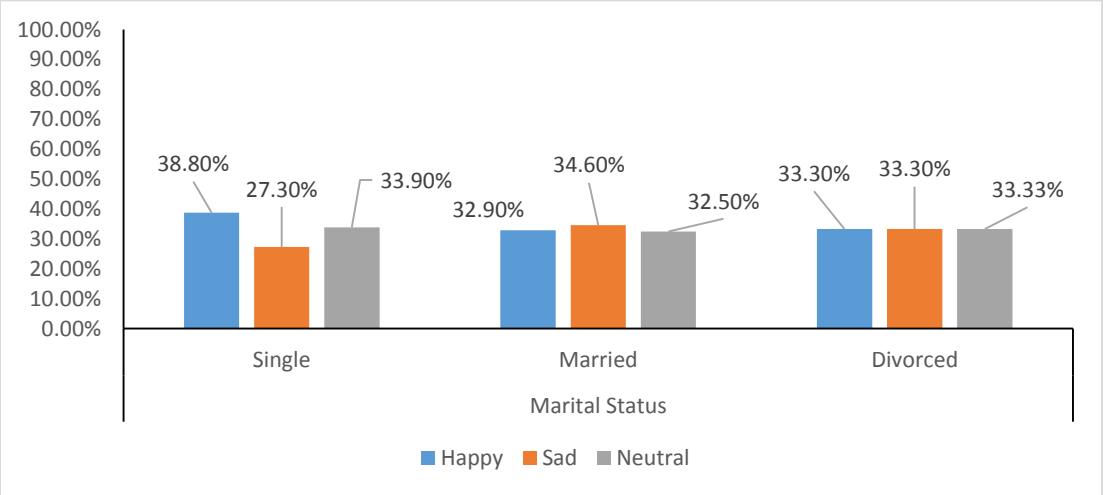

***Figure 10.* Marital Status and moods**

Educational Qualification of investors and mood.

Table 14 and Figure-11 represents the educational qualification categories as divided by the moods of the individual. A total of 211 respondents have attained a

degree up to higher secondary 33.6% are happy, 33.6% are sad and 32.7% are neutral. Out of 708 respondents who are graduates, 33.9% are happy, 33.3% are sad and 32.8% are neutral. Also, 297 individuals who are postgraduates, 33.3 % are happy, 34% are sad and 32.7% are neutral in their feelings.

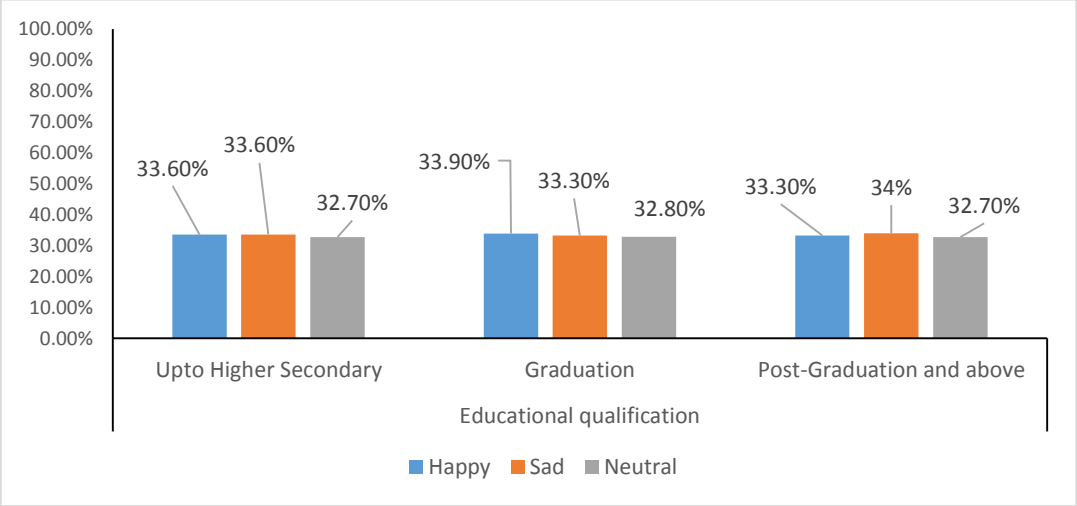

Figure 11. **Educational qualification and moods**

Occupation of investors and moods.

Table 14 and Figure-12 represents the occupation categories as divided by the moods of the individual. 23 respondents who are students fall in the category of students, out of which 47.8% are happy, 17.4% are sad and 34.8% are neutral. Out of 30 respondents who are homemakers, 26.7% are happy, 40% are sad and 33.3 % are neutral. We find that, 513 respondents who are self- employed of which 32.7% are happy, 34.9% are sad and 32.4% are neutral. Out of 334 respondents who are government employee, 35.9% are happy, 31.4% are sad and 32.6% are neutral. From, 309 respondents who are private employee, 32.7% are happy, 34.3% are sad and 33% are neutral. Out of 7 respondents who are retired, 28.6% are happy, 28.6% are sad and 42.9% are neutral.

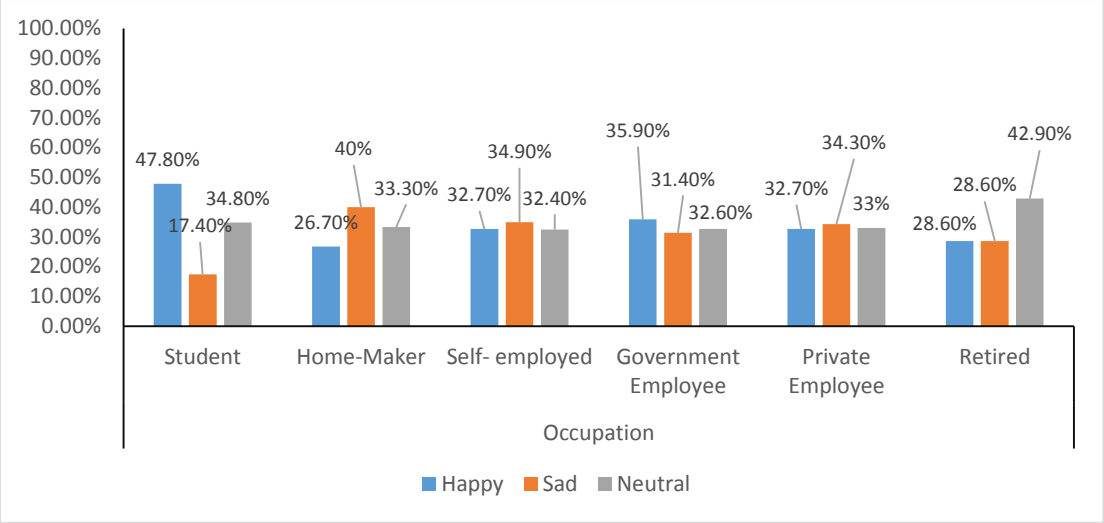

Figure 12. **Occupation and moods**

Monthly income of investors and mood.

Table 14 and Figure-13 represents the monthly income categories as divided by the moods of the individual. Out of 67 respondents who earn a monthly income less than Rs. 30,000, 32.8% are happy, 29.9% are sad and 37.3% are neutral. We find that, 336 respondents who earn a monthly income between Rs. 30,001-Rs. 60,000, 31.3 % are happy, 29.8% are sad and 39% are neutral. Out of 461 respondents who earn a monthly income between Rs. 60,001-Rs 1,00,001, 34.3% are happy, 36.2% are sad and 29.5% are neutral. Also, from respondents who earn a monthly income above Rs. 1,00,0001, 35.5% are happy, 34.4% are sad and 30.1 % are neutral.

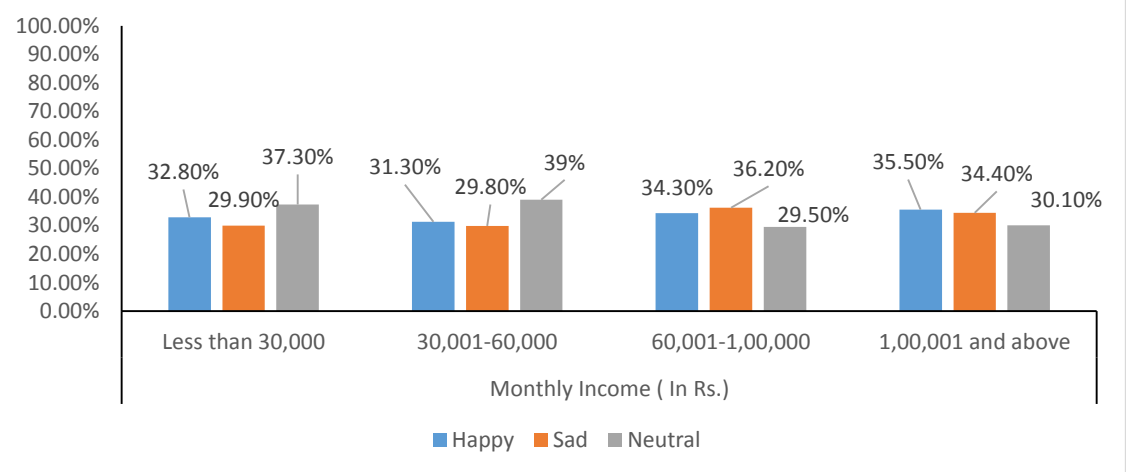

Figure 13. **Monthly Income and moods**

Number of dependent family members and mood.

Table 14 and Figure-14 represents the monthly income categories as divided by the moods of the individual. Out of 203 respondents who do not have any dependent family member, 33.5% were happy, 30% are sad and 36.5% are neutral. 520 respondents who have 1-3 members of the family who are dependent 38.1% are happy, 31.2% are sad and 30.8% are neutral. Also, 322 respondents who have 4-6 members of the family who are dependent 28.3% are happy, 39.1% are sad and 32.6% are neutral. We find that 171 respondents who have more than 6 members of the family who are dependent, 31% are happy, 34.5% are sad and 34.5% are in the neutral category.

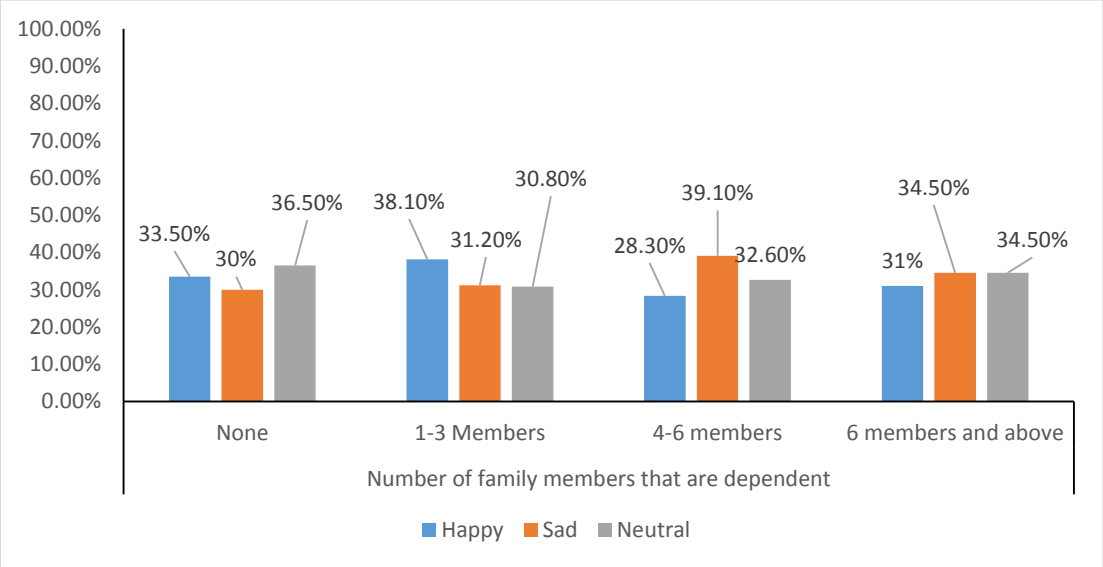

***Figure 14*. Number of dependent family members and their moods**

4.4.2 Investors Sentiment Index.

The Investor's Sentiment Index (ISI) is calculated using the Michigan Consumer Sentiment Index. The statements from the Consumer Sentiment Index (CSI) are used as a reference to form ISI. The CSI measures the optimism or pessimism that is prevalent in the economy. This ISI measures sentiment at the individual level. The respondent whose index score is above 100 is categorised as optimist otherwise as a

pessimist (Sulaiman, 2018). An optimist is a person who has confidence in the economy and is ready to invest money expecting a high future return.

Demographic characteristics of Indian investors based on their sentiments.

This Investor Sentiment Index divides the respondents into two categories: optimist and pessimist. The basic demographics of the respondents on the basis of sentiments: optimism and pessimism of investors' is explained in Table 15.

Table 15: Demographic characteristics of investors and sentiments

Demographic factors	Categories	N	% of investors who are Optimist	N	% of investors who are Pessimist	Total
Age	Less than 30	104	74.8%	35	25.2%	139
	31-45	362	70%	155	30 %	517
	46-60	359	67.4%	174	32.6 %	533
	More than 60	22	81.5%	5	18.5 %	27
Gender	Male	667	69.4 %	294	30.6%	961
	Female	177	70. 8%	73	29.2%	250
	Other	3	60 %	2	40 %	5
Marital Status	Single	119	72.1%	46	27.9%	165
	Married	720	69.3%	319	30.7%	1039
	Divorced	8	66.7%	4	33.3%	12
Educational qualification	Up to Higher Secondary	137	64.9%	74	35.1%	211
	Graduation	512	72.3%	196	27.7%	708
	Post-Graduation and above	198	66.7%	99	33.3%	297
Occupation	Student	17	73.9%	6	26.1%	23
	Homemaker	21	70%	9	30 %	30
	Self- employed	354	69%	159	31%	513
	Government Employee	239	71.6%	95	28.4%	334
	Private Employee	211	68.3%	98	31.7%	309
	Retired	5	71.4%	2	28.6%	7
Monthly Income	Less than 30,000	46	68.7%	21	31.3%	67
	30,001-60,000	228	67.9%	108	32.1%	336
	60,001-1,00,000	310	67.2%	151	32.8%	461
	1,00,001 and above	263	74.7%	89	25.3%	352
Number of family members that are dependent	None	156	76.8%	47	23.2%	203
	1-3 Members	379	72.9%	141	27.1%	520
	4-6 members	198	61.5%	124	38.5%	322
	6 members and above	114	66.7%	57	33.3%	171

Age of investors and sentiments

Table 15 and Figure-15 represents the age of respondents based on their sentiments. For this study we categories sentiments into two: optimism and pessimism. Out of 139 respondents who are less than 30 years of age, 74.8% are optimistic and 25.2% are pessimistic. 517 respondents are between 31-45 years of age, 70 % are optimistic and 30% are pessimistic. We find that 533 respondents who are between 46-60 years of age, 67.4 % are optimistic and 32.6 % are pessimistic. There were only 27 respondents who are more than 60 years of age, 81.5 % are optimistic and 18.5 % are pessimistic.

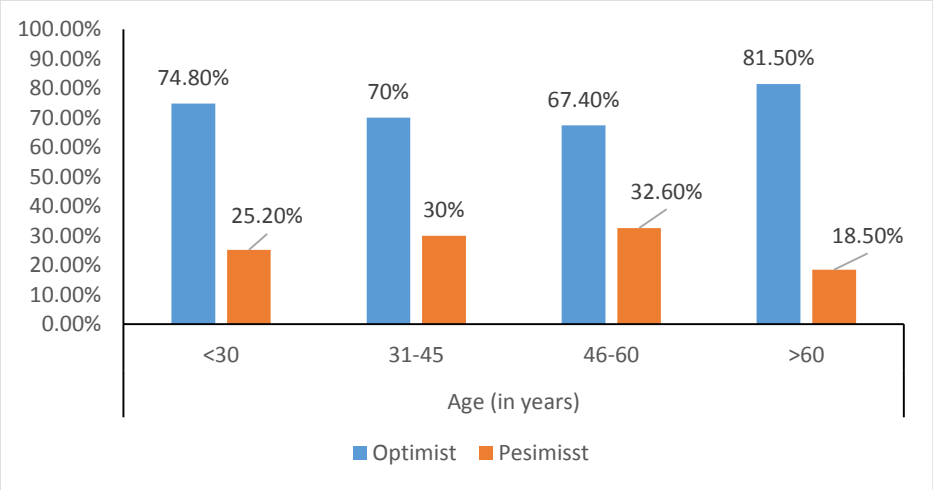

Figure 15. **Age of investors and their sentiment**

Gender of the investors and sentiments.

Table 15 and Figure-16 represent gender on the basis of their sentiments. In the whole study, male respondents are 961, 69.4% are optimistic and 30.6% are pessimistic. Out of 250 female respondents, 70.8% are optimistic and 29.2% are pessimistic. Only 5 respondents belong to others category, 60% of respondents are optimistic and 40% are pessimistic.

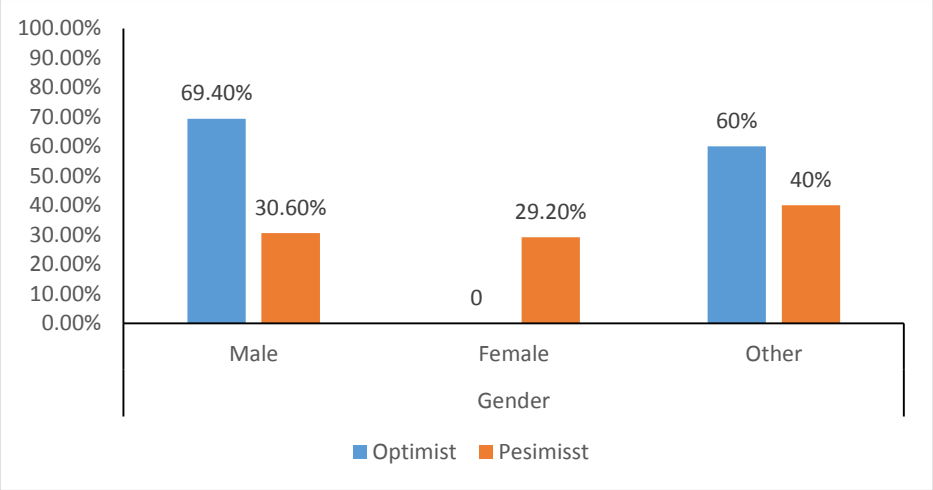

***Figure 16.*Gender of investors and their sentiment**

Marital status of the investors and sentiments

Table 15 and Figure-17 represent the marital status of the respondents as divided by their sentiments. Out of 165 respondents who are single, 72.1% are optimists and 27.9% are pessimist. Out of 1039 married respondents, 69.3 % are optimists and 30.7% are pessimists. Out of 12 respondents who are divorced, 66.7% are optimists and 33.3% are pessimists.

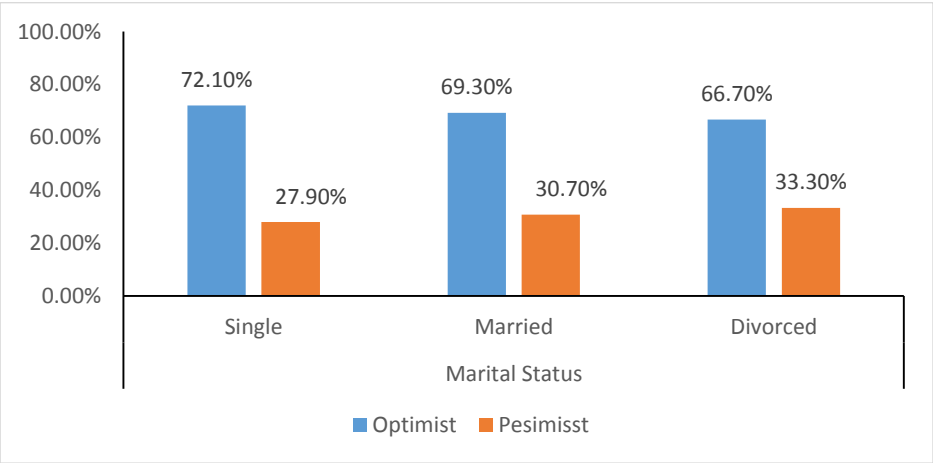

***Figure 17.* Marital Status of investors and their sentiment**

Educational Qualification of the investors and sentiments

Table 15 and Figure-18 represent respondents on the basis of their sentiments. 211 respondents who have attained degree up to higher secondary, 64.9% are optimists and 35.1 % are pessimists. We find that 708 respondents who are graduates, 72.3% are

optimists and 27.7% are pessimists. 66.7% of the respondents who have attained a postgraduate degree or above are an optimist and 33.3% are pessimists.

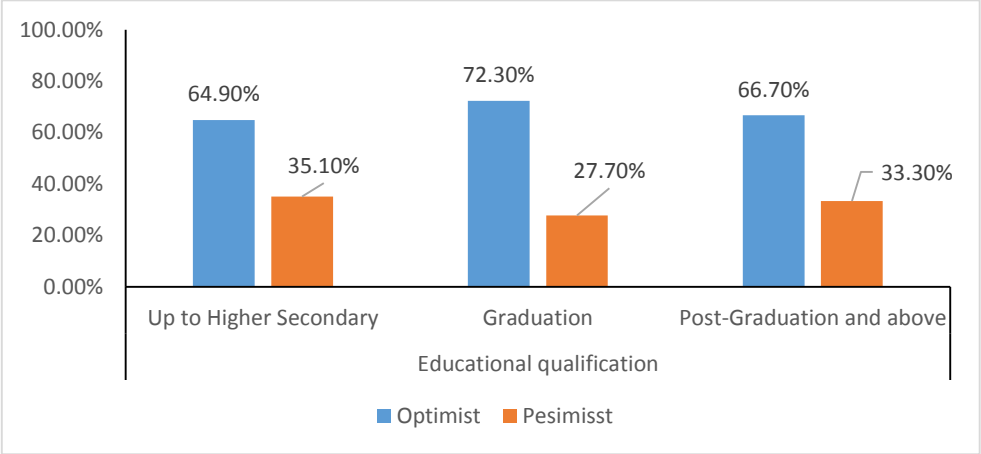

Figure 18. **Educational qualification and their sentiments**

Occupation of the investors and sentiments

Table 15 and Figure-19 shows 23 respondents who are students of which 73.9% are optimists and 26.1% are pessimist. Out of 30 respondents who are homemakers, 70% were optimists and 30% are pessimist. 513 respondents are self-employed of which 69% are optimists and 31% are pessimists. Also, 334 respondents who are government employee, 71.6% are optimists and 28.4% are pessimists. 309 respondents are private employee of which 68.3% are optimists and 31.7% are pessimist. Out of 7 respondents who are retired, 71.4% are optimist and 28.6% are pessimists.

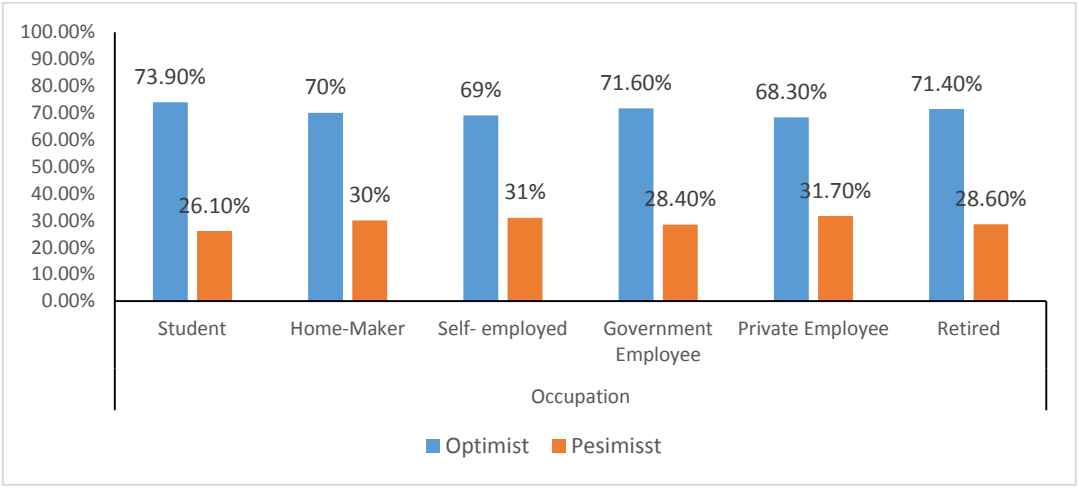

Figure 19. **Occupation of the investors and their sentiment**

Monthly Income of investors and sentiments

Table 15 and Figure-20 shows 67 respondents who earn less than Rs. 30,000, 68.7% are optimists and 31.3% are pessimist. Out of 336 respondents who earn monthly income between Rs. 30,001- Rs. 60,000, 67.9% are optimists and 32.1% are pessimists. Out of 461 respondents who earn a monthly income between Rs. 60,001- 1,00,0001, 67.2% are optimists and 32.8% are pessimists and 352 respondents who earn monthly income above Rs.1,00,000, 74.7% are optimist and 25.3% are pessimists.

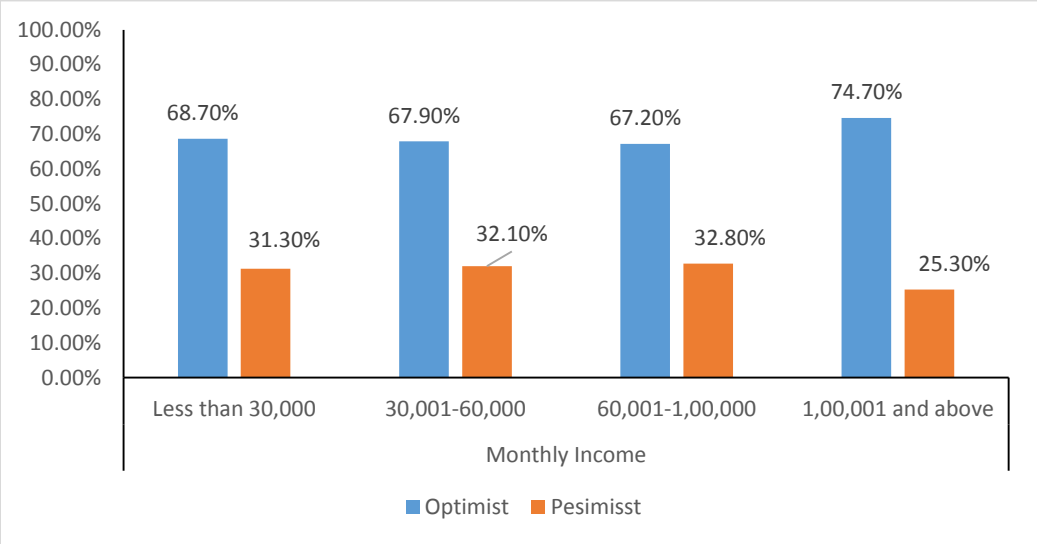

Figure 20. **Monthly Income of the investors and their sentiment**

Number of dependent family members of the investors and sentiments

Table 15 and Figure-21 shows 203 respondents who do not have any family member dependent on them of which 76.8% are optimist and 23.2 % are pessimist. Out of 520 respondents who have 1-3 members of dependent family members, 72.9% are optimists and 27.1% are pessimists. 322 respondents who have 4-6 members of the family who are dependent, 61.5% are optimists and 38.5% are pessimists. Out of 171 respondents who have more than 6 members of the family who are dependent, 66.7% are optimists and 33.3% are pessimists.

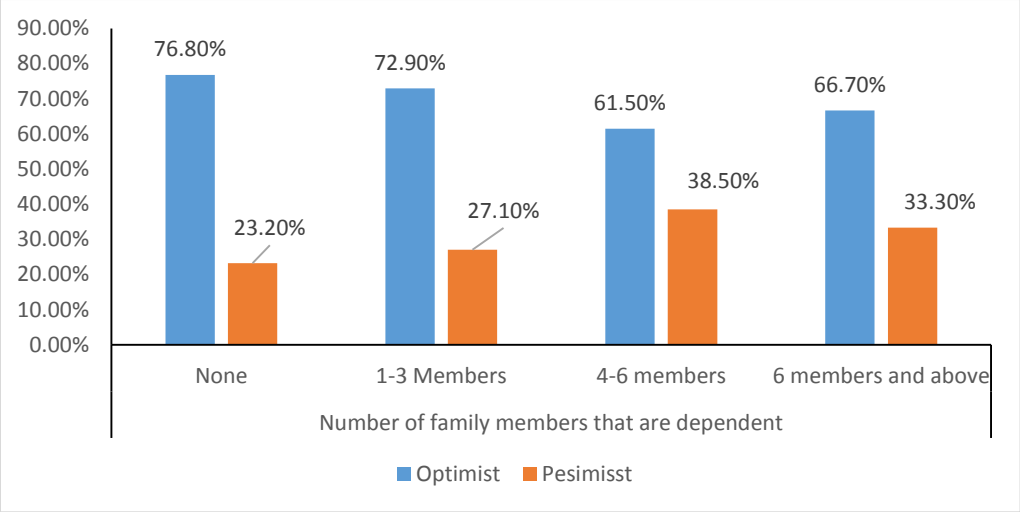

Figure 21. **Number of dependent family members of the investors and their sentiments**

4.4.3 Association between Investors Mood Index and Investors Sentiment Index

It is known that moods and sentiments affect the decision making of an individual. Here we try to find out whether investment decisions are affected by moods and sentiments of an investor. We run the correlation test to find out the association and strength of Investors Mood Index and the Investors Sentiment Index.

Table 16: Correlations between Investors Mood Index and Investors Sentiment Index

		IMI	ISI
Investors Mood Index	Pearson Correlation	1	.318
	Sig. (2-tailed)		.000**
	N	1216	1216
Investors Sentiment Index	Pearson Correlation	.318	1
	Sig. (2-tailed)	.000**	
	N	1216	1216

** Significant at 1% level

From Table 16, it is clear that investors mood index and investors sentiment index are correlated and thus it is clear that the moods of an individual may impact the sentiments of an individual which in turn affects his / her decision making. There is

moderately positive correlation between Investors Mood Index and Investors Sentiment Index, r (12) = .32, $p < 0.01$. This association of the two variables do not depict just the strength and the direction but also the significance of the relationship. From Table 16 it is evident that the correlation coefficient between the two variables is significant at 1%. But the correlation coefficients do not give any information about the movement in one variable is in response to others or not. Hence, we cannot establish the dependent and the independent variable through this analysis. Through this analysis, we only get to know that there is an association between Investors mood and Investors sentiment. The further analysis using this IMI and ISI as independent factors to find out their effect on the investment decision making is done in section 4.6.

4.5 Demographic Characteristics of Investor and Their Source of Investment Information

Information about various investment avenues becomes crucial because an investor risks their hard-earned money for future returns. There are various investment avenues available to an investor ranging from high risk i.e. stocks and mutual funds to low risk i.e. bank deposits and provident funds. The investor can either be self-driven by his choice of investment avenue or can be influenced by other people. We examine the most influential sources of information which motivates an investor to interact with risk and return associated with that particular investment. Thus, sources of investment information also play an important role in influencing the decisions of an investor. There are very few studies that focus on the relationship between financial information and investment decision making. (Patrick, Tavershima & Eje, 2017)

4.5.1 Age of investors and their source of investment information.

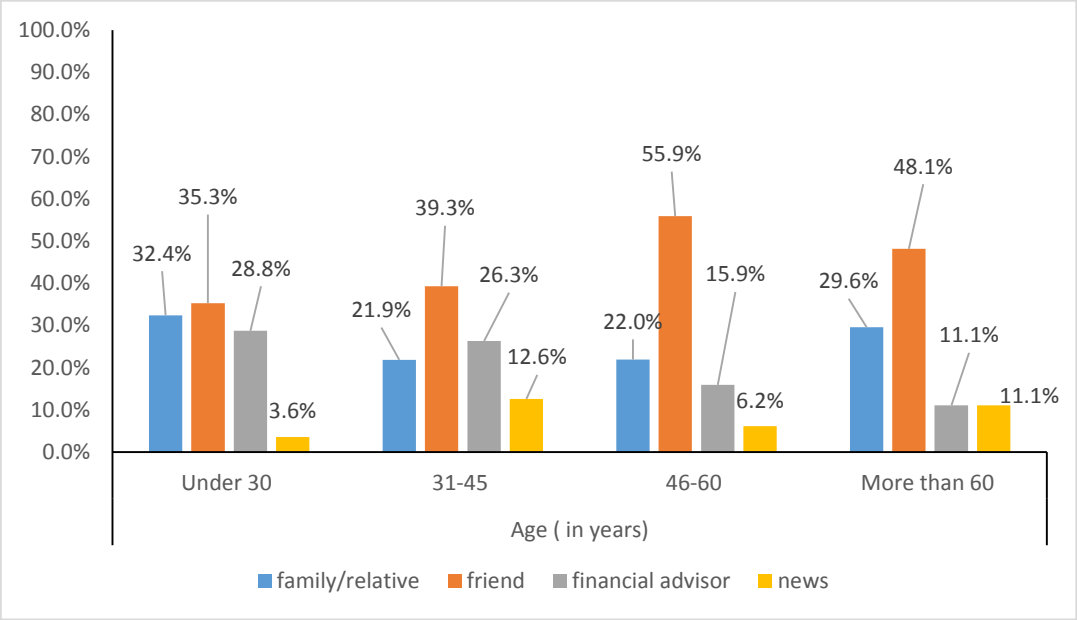

Figure 22. **Age and Source of investment information**

From Figure 22, it is evident that the most important source of investment information for the people who are under 30 years of age are their friends (35.3%), then family or relatives, (32.4%) followed by financial advisors (28.8%) and news (3.6%). People who are between 31-45 years of age, their most common source of investment information are friends (39.3%) financial advisors (26.3%), family or relatives (21.9%) and then news (12.6%). The most common source of investment information for people who are between 46-60 years of age are friends (55.9%) followed by family (22%), financial advisors (15.9%) and then news (6.2%). The people who are above 60 years of age, their most common source of investment information are friends (48.1%) followed by family or relatives (29.6%) and then news (11.1%) and financial advisors (11.1%).

4.5.2 Gender and source of investment information.

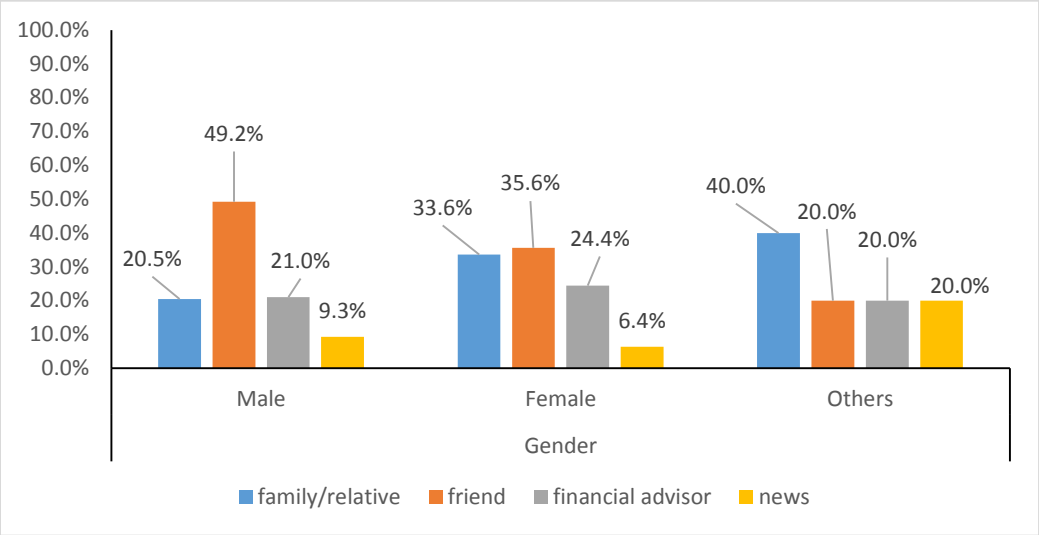

Figure 23. **Gender and sources of investment information**

From Figure 23 it is evident that males prefer to consult their friends (49.2%) more as compared financial advisors (21%), family members or relatives (20.5 %) and news (9.3%). Females also consult their friends (35.6%) more as compared to family or relatives (33.6%), financial advisors (24.4%) and news (6.4%). People who belong to gender category of others their most important source of investment information is their family (40%) followed by friends (20%) and financial advisors (20%) and news (20%).

4.5.3 Marital Status and source of investment information.

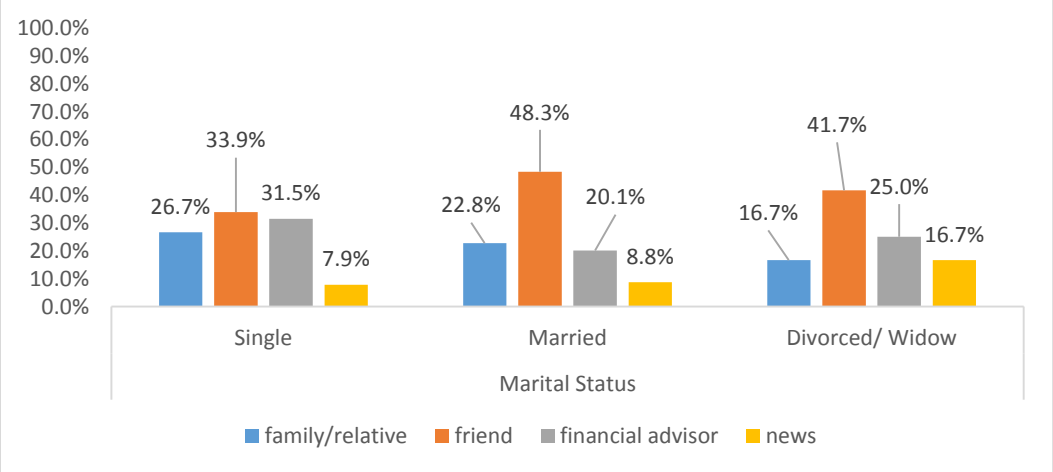

Figure 24. **Marital status and sources of investment information**

From Figure 24, we can interpret that among singles the most important source of investment information is their friends (33.9%) followed by financial advisors (31.5%), family (26.7%) and news (7.9%). Individuals who are married the most important source of investment information for them are their friends (48.3%) followed by family (22.8%), financial advisors (20.1%) and news (8.8%). Individuals who are divorced or widow, the most important source of information for them are their friends (41.7%) followed by financial advisors (25%), family (16.7%) and news (16.7%).

4.5.4 Educational Qualification and source of investment information.

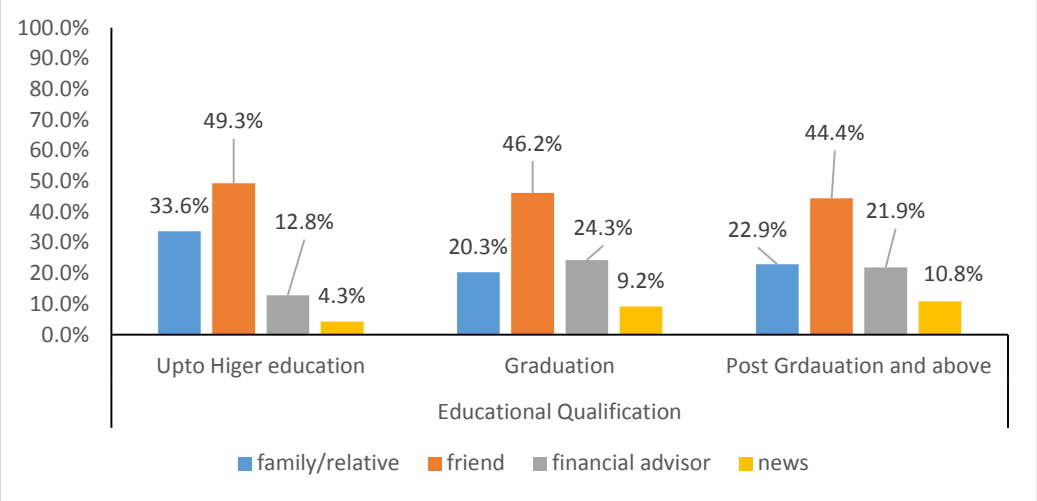

Figure 25. **Educational Qualification and sources of investment information**

From Figure 25, it is clear that people who have attained a degree up to higher education follow their friends' advice (49.3%) followed by family (33.6%) and then news (4.3). People who are graduates the most important source of investment information are friends (46.2%) followed by financial advisors (24.3%), family (20.3%) and news (9.2%). People who have attained a postgraduate degree or above also follow their friend's advice (44.4%) the most, followed by family (22.9%), financial advisors (21.9%) and then news (10.8%).

4.5.5 Occupation and source of investment information.

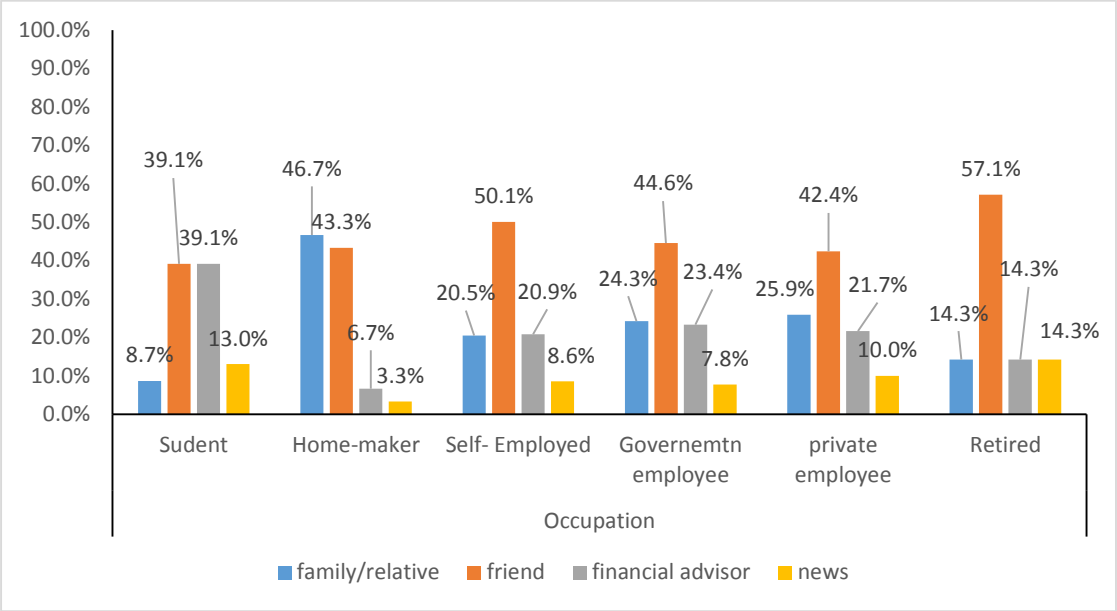

Figure 26. **Occupation and sources of investment information**

From Figure 26, the most important source of investment information amongst students are their friends (39.1%) and financial advisors (39.1%) followed by news (13%) and then family or relatives (8.7%). Among homemakers, family or relatives (46.7%) is the highest source of investment information followed by (friends), financial advisors (6.7%) and then news (3.3%). People who are self- employed the most important source of investment information are friends (50.1%) followed by family and financial advisors (20.9%) and then news (8.6%). People who are government employee they prefer to follow their friends' advice (44.6%), followed by family or relatives (24.3%) financial advisors (24.3%) and news (7.8%). Private employee follows friends (42.4%) advice the most, followed by family (25.9%), financial advisors (25.9%) and then news (10%). People who are retired the most common source of investment information are friends (57.1%) followed by financial advisors, family and news (14.3%).

4.5.6 Monthly income of investors and source of investment information.

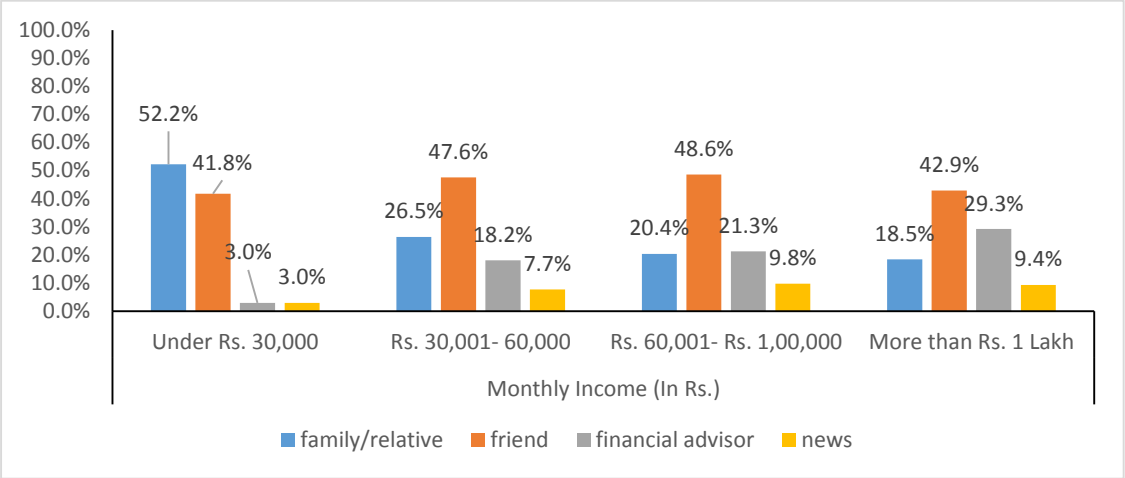

Figure 27. **Monthly Income and sources of investment information**

In Figure 27, the most common source of investment information for the people who earn a less than Rs 30,000 per month is family (52.2%) followed by friends (41.8%) and then financial advisors and news (3%). People who earn between Rs30,001- Rs. 60,000, friends (47.6%) are the most important source of investment information followed by family (26.5%), financial advisor (21.3%) and news (9.8%). People who earn an income of more than Rs. 1,00,000 per month, they follow their friends advise (42.9%) followed by financial advisors (29.3%) family (18.5%) and news (9.4%).

4.5.7 Number of dependent family member and source of investment information

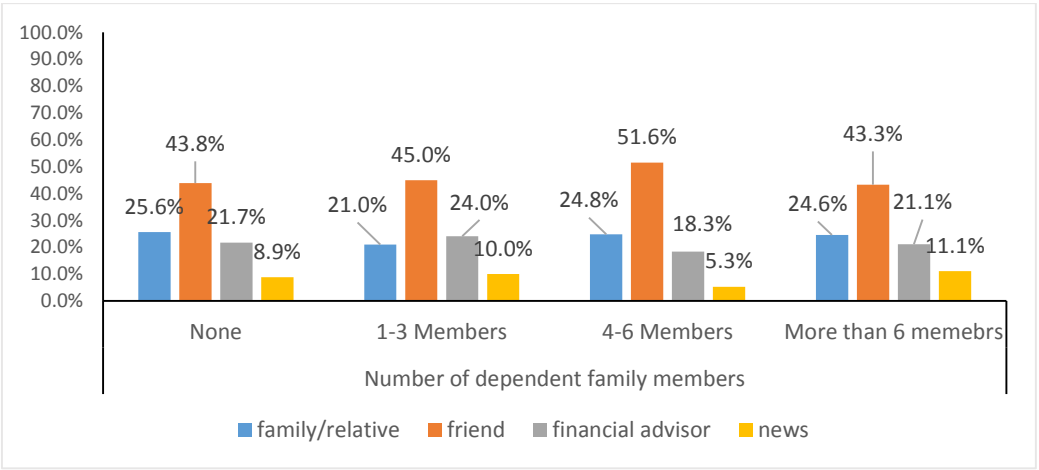

Figure 28. **Number of dependent family member and sources of investment information**

In Figure 28, The individual who does not have any family member dependent on them, their main source of investment information are their friends (43.8%) followed by family (25.6%), financial advisors (21.7%) and news (8.9%). The individual with 1-3 members of the family who are dependent, the important source of investment information are their friends (45%) followed by financial advisors (24%), family (21%) and news (10%). The individual with 4-6 members of the family who are dependent among them friends (51.6%) is the most common followed by family (24.8%), financial advisors (18.3%) and news (5.3%). The individual who have more than 6 members of the family who are dependent, their most common source of investment information are their friends (43.3%) followed by family (24.6%), financial advisors (21.1%) and news (11.1%).

Thus, we find that friends influence the investment decisions of investors across all age groups. However, males who are married prefer friends and financial advice equally for their investment decisions. Investors even after having a high degree in education they prefer to follow their friends and financial advisors advise. To elaborate, the most common sources of information are friends followed by financial advisors.

4.6 Investors' Choice of Risky versus Less Risky Investment Avenues

Investment avenues are categorised on the basis of risk attached to it. High risky assets are associated with high risk and high return whereas less risky assets are associated with less risk and less return. Each individual differs in their investment choices. Here we examine the effect of demographic factors i.e. age, gender, marital status, educational qualification, occupation, monthly income and number of dependent family member; risk perception, Investors Mood Index, Investors Sentiment Index on the investor's choice of risky versus less risky investment avenues.

In this section, we first give the basic profile of investors' choice of risky versus less risky investment avenues, then we run the chi-square test to test for independence of attributes and finally we model it using logistic regression model.

4.6.1 Demographic characteristics and investors' choice of risky versus less risky investment avenues

Table 17: Demography of people and investor's choice of risky versus less risky investment avenues.

Demographic factors	Categories	N	% of investors who Invest in risky investment avenues	N	% of investors who do not Invest in risky investment avenue	Total
Age	Less than 30	74	53.2 %	65	46.8 %	139
	31-45	329	63.6%	188	36.4%	517
	46-60	382	71.7%	151	28.3%	533
	More than 60	16	59.3%	11	40.7%	27
Gender	Male	657	68.4 %	304	31.6%	961
	Female	142	56.8%	108	43.2%	250
	Other	2	40 %	3	60 %	5
Marital Status	Single	98	59.4%	67	40.6%	165
	Married	698	67.2%	341	32.8%	1039
	Divorced	5	41.7%	7	58.3%	12
Educational qualification	Up to Higher Secondary	130	61.6%	81	38.4%	211
	Graduation	493	69.6%	215	30.4%	708
	Post-Graduation and above	178	59.9%	119	40.1%	297
Occupation	Student	8	34.8%	15	65.2%	23
	Homemaker	0	0	30	100 %	30
	Self- employed	379	73.9%	134	26.1%	513
	Government Employee	211	63.2%	123	36.8%	334
	Private Employee	199	64.4%	110	35.6%	309
	Retired	4	57.1%	3	42.9%	7
Monthly Income	Less than 30,000	24	35.8%	43	64.2%	67
	30,001-60,000	160	47.6%	176	52.4%	336
	60,001-1,00,000	331	71.8%	130	28.2%	461
	1,00,001 and above	286	81.3 %	66	18.8%	352
Number of family members that are dependent	None	142	70%	61	30%	203
	1-3 Members	381	73.3%	139	26.7%	520
	4-6 members	183	56.8%	139	43.2%	322
	6 members and above	95	55.6%	76	44.4%	171

Table 17 categorizes the respondents based on their choice of risky versus less risky investment avenues.

Age of investors and their choice of risky versus less risky investment avenues.

Table 17 and Figure-29 explains the investors choice to invest in risky (stock and equities) versus less risky investment avenues. Out of 139 respondents who are under the age of 30 years, 53.2% people invest in risky investment avenues, while 46.8% do not invest in risky investment avenues. Out of 517 respondents who are between 31-45 years of age of which 63.6% invest in risky investment avenues compared to 36.4% do not invest in risky investment avenues. Also, 533 respondents who are between 46-60 years of age, 71.7% who invest in risky investment avenues compared to 28.3% do not invest in risky investment avenues. There are only 27 respondents who are more than 60 years of age, of which 59.3% invest in risky investment avenues compared to 40.7% who do not invest in risky investment avenues.

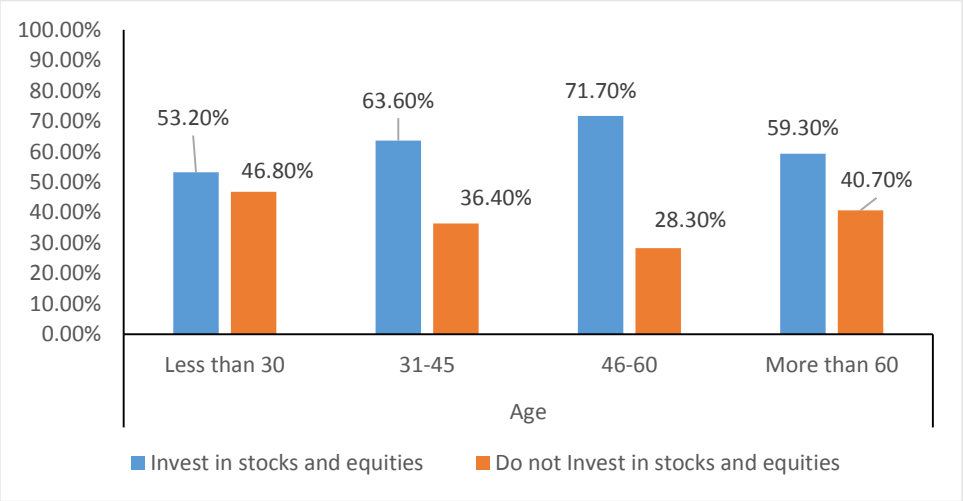

Figure 29. **Age and investor's choice of risky versus less risky investment avenues.**

It seems that as the age of the investor increases the investors become more risk taker and hence invest in risky assets. But at lower age (< 30) and higher age (> 60), they are risk avoiders and hence invest in less risky assets.

Gender of investors and their choice of risky versus less risky investment avenues

Table 17 and Figure-30 represent the categories of gender and their choice to invest in risky (stocks and equities) versus less risky investment avenues. Out of 961 respondents who are males, 68.4% invest in risky investment avenues compared to 31.6% who invests less in risky investment avenues. We find, 250 respondents who are females of which 56.8% invest in risky investment avenues compared to 43.2% who invest in less risky investment avenues. Out of 5 respondents who belong to the category of others, 40% invest in risky investment avenues and compared 60% who do not invest in risky investment avenues.

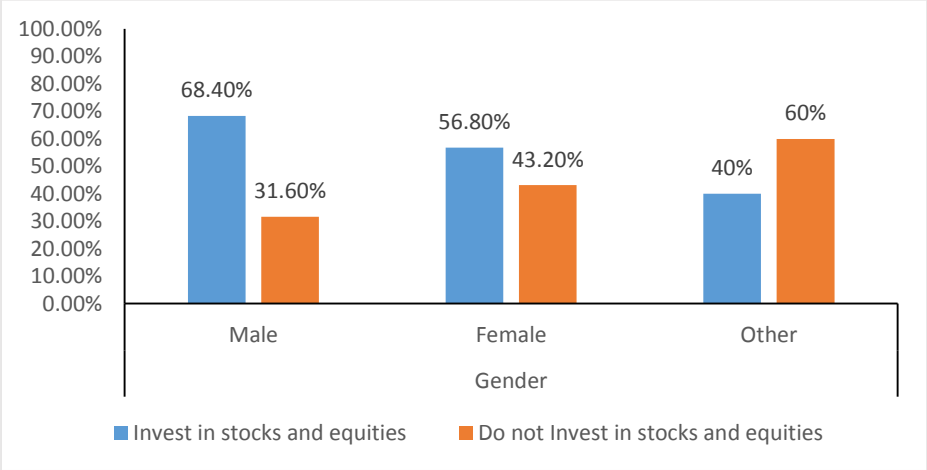

Figure 30. **Gender and investor's choice of risky versus less risky investment avenues**

This result is consistent with the result of scholars. Males invest more in risky assets as compared to females. Even though we find that females do invest in risky assets but the percentage of females investing in risky assets is low. This is because females are more risk-aversive than males.

Marital status of investors and their choice of risky versus less risky investment avenues

In Table 17 and Figure-31, 165 respondents who are singles, 59.4% invests in risky investment avenues compared to 40.6% who do not invest in risky investment

avenues. Out of 1039 respondents who are married, 67.2% invests in risky investment avenues compared to 32.8% invest in less risky investment avenues. 12 respondents who are divorced of which 41.7% invests in risky investment avenues compared to 58.3% who do not invest in risky investment avenues.

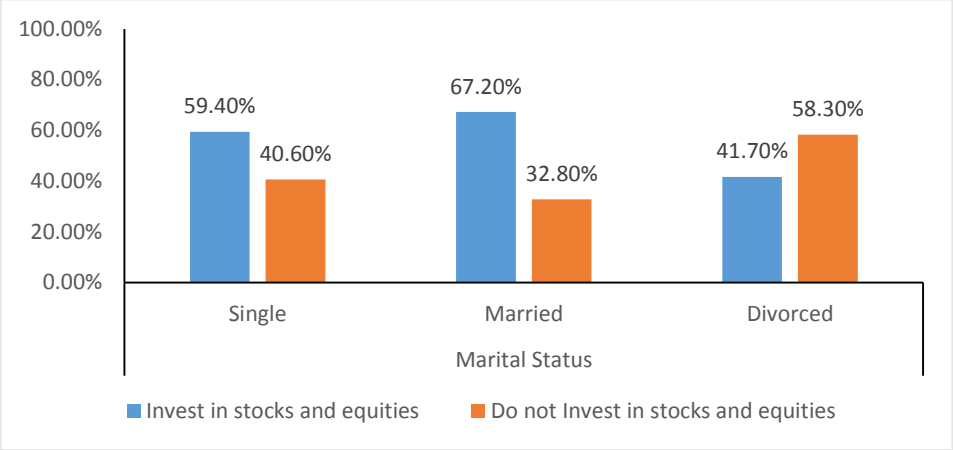

Figure 31. **Marital status and investor's choice of risky versus less risky investment avenues**

It seems that more of the married individuals invest in risky assets because they have to support their family and they become risk taker. They willingly want to interact with investment avenues with high risk for the high returns that they give.

Educational qualification of investors and their choice of risky versus less risky investment avenues.

Table 17 and Figure-32 represents the educational qualification of investors based on their choice to invest in risky versus non-risky investment avenues. Out of 211 respondents who have attained a higher secondary education degree, 61.6% invest in risky investment avenues compared to 38.4% do not invest in risky investment avenues. 708 respondents who are graduates of which 69.6% invests in risky investment avenues compared to 30.4% who do not invest in risky investment avenues. Out of 297 respondents who have attained a postgraduate degree or above, 59.9% invests in risky investment avenues compared to 40.1% who do not invest in risky investment avenues.

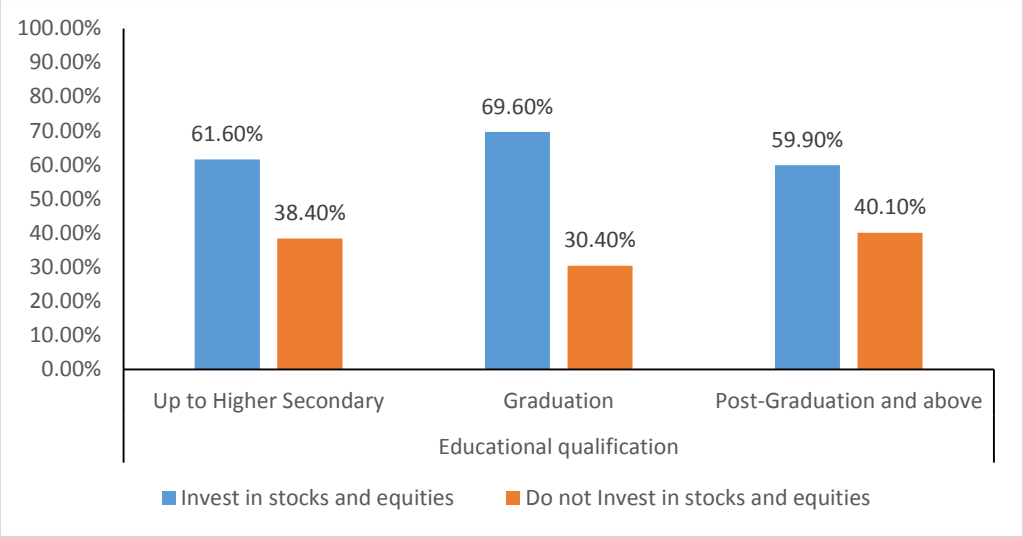

Figure 32. **Educational qualification and investor's choice of risky versus less risky investment avenues**

Education of an investor do not highly influence the choice of investment. There is not much difference in the investor's choice of risky versus less risky investment avenues when an investor has post graduate degree or above. This explains that knowledge about various investment options can also be attained by individual who is not a graduate. Hence, an investor is risk taker and is qualification is not highly correlated.

Occupation of investors and their choice of risky versus less risky investment avenues.

In Table 17 and Figure-33, 23 respondents are students of which 34.8% invest in risky investment avenues compared to 65.2% who do not invest in risky investment avenues. Out of 30 respondents who are homemakers, nobody invests in risky investment avenues. Also, 513 respondents who are self- employed of which 73.9% invests in risky investment avenues compared to 26.1 % who do not invest in risky investment avenues. Out of 334 respondents who are government employee, 63.2% invests in risky investment avenues compared to 36.8% who invest in less risky investment avenues. 309 respondents who are private employee of which 64.4% invest

in risky investment avenues compared to 35.6% do no invest in risky investment avenues. Out of 7 respondents who are retired, 35.8% invest in risky investment avenues compared to 64.2% who do not invest in risky investment avenues.

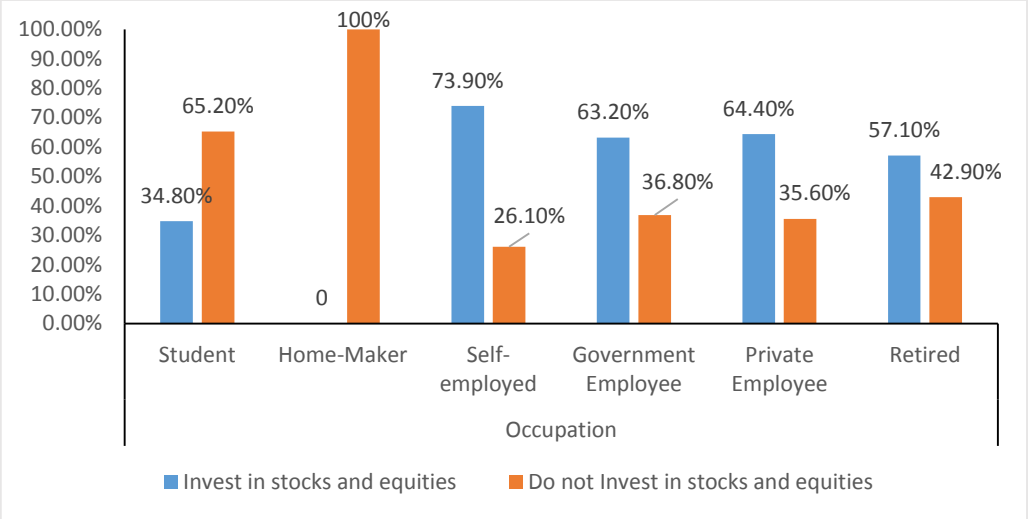

Figure 33. **Occupation and investor's choice of risky versus less risky investment avenues**

If a person have sources by which he is receiving a constant income, that person has many options then to invest his savings, but if the income generating source is not fixed or is less than an individual focuses more on the expenditure in hand rather than saving or investing for future.

Monthly income of investor and their choice of risky versus less risky investment avenues.

Table 17 and Figure-34 investors on the basis of their monthly income and their choice to invest in risky versus non-risky investment avenues. Out of 67 respondents who earn a monthly income less than Rs. 30,000, 35.8% invests in risky investment avenues compared to 64.2% who do not invest in risky investment avenues. 336 respondents who earn a monthly income between Rs. 30,001- Rs 60,000 of which 47.6% invests in risky investment avenues compared to 52.4% who do not invest in risky investment avenues. Out of 461 respondents who earn a monthly income of Rs.

60,001- Rs. 1,00,000, 71.8% invests in risky investment avenues compared to 28.2% who do not invest in risky investment avenues. 352 respondents who earn a monthly income more than Rs. 1,00,001 of which 81.3% invests in risky investment avenues compared to 18.8% who do not invest in risky investment avenues.

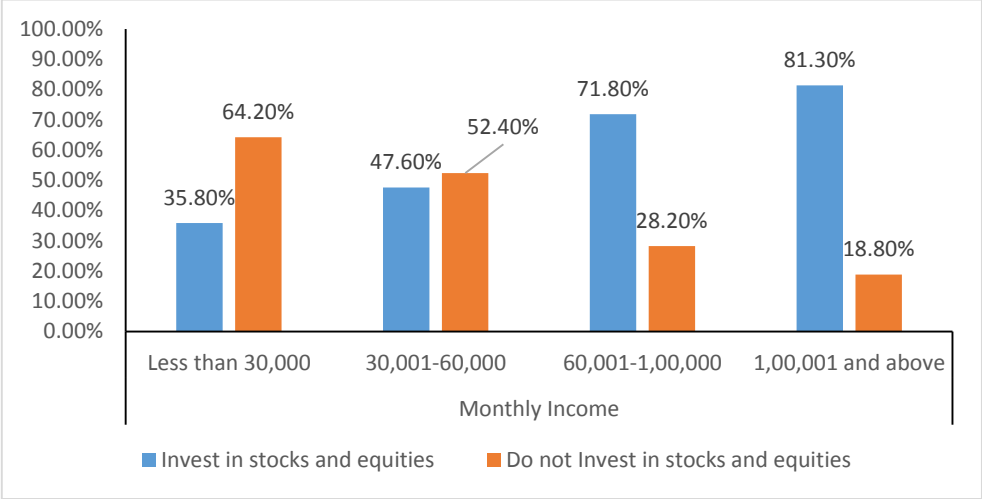

Figure 34. **Monthly Income and investor's choice of risky versus less risky investment avenues**

It is very clearly seen that as the income of the individuals rises, he invests in risky assets as compared to individuals who earns a less monthly income. As soon as the income of the investors rises beyond Rs. 60,000 basic expenditure is easily fulfilled, the investor becomes risk taker wants to even more return despite high risk attached to risky assets.

Number of dependent family members of investor and their choice of risky versus less risky investment avenues.

In Table 17 and Figure-35, 203 respondents who do not have any member family member dependent on them, 70 % invests in risky investment avenues compared 30% who do not invest in risky investment avenues. Out of 520 respondents who have 1-3 members of the family who are dependent, 73.3% invests in risky investment avenues compared to 26.7% who do not invest risky investment avenues. Also, 322

respondents who have 4-6 members of the family who are dependent of which 56.8% invests in risky investment avenues compared to 43.3% who do not invest in risky investment avenues. We find that out of 171 respondents who have more than 6 members of the family who are dependent, 55.6% invest in risky investment avenues, compared to 44.4% who do not invest in risky investment avenues.

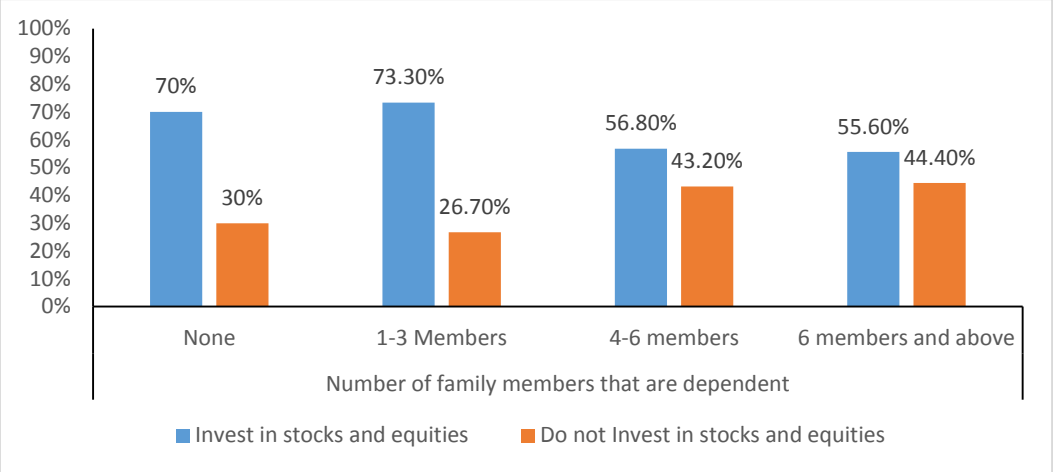

Figure 35. **Number of dependent family member and investor's choice of risky versus less risky investment avenues**

We find that as the number of family members increases the investors invests less in risky investment avenues as compared to investors who have less family members. This signifies that an investor if risk taking depends highly on the number of dependent family members because he has to take care of the increasing expenditure and thus, he has less money to save and invest.

4.6.2 Results of chi-square test on demographic characteristics of investors, risk perception, moods and sentiment and investors' choice to invest in risky versus less risky investment avenues.

We perform a chi-square test to check for independence of attributes. Table 18 shows the result of the chi square test.

Table 18: Chi-square between demographic variable and investor's choice to invest in risky versus less risky investment avenues

Demographic Factors	χ^2 Value	Df	Sig. Value
Age	19.51	3	0.000**
Gender	13.30	2	0.001**
Marital Status	6.99	2	0.030**
Educational Qualification	10.81	2	0.004**
Occupation	84.04	5	0.000**
Monthly Income	120.95	3	0.000**
Number of dependent family members	33.95	3	0.000**
Risk perception	80.99	1	0.000**
IMI	21.487	2	0.000**
ISI	0.864	1	0.353

**Significant at 1% level. *Significant at 5% level

A chi-square test is done to find the independence of attributes between the variable. Table 18 shows the relationship between various demographic factors with investors' choice to invest in risky versus less risky investment avenues. But before running a chi-square test the categories with sample less than 31 were removed to avoid any kind of biases in the results (Hogg, 2009). The category thus removed are people who are more than 60 years of age; category others in gender variable; category students, homemakers and retired in occupation variable. A total of 43 data entries were eliminated before running the chi-square test. Thus, the sample size of 1173 was taken for further analysis. The relation between the demographic variables i.e. age, χ^2 (3, N=1173)= 19.51, p < 0.01; gender, χ^2 (2, N =1173) = 13.30, p <.01; marital status, χ^2 (2, N = 1173) = 6.99, p <.01; educational qualification, χ^2 (2, N = 1173) = 10.81, p <.01; occupation, χ^2 (5, N = 1173) = 84.04, p <.01; monthly income, χ^2 (3, N = 1173) = 120.95, p <.01 and number of dependent family members, χ^2 (3, N = 1173) = 33.95, p <.01, risk perception, χ^2 (1, N = 1173) = 80.99, p <.01 and IMI, χ^2 (2, N = 1173) = 21.48, p <0.01

and investor's choice of risky versus less risky investment avenues shows a significant relationship at 1 % level of significance. However, ISI, χ^2 (1, N = 1173) = 0.86 and investors' choice to invest in risky versus less risky investment avenues shows an insignificant relationship. It signifies that optimism does not affect the investor's choice of risky versus less risky investment avenue.

This shows that all the demographic characteristics, the risk perception and moods of an individual influences the investors' choice of risky versus less risky investment avenues.

4.5.3 Results of Logit regression on demographic characteristics, risk perception, moods and sentiment and investors' choice to invest in risky versus less risky investment avenues.

We know that Pearson Chi-square corresponds to Logistic regression, but in Pearson Chi-Square we cannot add continuous or categorical independent variable. So, we will perform a logistics regression model to establish the relationship between the independent variable and the dependent variable.

In this binary logistic regression model we will test the categorical independent variables i.e. demographic factors (age, gender, marital status, educational qualification, occupation, monthly income and number of dependent family members), risk perception, Investors Mood Index and Investors Sentiment Index on the dependent variable i.e. investors choice to invest in risky versus less risky investment avenues is a categorical variable with two categories those who invest in risky investment avenue and those who do not invest in risky investment avenues, which is depicted in equation *(vi)*.

$$L = ln\left[\frac{pi}{[1-pi]}\right] = ln(odds) = b_0 + b_1A_1 + b_2A_3 + b_3\ G_1 + b_4\ MS_1 + b_5\ EQ_{2+}\ b_6\ EQ_3 + b_7\ O_3 + b_8\ O_{5+}\ b_9\ O_{6+}\ b_{10}\ M_1 + b_{11}\ M_3 + b_{12}\ M_4 + b_{13}\ FM_1 + b_{14}\ FM_2 + b_{15}\ FM_3 + b_{16}\ RP_1 + b_{17}\ IMI_1 + b_{18}\ IMI_2 + b_{19}\ ISI_1 + \varepsilon i. \quad \text{.....(vi)}$$

Equation *(vi)* is an extension to equation *(iii)* where we add

RP_1 = 1, when investor is Risk taker, else = 0.

IMI_1= 1, when investor is in Happy mood, else= 0.

IMI_2= 2, when investor is in Sad mood, else =0.

ISI = 1, when investor is Optimist, else = 0.

In our model, the dependent variable takes two categories: people who invest in risky investment avenues and do not invest in risky investment avenue. The people who invest in risky investment avenues are categorized as 1 and people who do not invest in risky investment avenues as 0. For independent variable 31-45 years of age group, females, married, educational qualification up to higher education, government employee, Rs. 30,001 -Rs. 60,000 and more than 4 dependent family members, risk avoider, neutral mood, pessimist was taken as the reference category for running the logistic regression. Also, the categories whose sample were less than 31 were removed to avoid any kind of biases in the results. The category thus removed were people who are more than 60 years of age; category others in gender variable; category students, homemakers and retired in occupation variable. Thus, the results from the binary logistic regression explained in Table 19 are depicted in equation *(vii).*

$$L = ln\left[\frac{pi}{[1-pi]}\right] = ln(odds) = -1.465 - 0.112\ A_1 + 0.22\ A_3 + 1.264\ G_1 - 0.651\ MS_1 + 0.806\ EQ_2 - 0.666\ EQ_3 + 0.837\ O_3 + 0.247\ O_5 - 0.553\ MI_1 + 0.906\ MI_3 + 1.258\ MI_4 + 1.486\ FM_1 + 1.781\ FM_2 - 0.107\ FM_3 + 0.695\ RP_1 + 0.612\ IMI_1 + 0.446\ IMI_2 - 0.195\ ISI_1. \quad \text{.....(vii)}$$

Table 19: Binary logistics regression on investors' choice to invest in risky investment avenues

		B	S.E.	Wald	Df	Sig.	Exp(B)
Age	Under 30 years	-.119	.271	.192	1	.661	.888
	46-60	.352	.147	5.731	1	.017*	1.423
Gender	Male	.005	.173	.001	1	.975	1.005
Marital Status	Single	-.011	.245	.002	1	.963	.989
Educational Qualification	Graduation	.052	.185	.077	1	.781	1.053
	Post-Graduation	-.172	.209	.671	1	.413	.842
Occupation	Self- Employed	.483	.161	9.033	1	.003**	1.621
	Private Employee	.075	.172	.189	1	.664	1.078
Monthly Income	Under Rs. 30,000	-.472	.301	2.452	1	.117	.624
	Rs. 60,001-Rs. 1,00,000	.872	.166	27.715	1	.000**	2.393
	More than Rs. 1,00,000	1.281	.193	44.104	1	.000**	3.599
Number of dependent family member	None	.944	.255	13.746	1	.000**	2.569
	1-3 members	.751	.206	13.313	1	.000**	2.118
	4-6 members	.181	.209	.751	1	.386	1.198
Risk perception	Risk taker	.695	.166	17.526	1	.000**	2.004
IMI	Happy	.612	.165	13.697	1	.000**	1.844
	Sad	.446	.170	6.902	1	.009**	1.562
ISI	Optimist	-.195	.164	1.417	1	.234	.823
	Constant	-1.465	.326	20.163	1	.000	.231

**Significant at 1% level, *Significant at 5% level

There is a positive relation of some independent variable i.e. age, gender, educational qualification, occupation, monthly income, number of dependent family members with the dependent variable i.e. people who risky investment avenues. However, in the subcategory of independent variable, age (under 30 years of age), educational qualification (post-graduate and above) monthly income variable (people who earn less than Rs. 30,000) and number of dependent family members (people who have 4-6 members of family who are dependent) and pessimist category of sentiments have negative relation with the dependent variable i.e. people who invest in risky investment avenues.

From Table 19 it is clear that the log likelihood of investors who are between 45-60 years of age, self-employed, Rs 60,001-Rs. 1,00,000, Rs. 1,00,000 and above, no dependent family member, 1-3 dependent members of the family, risk takers, happy and sad mood is significant.

There are 1.42 times more chances of an individual who is between the age group of 46-60 years to invest in risky investment avenues than an individual who is between 31-45 years of age. There are 1.62 times more chances of an individual who is self- employed to invest in risky investment avenues than an individual who is a government employee. There are 2.39 times more chances of an individual who earns a monthly income between Rs. 60,000- Rs. 1,00,000 to invest in risky investment avenues compared to a person who earns a monthly income between Rs. 30,001- Rs. 60,000. There are 3.59 times more chances of an individual who earns a monthly income above Rs. 1,00,001 to invest in risky investment avenues than a person who earns a monthly income between Rs. 30,001- Rs. 60,000. An individual who is risk taker will invest 2.01 time more in risky investment avenues than a person who is risk avoider. An individual who is happy will invest 1.84 times more in risky investment

avenues than an individual who is neutral in his feelings. An individual who is sad will invest 1.52 times more in risky investment avenues than an individual in a neutral mood.

According to the chi-square test, as shown in Table 18, and the results of logit model, as shown in Table 19, investors age do impact the investors choice to invest in risky investment avenues. Investors who fall in the category of 46 to 60 years of age choose to invest in risky investment avenues more as compared to younger investors. One main reason can be that the older investors have learned from experiences and they are at a better position to calculate the trade-off between risk and return from risky investment avenues.

The results from the logistic regression, shown is Table 19, do not reject the null hypothesis meaning that gender, marital status and educational qualification meaning these factors do not significantly affect the investor's choice to invest in risky versus non-risky investment avenue. This result is in contrast to studies that are carried out by researchers which concluded that gender, marital status and educational qualification (Bhavani & Shetty, 2017) do affect the investors' choice of risky versus people to invest in stocks and equities (Deo & Sundar, 2015; and Patel & Modi, 2017). One major reason for the contrary results could be because of gender, marital status and educational qualification have studied without taking risk perception, moods and sentiments of investors into consideration. It also signifies that these factors must be included in further researches that centre around investors, investor behaviour and investment decisions.

Occupation is considered to significantly affect the choice of people to invest in stocks and equities i.e. risky investment avenues. (Bhavani & Shetty, 2017 and Bhola, Shah & Zanwar, 2012). In a study conducted by Mittal & Manish (2007) they concluded

that investors who belong to service class invest mostly in PPF, post office savings and in equities and mutual funds, whereas people who invest belong to business class prefers to invest in bonds and real estate. Professionals under the occupation variable are also studied and found that they prefer to invest in post office schemes and derivatives. (Mittal & Manish, 2007). Kothari (Investors behaviour towards investment avenues: A study concerning Indore city, n.d) concludes that people who are working in a bank, i.e. private or public have regular income and secure future as compared to investors who area businessman. It can be seen from Table 19, that there are 1.62 times more chances of self-employed individuals to invest in risky investment avenues in comparison to people who are government employees. It is evident from results that self-employed investors are perceived as less risk from risky assets and thus invest more in investment avenues with high risk like stocks and equities. Also, that 38.4 % of investors are self-employed who earn a monthly income of more than Rs. 1,00,000. Because they are earning a high monthly income which is more than enough to support the family and have enough money to bear the risk, so they are more inclined to invest in investment avenues with high risk. Another reason for a self-employed investor to invest in risky investment avenues like stocks and equities is because of tax concessions (Sikidar & Singh, 1996). The result of this study contrasts with work done by Geetha and Ramesh (2011). They conclude that the occupation of an investor does not influence the investment preferences of an investor.

Monthly income significantly affects the choice of investment avenue, as shown in Table 19. Consumption and income of investor do not increase parallelly. Hence with more income, less of the money is put for consumption and more is diverted to savings in the form of investments (Bhavani & Shetty, 2017). Also, individuals with high monthly income become a risk-taker, which can be seen from the data that 74.3% and

82.1% of investors who earn a monthly income between Rs. 60,001- Rs. 1,00,000 and more than Rs. 1,00,000 are risk takers. People with a low level of income prefer to invest in bank deposits, and insurance (Geetha & Ramesh, 2011) because they are considered safe investment options. But a study by Sultana (2010) states that Indian investors despite earning a high income will not invest in investment avenues with high risk and will always prefer to invest in avenues with low to medium risk.

From the results of the study, as shown in Table 19, it is evident that investors with no or less dependent family members invest in investment avenues with high risk as compared to investors who have the responsibility of more family members. The investor who has no family member who is dependent on then invest 2.56 times more in risky investment avenues compared to an investor who has more than 6 dependent family members. The main reason is with more dependent members the expenditure increases and more income is required to complement the expenditure when more the money is dedicated to household expenditure less money will be available for savings and investment.

The risk is perceived less by investors who invest in risky investment avenues which is evident from results shown in Table 11, that there are 2.01 times more chances of risk takers to invest in risky investment avenues as compared to risk avoiders and who invest in risky investment avenues

Moods significantly affect the choice of people to invest in risky investment avenues. It is evident from results shown in Table 19, that there are 1.84 times more chances of investors in a happy mood to invest in risky investment avenues like stocks and equities as compared to people who are in the neutral mood and also there are 1.56 times more chances of individual to invest in risky investment avenues as compared to individuals in neutral mood. The study supports the bigger idea that mood of an investor

affects the choice of people to invest in stock and equities. These results support the arguments that moods of investor affect the way investment decision of an investor. Whether the mood makes, and individual risk taker of risk avoider is still not covered through this study. But the most crucial fact that moods should now be recognised as an essential factor that influences the choice of people to invest in risky investment avenues.

This study does not reject the null hypothesis for the effect of sentiments on the choice of people to invest in risky investment avenues. It is evident from the result shown in Table 19 that shows a 0.234 *p*-value that indicates sentiments do not significantly affect the choice of people to invest in risky investment avenues

The traditional financial theories claim that individuals always want to maximise their wealth. Moreover, while deciding on the choice of investment avenue, it is clear that investment avenues that give the highest return will always be selected by a rational investor, which will help him to acquire maximum returns and increases his wealth in manifolds. This is supported by the data shown in that 65.9 % of the respondents chose to invest in risky investment avenues compared to 34.1% who do not invest in risky investment avenues. As stocks and equities are considered to be risky assets, associated with high risk and high returns, the perception of risk by these respondents has to be low. 68% of the respondents fall in the category of risk takers indicating that these people are aware of the risk and want to intentionally engage with risk in order to attain high return and maximise their wealth. These results are in comparison to the overall profile of the respondents.

However, this result changes as soon as we explore the respondents' data in detail. If we take the wealth maximisation criteria, then the percentage of respondents who invest in assets associated with less risk and low returns should also be low.

Because investor desire to maximise his satisfaction will only be achieved when he earns more wealth from the by investing in avenues that give high returns. However, we see that 74.8% of the respondents choose to invest in assets like bank deposits, insurance schemes and gold. It raises an apprehension that if people were only interested in maximisation then why is such a large number of respondents investing in assets associated with less risk. This is well explained by prospect theory which states that the pain that an individual gets from losing more than the joy that he gets from the gain (Kahneman & Tversky, 1979). If the individual investor has the possibility where he can save all of his money for himself and his interest, he will first prefer that, i.e. he will save whatever is possible for him to save. The choice of investment assets or investment avenues by a large percentage of respondents comprehends the claim of prospect theory that we become loss aversive and will choose options where the outcome is specific, i.e. in case of investment assets with low risk where even when the return if low but also it is less volatile.

Economic theories, in their concept of marginal cost and benefit, claims that an individual should respond equally when there are two situation having equal cost and equal benefits.

If the claim of the financial theorist is valid, then the people who invest in stocks and equities and who are risk loves will not change if we add investors mood index, as the marginal cost and benefit from stocks and equities will remain the same. However, it is clear from the data of respondents that approx. 50% respondents are risk takers who invest in risky investment avenues but when we consider the happy mood of investors, the category of investors who invest in risky investment avenues i.e. stocks and equities and who are risk takers are just 25%. If economic theory claims are correct,

then the inclusion of Investors Mood Index should not have changed the percentage of investors who invest in risky investment avenues and who are risk taker.

However, as soon the Investors Mood Index is taken into consideration with risk perception and the investor's choice of risky versus less risky investment avenues there is a shift in choice of investors. Thus, the investors assess gains and losses in relative terms rather than the absolute terms (Kahneman & Tversky, 1979). The moods of an individual are very transient, and thus as soon as the elements causing the moods to change the choice of an individual also changes. The moods affect the decision making of investor directly by influencing the futuristic expectations considering risk and return. (Bolen, 2007 & Gear, Shi, Davis & Fets, 2017).

The reference point, as explained under prospect theory, is an area generally not zero, which separate the gain and loss situation for an investor. An investor will take decisions always considering this reference point that is created by the investor in his mind depending on the gain and loss conditions that happened at during that time. The mood that an investor experience helps to form a reference point and an investor starts to evaluate the decision based on this reference point. We have taken general feelings, perceived weather, feel of sports result, and festival feels to calculate the Investors Mood Index. Every person experiences these variables differently, and each investor forms different reference point in while making an investment decision.

Also, one of the crucial claims of the behavioural economist is that individuals take the decision not based on all the information at hand, but they rely on the first instance of information that they received while taking a decision later on (Kahneman & Tversky, 1979). It is held by the fact that the people who chose to invest in risky investment avenues, 45.2% rely on friends for deciding where to invest while only 8.9% considers news either from television or internet for taking their decision. Now, it is not

sure that the friends have a piece of updated information on risky investment avenues from the news or not, but it is evident that the herd behaviour, group thinking, and availability bias influences the choice of the investor. It supports that, an investor tends to recognise stocks and equities are favourable investment options because their friends are also investing. More importantly, because the investor wants to be recognised as a part of that social circle.

The concept of economic sentiments also explains this dependence of investors decision incoherence to society and economy at large. If the investor is not confident about the economic policies, then the investor will become pessimistic, and the chances are that he withdraws his investment from risky assets. However, if everybody around him is optimistic and they think there will be gains from a particular investment, he will be motivated to invest or continue to hold his money in that particular investment avenue, considering that most of the people cannot be wrong. This is one of the cognitive biases, that influences investors to choose the default options that are set by society, even though he feels that investing in that avenues will not fetch him desired returns. The information that is provided by his friend circle profoundly influences an investors reasoning skill. The investor because of the biases forms a mental model of patterns which could be random gain or loss event that might have happened.

The above results explain that moods and sentiments play an essential role in decision making and guides the individual to act in irrational ways. It also affects the investment choice of the individual Indian investor (Mittal & Vyas, 2003; Chavali & Raj, 2016; Kaur & Kaushik, 2016)

CHAPTER 5: SUMMARY AND CONCLUSION

5.1 Conclusion

Investment decision making is one of the crucial decisions than an investor has to undertake throughout his life. An investor always wants to maximise the returns for a given risk. Risk is anything that in unexpected uncertainty that each investment avenue inherits. Various investment avenues are differentiated based on risk attached to it. Shares, mutual funds are considered to be highly risky investment avenues and it is argued that people who are risk takers will invest in such investment avenues, whereas bank deposits, bonds, provident funds are investment avenues that are considered less risky and investors who are risk aversive will invest in such kind of investment avenues.

Investment of an individual in various investment avenues depends on the time horizon, availability of money to invest and how he perceives risk. How an individual perceives risk is also an important factor in choosing the appropriate investment. Risk taker will estimate less risk from a risky investment avenue as compared to a risk aversive person. Proposed by the traditional financial theorist, investors are believed to be a rational investor who weights both risks and return from an investment avenue and has full knowledge about the same. However, it has been seen that an investor is not always rational in his decision making. The irrational investor has been studied by behavioural finance at large. Behavioural finance builds from the limitations of the neoclassical model and its assumptions of rationality in consumer choice.

There are some human limitations that are displayed by economic agents in markets and when, economics and psychology fail to explain these differences separately then the theories of Behavioural finance justify the unexplained part of the investment decision making and how the investor is irrational in his investment decision

making. The irrational investor acts promptly on the limited information he has and invests his money. This prompt action can fetch irregular returns to an investor. The irregular returns which an investor seeks from the prompt actions of an investor has been described as uncertainty in the literature. Risk is a measure of uncertainty and each investor interacts with risk while reaching an investment decision. We can accurately predict the investment decision of an investor if we have the financial information of an investor. But it is not easy to get access to the financial information of an investor and hence it gets difficult for financial planners and policymakers to assess the financial wellbeing of an investor. Other than the financial information it is also not easy to observes the investor and predict their investment decision, as there is uncertainty and vagueness in his behaviour (Lan, Xiong, He & Ma, 2018). One of the possible ways to study an investor and his investment decision is by obtaining data on his demographic characteristics like age, gender, etc. this will help to evaluate the investor behaviour preferences and provide a better understanding of investor behaviour.

The vast literature on finance identifies the risk attached to each investment avenue that an investor has to consider before investing his money. Perhaps studies have been conducted to differentiate investment avenues because of risk, return, safety and liquidity. In contrast to this very few studies focus on the risk perception of an investor. Also, other factors like the environment in which an investor interacts influences the investment decisions of an investor. Psychological factors like moods and sentiments also impact the decision making of an investor. When an investor is in a happy mood, they underestimate the risk and invests in avenues with high risk and high return. The choice of risk investment avenue also is influenced by the economics sentiments of an investor. When an investor is optimistic about the economic growth, an investor will overlook the risk and invest in risky assets in favour of high returns in

future. It is very recent that the concept of moods and sentiments have been recognised in the field of behavioural finance. In India, moods and sentiments are yet to be recognised (and its way to measure it) by many scholars to study its effect on investment decision making. Thus, this study tries to explore the factors like risk perception, moods and sentiments and other social factors that affect the investment decision of an investor.

The study examines the relationship between the risk perception of an individual with their demographic characteristics like age, gender, marital status, educational qualification, occupation, monthly income and number of dependent family member. The risk perception categorises an investor into risk taker and risk avoider. A risk taker is a person who is comfortable to invest in risky assets in comparison to risk avoider who will invest in less risky assets even it gives him low returns. Other than the risk perception, investors moods and sentiments also influence the way an investor invest in risky assets. The study focuses on the demographic characteristics of 1216 investors who actively participate in his investment decisions.

This study follows a quantitative approach to study the factors that affect the investment decisions of Indian investor. A close-ended questionnaire was developed to collect the responses on the investors. The questionnaire is divided into 5 sections each focusing on one area. Section A focuses on the demographic characteristics of an investor, while Section B captures in detail the investment strategies of people who invest in risky assets. In addition, Section C highlights the moods of individuals, Section D demonstrates the economic sentiments of an investor and finally, Section E captures the risk perception of individual investors. Initially we model risk perception and demographic characteristics of an investor and later we model the investors choice to invest in risky versus non-risky assets with demographic characteristics of an

investor like age, gender, marital status, educational qualification, occupation, monthly income and number of dependent family members, risk perception, moods and sentiments of an investor.

Also, it identifies as many as 75% of the investors who are males and most of them are married. A Married investor has to finance their own need but also the needs of their family. Yet, we find that as high as 74% of the male investors who are married are risk takers and they choose to invest in high risky assets also. This shows that gender has a significant effect on the risk perception and the investors' choice to invest in risky versus non-risky assets. Whereas only a few females' investors responded to the survey. One reason for less female investors can be that, females earn less than men which is evident from the income gap between genders. When it comes to female investors' choice to invest in risky assets, females who are unmarried a few of them do invest in risky investment avenues but very less as compared to males.

Equally important is the educational qualification of an investor which determines his risk perception. As evident from the results, male investors who hold a degree either graduate or above they become risk taker. Higher educational degrees give you a chance for studying and evaluating investment avenues in a better and structured way which make an investor perceive that he understands risk and thus underestimates the actual risk from an investment avenue. Whereas educational qualification does not change the risk perception of females much. Females are in general categorised as risk aversive because they do not have less say in financial decision making of a family as compared to males. And hence the majority of the holding a post-graduation degree as compared to passing class 12^{th} do not change the risk perception of female investors this can be the reason that fewer females invest in risky investment avenues.

Interestingly we found, as the monthly income of the investors increases the investors start choice to invest from less risky assets changes to risky assets. The risk perception of investor also changes from risk avoiders to risk takers as the income increases. The investor after keeping the money for regular expenditures will now have more money to diversify and hence may invest more part of it in risky assets while saving some for non-risky assets. This is true for people who belong to investors who are self-employed, government employee as well as who are private employee.

Besides the occupation, a number of dependent family members also affect the risk perception and the investors' choice. It is believed that with more number of dependent family members an investor would not invest in risky assets and would very precisely invest in the less risky asset of which returns ae certain. Complementary to this we see as the number of dependent family members rises and also the monthly income of more than Rs. 60,000 an investor is risk taker i.e. he still perceives less risk from a given investment avenue and also chooses to invest in risky investment avenues.

Moods and sentiments of an individual are linked to the investment decisions of an individual. An investor who is in a happy mood invests more in risky assets than an investor who is in a sad mood or has a neutral mood. Also, the investor who is an optimist invests more in risky assets than a person who is a pessimist.

Thus, we conclude by saying that the main factor that determines the risk perception and investors choice to invest in risky versus less risky investment avenues is the monthly income of the investor and the source of earning that income i.e. occupation. Rest all other factors like age, gender, marital status, educational qualification has contradictory results and need for much deeper studies on these factors of investment decision making. Also, this study lays the ground for introducing moods

and investment decisions of Indian investors. More work can be found out to support our claim.

5.2 Contribution to Literature

This research work fills the gap in the literature by combining the theories of economics, finance and psychology. The field of psychology focuses on the behavioural aspect of an investor while the financial and economic theories focus on the economic conditions of an investor.

The demographic characteristics age, gender, marital status, educational qualification, occupation, monthly income, number of dependent family members explains the socio-economic characteristics while the risk perception, moods and sentiments explain feelings of an investor. This research work explains the feelings of an investor in relation to his demographic characteristics and investment decisions. Thus, an individual investor's decision is a result of not just socio-demographics but also because what the investor feels while taking that decision.

An investor is neither fully rational nor fully irrational in his decision making. The decision that an investor takes not only depends on the thoughtful processing of risk attached to a particular investment avenue, but also on the feelings that an investor feels at the time of taking that decision and finally it also depends from where he is getting that investment information.

The feelings of an investor in this research work is captured by the way he perceives risk. Risk perception scale captures the risk perception of Indian investors. This helps to gain insight into the investor behaviour and how comfortable an investor can engage in risk. Moods and sentiments are other aspect by which the feelings of an investor had been tried to capture. The IMI can be used to calculate the moods of Indian investors. The mood of an investor is used in place various constructs like how an

individual in feeling in general, what does the investor perceive about the weather, if investor follows a sport; then how he felt about its result and lastly how investor feel about the festival. These all constructs have been combined to form one index called an Investor Mood Index. Also, the ISI helps to calculate the individual sentiments of an investor. The already existing Consumer Sentiment Index calculates the optimism and pessimism prevailing in an economy. The ISI can calculate the how optimistic or pessimistic each investor is. Thus, the IMI captures the individual mood of an investor and the ISI captures the economic sentiment of an investor.

This study enhances the literature by introducing risk perception, Investor Mood Index and Investor Sentiment index which helps to capture the irrationality in the investment decision.

5.3 Limitations of the study

In this study, we analyse the effect of demographic characteristics like age, gender, marital status, educational qualification, occupation, monthly income and the number of a dependent family member on the risk perception of an investor. We also try to explore the effect of demographic characteristics of investor, moods, sentiments and risk perception of Indian individual investors. Some of the limitations of the present study are discussed in this section.

The present study is confined to cities like Delhi, Chennai, Kolkata, Mumbai, Vadodara, Ahmedabad and Surat. However, investors in India are spread all over the country. Inclusion of investors from other cities could help to capture more details of Indian individual investors.

The sample size for this study is 1216 who are earning regular monthly income and are who are actively participating in their investment decisions. So, the findings of

the present study cannot be generalised to investors who are not earning a regular monthly income or who are not active investors.

The study follows a quantitative approach that uses a questionnaire to collect the data. Because of resource constraints like time and money we were not able to do enquire in detail why the investor chooses one option over another. This information would have helped us to interpret the results in a better way.

The studies focus was on introducing the psychological factors that affect individual investment decision making, so there can be a possibility of biases in the responses given by the investors.

A large number of studies were focusing on the demographics of individual investors, but there were very few studies specifically in the area of behavioural economics and behavioural finance, individual moods, economic sentiments that affect individual investment decision making in the Indian context. Due to lack of studies in investment decision focusing on moods and sentiments affecting Indian investors, there can be some aspects of mood that could have been included, but due to lack of literature support, they were not included in this study.

5.4 Implications of the Study

It is very recent that risk perception, moods and sentiments of investor has been recognized in the field of finance. The irrationality of investors has been linked to the psychological factors i.e. moods and sentiments as they affect the decision making of an individual. The investment decision is made by all investors to diversify the risk and earn profits.

A small focus of this study is also to find the dominant sources of information which plays a huge role in influencing the investors' decision. The current study suggests that individual investors' decision making is not just dependent on his

demographics but also his/ her risk perception, which in turn is affected by his moods and economic sentiments. It will help him to recognise any biases that can arise because of the changing economic sentiments which could affect his mood and interrupt his risk-return trade-off decision. Thus, the implications of this study are as follows:

This study will help the individual investor to make informed decisions of investing his saving in accordance with how he perceives risk and how comfortable he is in dealing with risk. When an investor is aware of the factors that might influence his decision that too at some particular points of time, he would be more aware while taking a decision. Individual investors respond to future consumption needs by delaying present consumption, so he has to be wise in his decisions. By knowing the factors that affect his investment decisions he can actively participate in investment decisions. This study highlights factors due to which that the portfolios demand reconsideration and thus an investor should sporadically re-balanced so that the loss from any investment can be minimized. When an investor's decision is informed, he can accurately predict the profit from the investment. But sometimes an individual investor does not have the time or the required knowledge to assess the investment avenue minutely, then an investor goes to a financial planner or a financial advisor for expert advice.

Financial planners or advisors have a better understanding of how to manage the investments because of their specialization in that particular field and this research will elucidate the planner or advisors about the changing psychological factors that affect the risk perception and hence his/her choice of risky versus less risky investment avenue. In addition, the study works as a guide to financial planners to focus on the way investors perceives risk and how their objective of investment varies, influenced by their psychological factors that affect their choice in a different situation. When

advisors are aware of the factors that affect the investment decisions of investors, they can gather more information on the objective of a particular investment

The study provides a comprehensive idea about the decision-making process of an individual investor, how he perceives risk, how he interprets his moods and how the economic sentiments affect his investment decision making. This process can be tapped by policymakers to access the changing scenarios in investment decision making, and helps to understand the financial consumers, generate their confidence in the investment scenario of a country and taps the channelizes these investments to strengthen the economy. By capturing the factors that affect the investment decisions of an investor, we can estimate the investment cycle of an economy. Whereby, designing relevant policies at appropriate times.

5.5 Scope of Future Research

As this present work is confined to individual investors and possibly be extended to investors' financial planner, who takes decisions on behalf of individual investors.

Due to the scant literature on moods in the Indian context, the choice of variables was limited. Further studies on investors psychology can help to identify more variables that could affect the mood, and which can be studied in detail which and will help to depict a more detailed mood of an individual investor.

Linkages between demography and psychological factors can be studied in more detail. The psychological factors cannot be limited just to moods. There can be other psychological factors like past experiences, influences of social environment and biases that affect the investor's decisions. Investors reasons for choosing a particular investment can also be studied in detail to have more understanding of the factors that affect the investment decision of individual investors.

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APPENDIX

Questionnaire

INVESTMENT PATTERN

A. Demographic Profile

Age: Less than 30 ☐ 31-45 ☐ 46-60 ☐ More than 60 ☐

Gender: Male ☐ Female ☐ Others ☐

Marital Status: Single ☐ Married ☐ Divorced ☐

Educational Qualification:

Up to Higher Secondary ☐ Graduation ☐ Post-Graduation and above ☐

Occupation: Student ☐ Homemaker ☐ Self Employed ☐

Government Employee ☐ Private Employee ☐ Retired ☐

Monthly Income: >30,000 ☐ 30,001-60,000 ☐ 60,001- 1,00,000 ☐ 1,00,001 & above ☐

(In Rs.)

Family members that are dependent: None ☐ 1- 3 members ☐

4-6 members ☐ 6 members & above ☐

Sources of investment information: Family/ Relative ☐ Friends ☐ Financial Advisors ☐

News (Newspaper/ internet) ☐ Others ☐

Investment avenues that I invest in *(You can choose more than one)*	**How frequently do you investment**					
High Risk:-	**1 (Rarely)**	**2 (Annually)**	**3 (Bi-Annually)**	**4 (Quarterly)**	**5 (Monthly)**	**6 (Daily)**
Shares (Stocks) ☐						
Mutual funds ☐						
Real Estate ☐						
Moderate Risk:-						
Bonds ☐						
Gold ☐						
Low Risk:-						
Treasury Bill ☐						
Bank Deposits ☐						
Provident Funds ☐						
Insurance Schemes ☐						

Reasons for investment: ……

B. Stock Investment *(Only for investors investing in stocks, and for investors investing other than stock please skip section B and answer section C onwards.)*

Please read statements carefully and tick the option which describes you the most.

How many years of experience do you have in this *(Stock)* **market?**

less than 3 year ☐ 3-5 Years ☐ 6-8 years ☐ 9 years and above ☐

What was your trading pattern? Bought Stock ☐ Sold Stock ☐ Both ☐

What type of investor are you? Hereditary investor* ☐ New generation investor* ☐

*(*Hereditary Investors: The investor who has some experience in stock market because one of his family member has been investing in stocks. *New Generation investors: The first person from his family to invest in stocks.)*

Category of investor: Long term investor* ☐ Day investor ☐ Both ☐

One who do not review his stocks on daily basis

Approximate total size of investment made in shares per year

Below Rs.1 Lakh ☐ Rs.1 Lakh- Rs.2 Lakh ☐ Rs.2 Lakh & above ☐

Have you done trading in last 30 days? Yes ☐ No ☐

Your answers will not be revealed and there is no right or wrong answer.

If you have any doubt please contact Sarni Jain, Doctoral Research Fellow. Email Id- sarni@jgu.edu.in. 1

Here, **1**= I only bought stocks, **2**= I mostly bought stocks, but I also sold stocks, **3**= I bought as many stocks as I sold, **4**= I mostly sold stocks, but also bought stocks, **5**= I only sold stocks, **6**= Not relevant (I did not make any stock transaction)

S.no.	Statement	1	2	3	4	5	0
1	**If you made transaction in your stocks holding during the last month, did you mostly* buy or sell stocks?**						
2	**In the next few weeks, do you intend to mostly* buy or sell stocks?**						

** The term 'mostly' should be interpreted in terms of the total monetary value of the transaction*

C. Moods

Please read the exact lines carefully and tick the option which describes you the most. There is no right or wrong answer.

At the moment, which sentence best describes your mood?

- ☐ I feel very bad today
- ☐ I feel bad today
- ☐ Not particularly good and not particularly bad
- ☐ I feel good today
- ☐ I feel great today

How would you describe the weather in the last four weeks?

- ☐ Very Bad
- ☐ Bad
- ☐ Not particularly good and not particularly bad
- ☐ Good
- ☐ Very Good

Are you a fan or a supporter of a sport club or individual sports person?

- ☐ Yes
- ☐ No

With which sports is this sports club or individual sports person related? (*Please choose one club or sports that you follow the most.)*

- ☐ Cricket
- ☐ Soccer
- ☐ Field Hockey
- ☐ Badminton
- ☐ Tennis
- ☐ Chess
- ☐ Others *(Please specify)*.....
- ☐ Not a sports fan *(Skip to next question)*

If your Favourite sports team (player) has played in the last four weeks, how do you consider the game result?

- ☐ The result was bad in an important game/ tournament
- ☐ The result was bad in a not very important game/ tournament
- ☐ The result was neither good nor bad
- ☐ The result was good in a not very important game/ tournament
- ☐ The result was good in an important game/ tournament
- ☐ Not Relevant *(no game played or not a sports fan)*

Do you like Indian festivals? ☐ Yes ☐ No

During which festival you feel the most excited. *Please choose one festival that you follow the most.*

- ☐ Diwali
- ☐ Holi
- ☐ Dusshera
- ☐ Navratri
- ☐ Durga Puja
- ☐ Janamashtmi
- ☐ Raksha Bandhan
- ☐ Eid-ul-Fitr
- ☐ Pongal/ Onam
- ☐ Christmas
- ☐ Others *(Please specify)*.....
- ☐ Not relevant *(do not follow any festival)*

During your recent Favourite festival, how did you feel?

- ☐ Very Bad
- ☐ Bad
- ☐ Not particularly good and not particularly bad
- ☐ Good
- ☐ Very Good
- ☐ Not relevant *(do not follow any festival)*

Your answers will not be revealed and there is no right or wrong answer.
If you have any doubt please contact Sarni Jain, Doctoral Research Fellow. Email Id- sarni@igu.edu.in.

D. Sentiments

Below are the five questions. Choose the relevant option for each.

S.no.	Statements			
1	**Compared to a year ago, how is your family faring financially these days?**	Worse	Same	Better
2	**Do you think that a year from now your family would be faring financially?**	Worse	Same	Better
3	**How would you describe the next 12 months' financial and business conditions in our country?**	Bad times	Uncertain times	Good times
4	**What do you think would be the next 5 years' financial and business conditions in our country be?**	Continuously bad times	Uncertain with ups and down	Continuously good time
5	**Do you think that this is generally a good or bad time to buy things like furniture, refrigerator, television, two- wheeler, car?**	Bad times	Same as other times	Good times

E. Risk Preference

Please read the exact lines carefully and tick the option which describes you the most. There is no right or wrong answer. Here, **1**-Strongly disagree, **2**- Disagree, **3**-Somewhat disagree, **4**- Neither agree nor disagree, **5**- Somewhat Agree, **6**- Agree, **7**- Strongly agree.

S.no	Statements	1	2	3	4	5	6	7
1.	**I think it is more important to have safe investments and guaranteed returns than to take a risk to have a chance to get the highest possible returns.**							
2.	**I would never consider investments in shares because I find this too risky.**							
3.	**If I think investment will be profitable, I am prepared to borrow money to make this investment.**							
4.	**I want to be certain that my investments are safe**							
5.	**I get more and more convinced that I should take greater financial risk to improve my financial position**							
6.	**I am prepared to take the risk to lose money, where there is also a chance to gain money.**							

THANK YOU

Your answers will not be revealed and there is no right or wrong answer.
If you have any doubt please contact Sarni Jain, Doctoral Research Fellow. Email Id- sarni@jgu.edu.in. 3

AUTHOR'S PROFILE

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